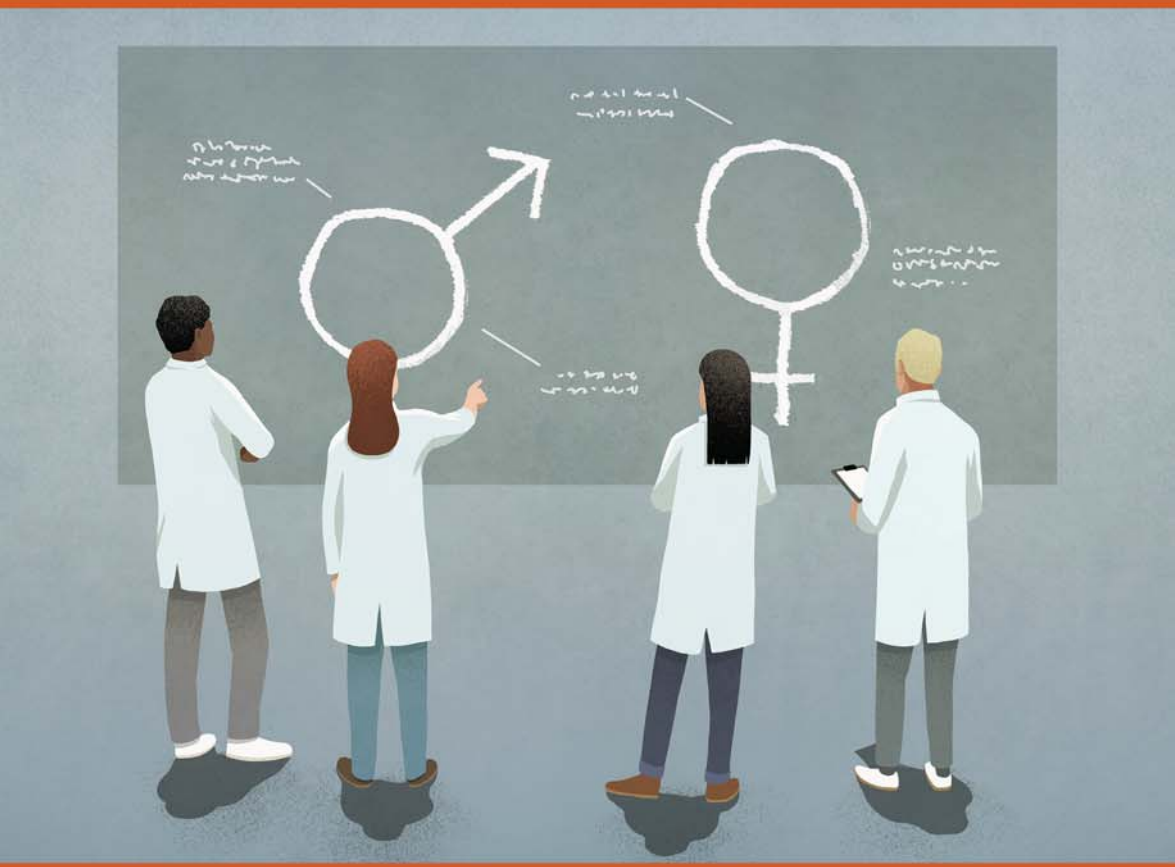
The Handbook of Sex Differences Volume III

Behavioral Variables



Lee Ellis, Craig T. Palmer, Rosemary Hopcroft, and Anthony W. Hoskin

SUPPORT MATERIAL

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The Handbook of Sex Differences Volume III

The Handbook of Sex Differences is a four-volume reference work assembled and written to assess sex differences in human traits (although findings regarding other species are also included). Based on the authors' highly influential 2008 book *Sex Differences*, these volumes highlight important new research findings from the last decade and a half alongside earlier findings. Conclusions reached by meta-analyses are also included.

In this, the work's third volume, findings from thousands of studies pertaining to behavior, broadly defined, are summarized. Traits covered include those involving personality, social behavior, criminality, work, and sex stereotypes. The eight chapters comprising Volume III are as follows:

16 Personality and Behavioral Tendencies
17 Social Behavior
18 Acquiring, Selling, and Consuming Behavior
19 Criminality, Near-Criminality, and Victimization
20 Education, Work, Social Status, and Territorial Behavior
21 Sex Stereotypes
22 Attitudes and Actions toward Others According to Their Sex
23 Ecologically Based Sex Differences

The Handbook of Sex Differences is of significant importance for any researcher, student, or professional who requires a comprehensive resource on sex differences.

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Handbook of Sex Differences

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The Handbook of Sex Differences Volume III

Behavioral Variables

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This book stands as a tribute to the thousands of scientists who have conducted a vast diversity of research on sex differences. Because of their work and the willingness of many millions of people to provide personal information about themselves, the scientific method has slowly unveiled a fascinating tapestry of findings about how males and females differ (and are sometimes the same).

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Acknowledgments and Appreciation

Throughout the course of compiling research findings for this book, we benefited from the dedicated help of various people. Especially helpful was Stephany Larkin. Under the guidance of the book's first author, over the course of several years, she tirelessly entered thousands of the citations into the appropriate tables, and also entered their corresponding references into an Endnote file.

We also wish to acknowledge that Dr. Scott Wersinger agreed in 2017 to be a contributor to this book. Unfortunately, however, he fell ill and succumbed to cancer before he was able to contribute. Finally, Dr. Petri Kajonius kindly assisted by providing several citations and references to this book.

About Volume III - Behavioral Variables

The focus of this third volume involves sex differences in behavior. Among the topics covered are those involving a wide range of personality traits and behavioral tendencies. Attention is also given to social and linguistic behaviors as well as behaviors having to do with the acquisition and consumption of material goods. Other topics covered in this volume involve education and the formation and maintenance of dominance relationships and social status. Among topics covered near the end of the volume are those pertaining to sex stereotype, responses to others based on their sex, and responses to various ecological factors.

Preface

This four-volume work provides a summary of what scientific research has discovered so far about how males and females differ, or do not differ, regarding just about any trait imaginable. Traits range from the most basic aspects of biology to a wide array of traits having to do with cognition and behavior. No boundaries were set regarding the types of traits, the age of individuals sampled, or the geographic regions in which they live. Even findings of sex differences for non-humans are included.

Volumes I through III. The first three volumes provide the foundation upon which the fourth and final volume will be built. Volume I focuses on sex differences in traits such as those involving anatomy, physiology, neurology, physical health, and responses to drugs and stress. In Volume II, attention is given to sex differences in perceptions, emotions, cognition, attitudes, and mental health. Volume III deals primarily with personality, behavior, stereotyping, social status, and ecological factors.

If one were to boil down coverage of the first three volumes even further, one could say that Volume I is concern with basic biology, Volume II pertains to cognition, and Volume III covers behavior. Nevertheless, few readers will be surprised to learn that not all variables are easily categorized as simply being biological, cognitive, or behavioral.

Volume IV. The book's fourth volume is designed to provide a summary of sex difference variables that have been frequently studied, as documented in the first three volumes. This summary is used to identify variables that appear, at least tentatively, in all human societies, variables that may eventually be considered what will be termed *universal sex differences*, or *USDs*. Not only will this fourth volume identify USD variables, but it will also attempt to explain why they would be universal in scientific terms. Attention will even be given to the possibility of religious/theological explanations.

Comprehensiveness

Despite our desire to include all findings of sex differences, we are well aware that this desire was not achievable for two reasons. First, the number of published scientific studies of sex differences is massive. If one performs a search of Google Scholar simply using either "sex difference" or "gender difference", one will get more than three million hits! Our book contains citations to approximately 40,000 published scientific documents, obviously a drop in the proverbial bucket. Nonetheless, locating and organizing 40,000 research findings into tables has been a monumental task.

The second reason this book is incomplete is that research on sex differences is ongoing. Every day, new articles and books are being added to the things scientists are learning about male-female differences. Between writing and organizing the first three volumes of this book and writing and organizing the final (fourth) volume – which serves to summarize the first three volumes – nearly a year has passed. During this time, thousands of new studies have been published, almost none of which are contained in the first three volumes.

Sex versus Gender

Before delving into the subject matter of this book, we should address the issue involving a distinction between *sex* and *gender*. In recent decades, many scientists have argued in favor of making such a distinction. When doing so, it usually involves stipulating that *sex* pertains to biological traits, while *gender* involves traits that are learned in a sociocultural context (e.g., Soldin & Mattison 2009:143; Soldin, Chung & Mattison 2011:1; Klein & Flanagan 2016:626; Thurstans, Opondo et al. 2020:1).

We consider this distinction ill-conceived for the following two reasons: First, as will be explained more at the outset of Volume 1, *biology* encompasses all aspects of life. This includes those aspects of life that are controlled by the brain, i.e., the part of the body that is central to learning. Without belaboring the issue, distinguishing between variables that are biological in nature and those that are learned is a conceptual error.

Second, distinguishing *sex differences* and *gender differences* on the basis of what *causes* these differences suffers from the fact that scientists are still trying to *determine* what causes male-female differences. In the case of most forms of behavior, for instance, learning is almost always a contributing factor, but the learning process is always the result of complex interactions between brain functioning and environmental experiences. Learning may often accentuate male-female differences, but

it can also help to minimize these differences. Ultimately, we believe that the *causes* of male-female differences can never be answered a priori. Instead, what causes sex differences can only be addressed empirically.

Others have made arguments similar to those offered here, i.e., that it is scientifically unwarranted to try to separate *biological sex differences* from *sociocultural gender differences* (Halpern & LaMay 2000:230; M Hines 2005). Throughout this book, the term *sex difference* is used as a simple way to refer to differences between males and females. As to how *males* and *females* are operationalized, the answers vary from one study to another. However, since most research involving humans relies heavily on questionnaires, it is safe to say that most of the studies cited in this book are based on self-reports, especially among samples of adolescents and adults. In studies of children or non-human animals, researchers usually base their designations of male versus female in accordance with overall bodily appearance. Only rarely are genitals or genetics examined.

Degrees of Sex Difference

Throughout this book, the focus will be on sex differences that are statistically significant to at least the .05 level (meaning that the chances of making the declaration of a sex difference erroneously is about 1 in 20). When statistical significance is not achieved, findings from these studies are cited as "No difference", meaning that whatever was found was not statistically significant.

When information is located that provides even more precise information about the degree to which the sexes appear to differ, this information is also reported. The most common indicator of the degree of sex differences in a trait is known as *effect size*, which is normally expressed as *Cohen's d*. This difference measure provides an estimate of the standard deviation separating the two means. In other words, if the effect size is 1.00, an entire standard deviation separates the average score for males from the average score for females.

To provide a basis for making comparisons, Hyde (2005) tallied the effect sizes for numerous sex differences in cognitive and behavioral traits. She concluded that roughly three-fourths of differences were .35 or lower. This means that only about one-third of a standard deviation separates the average scores of males and females. However, readers of this book will see that there are many effect sizes that appear to be considerably higher than .35. To give just a few examples, meta-analyses have reported d = .66 for mental rotation (Voyer, Voyer & Bryden 1995), d = .96 for throwing accuracy (Ashmore 1990), d = .81 for toleration of casual sex (Oliver & Hyde 1993), d = .87 for desired

number of sex partners (Buss & Schmitt 1993), d = .98 for mechanical reasoning (Finegold 1992:76), and d = .93 for interest in objects versus people (Su, Rounds & Armstrong 2009).

Identifying Relevant Studies

The single most common source used to locate and read the studies that are cited throughout this book was Google Scholar. This free online search engine allows one to enter any variable name along with the term "sex difference" (or "gender difference") and immediately get a listing of relevant hits.

Most of the located studies compare males and females from a wide range of countries (which we specifically identify). It is worth noting that the countries that are most often sampled are known as *WEIRD countries*, an abbreviation for countries that are Western, Educated, Industrialized, Rich, Democracies. Unfortunately, these are "among the least representative populations one could find for generalizing about humans" (Henrich, Heine & Norenzayan 2010:61). Recognizing this sampling bias, we made a special effort to include studies from as many non-WEIRD countries as we could find, i.e., countries located in Africa, Asia, Latin/Caribbean America, the Middle East, and Oceania.

References

Close to 50,000 findings (from a total of about 40,000 studies) are cited in this four-volume book. Because the number of studies is so large, rather than printing the pertinent references at the end of each volume, references for volumes I–III are all provided online. The references for this volume are available at the following easily accessible website: www.routledge.com/9780367434694.

Furthermore, the vast majority of citations have been made in sufficient detail that readers seeking to locate a specific reference can usually do so by going directly to a valuable website known as *Google Scholar*. There, one needs only to enter the first couple of authors' names and the date of publication into the dialogue box and the publication reference should appear (sometimes adding the phrase *sex differences* helps to narrow the search in the case of authors with common last names). If the correct reference still does not appear, one can also add the name of the variable that is cited as exhibiting a sex difference.

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16 Personality and Behavioral Tendencies

When it comes to behavior, are men from Mars and women from Venus (Conroy-Beam, Buss et al. 2015)? Of course, both sexes are in fact from planet Earth (Schofield et al. 2000:250; Zell, Krizan & Teeter 2015). Nevertheless, this type of question challenges social scientists to carefully investigate similarities and differences in how males and females (on average) behave. As this chapter will document, the available research on this matter is massive. Beginning with sex differences in personality traits, findings will show that there are many ways in which the sexes differ substantially, many ways in which they are quite similar, and still others where modest differences seem to exist.

16.1 Personality and Related Traits

It is difficult to precisely define personality other than to say that it pertains to wide-ranging behavioral traits (rather than with a specific type of behavior). Extensive research has shown that personality traits can be thought of as existing in "layers," with those at the top encompassing several of those beneath them. So how many personality traits are there at the very top? The answer appears to be five, known as the *Big Five*. These traits will be examined first.

16.1.1 The Big Five Personality Traits

Based on factor analysis, numerous studies have concluded that there are five over-arching human personality traits. They are usually identified as follows: *agreeableness*, *conscientiousness*, *extraversion*, *neuroticism*, and *openness to new experiences*. As the tables to follow will reveal, many studies of sex differences in each of these five traits have been published.

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16.1.1.1 Agreeableness

People who are agreeable are less likely to challenge or defy the will of others when compared to those who are disagreeable. Factor analysis has indicated that traits subsumed under this personality trait include kindness and desire for social harmony (Weisberg, DeYoung & Hirsh 2011). Findings from the studies of sex differences in agreeableness are presented in Table 16.1.1.1a. One can see that with some exceptions the majority of studies have concluded that females are more agreeable than males.

Three studies were located of what was termed *agreeableness* among chimpanzees and one study among elephants was found. Table 16.1.1.1b shows that they all concluded that females were more agreeable than their male counterparts.

Table 16.1.1.1b Agreeableness among non-humans

Nature of difference			*Post-pubertal*		
				Adult	
More among males					
Not significant					
More among females				**PRIMATE** *Chimpanzee*: Buirski, Plutchik & Kellerman 1978; King, Weiss & Sisco 2015; Weiss & King 2015*; Rawlings, Flynn et al. 2020:Table 2; *Orangutan*: Weiss & King 2015* **PROBOSID** *Elephant*: Yasui et al. 2013:75	

16.1.1.2 Conscientiousness

Conscientiousness refers to the tendency to be responsible, organized, and self-disciplined. Table 16.1.1.2 shows that many studies have compared the sexes regarding conscientiousness. Most of the findings point toward females being more conscientious than males, with a minority of studies indicating there were no significant differences (and one study reporting greater conscientiousness among males).

16.1.1.3 Extraversion

Extraversion (also spelled *extroversion*) has to do with people's varying tendencies to be spontaneous and outgoing, especially in social gatherings (Eysenck & Zuckerman 1978). Extraversion is usually measured by asking questions about people's preferences for being in lively social gatherings as opposed to being along or in quiet company (Francis & Pearson 1988:913).

Table 16.1.1.1a Agreeableness

Nature of difference	*Pre-pubertal*		*Post-pubertal*		*Wide age rangel*
	Infant/ toddler	*Child*	*Adolescent*	*Adult*	
More among males				**ASIA** *China*: Zheng et al. 2010 (in personality inventory) **NORTH AMERICA** *United States*: Suh et al. 2004:53* (toward romantic partners)	
Not significant	**NORTH AMERICA** *Canada*: Abramovitch et al. 1979 (toddler)	**NORTH AMERICA** *United States*: Wilkinson et al. 1985	**EUROPE** *Netherlands*: Branje et al. 2007	**AFRICA** *Burkina Faso*: Rossier et al. 2005:238* **EUROPE** *Austria*: Neubauer, Fink & Schrausser 2002:532 (N = 29M +31F, M>F) **LATIN/CARIBBEAN AMERICA** *Bolivia*: Gurven et al. 2013:Table 2 (rural, N = 326M + 306F)	**INTERNATIONAL** *Multiple Countries*: Lee & Ashton 2020 (48 countries, N = 347,192)
More among females		**NORTH AMERICA** *United States*: Docherty & Bell 1985*; Austin et al. 1987 (agreement statements); Leaper 1991 (peer interactions); Leaper et al. 1999 (peer interactions)	**ASIA** *Bangladesh*: Faisal 2019:Table 2 **EUROPE** *Italy*: Vecchione et al. 2012; *Germany*: Steinmayr & Spinath 2008:Table 1 (N = 138M + 204F); *Netherlands*: Nyhus & Pons 2005:381; Klimstra, Hale et al. 2009 (N = 1,313) **NORTH AMERICA** *Canada*: Hakstian & Cattell 1975:307; *United States*: Docherty & Bell 1985* Graziano et al.	**ASIA** *Russia*: Shchebetenko 2017:154 (N = 339M + 691F) **EUROPE** *Britain*: Woodfield et al. 2006:6 (undergrad); Nettle 2007:Table 2 (internet sample); Heineck 2011:Table 1; Rosenkranz & Charlton 2013:137 (N = 854); *Poland*: Zawadzki et al. 1995; Szarota 1996; *Sweden*: Bargeman et al. 1993:167 (twins); *Switzerland*: Rossier et al. 2005:238* **NORTH AMERICA** *Canada*: Weisberg, DeYoung & Hirsh 2011:Table 2 (d = .48); *United States*: Fishman 1978 (among married couples); Leet-Pellegrini 1980 (undergrad); Carli 1990 (undergrad); Burgoon et al. 1994 (agreeing responses to speakers); Mulac & Bradac 1995; Forbes & Adams-Curtis 2001:879 (undergrad, agreeable, conforming	**EUROPE** *Poland*: Szarota, Kosek & Borowiak 2005:Table 2 (ages 14-59, N = 1,616) **LATIN/CARIBBEAN AMERICA** *Brazil*: Flores-Mendoza & Silva de Souza Saviotti 2021 **NORTH AMERICA** *United States*: Lakoff 1973 **INTERNATIONAL** *Multiple Countries*: Soto, John et al. 2011:Figure 1 (internet sample, ages 10–65, N = 443,526M + 823,692F); Weisberg,

(*Continued*)

Table 16.1.1.1a (Continued)

Nature of difference	*Pre-pubertal*		*Post-pubertal*		*Wide age rangel*
	Infant/ toddler	*Child*	*Adolescent*	*Adult*	
			1997 (self-rated); McCrae, Terracciano et al. 2002 (among academically gifted) **INTERNATIONAL** *Multiple Countries*: De Bolle et al. 2015:178 (N = 4,850)	compliant); RD Goodwin & Gotlib 2004:138 (N = 1,269M + 1,337F); Suh et al. 2004:53* (toward same-sex friends); BP Chapman, Duberstein et al. 2007:Table 1 (ages 65-98, N = 486, d = .35); A Pearman 2009:Table 1 (middle age, N = 143M + 103F); Peterson, Geher & Kaufman 2011 (undergrad, N = 144M + 463F); R Goldsmith 2016:Table 3 **OCEANIA** *Australia*: van Eijk, Zhu et al. 2021:Supplement Table 5 (d = .62) **INTERNATIONAL** *Multiple Countries*: Costa et al. 2001:327 (25/26 countries, N = 23,031); Srivastana, John et al. 2003:Figure 1 (ages 21-60, N = 132,515); McCrae & Terracciano 2005:Table 4 (50 countries, d = .32); DP Schmitt, Realo et al. 2008:172 (47/55 countries, N = 17,637, d = .15); Lippa 2010:628 (53/53 countries, overall d = .40, internet); Kajonius & Johnson 2018:127 (internet, d = .58, N = 320,128); Mac Giolla & Kajonius 2019:5 (internet, N = 55,334M + 75,268F)	DeYoung& Hirsh, 2011:Figure 2 (ages 17–85, N = 892M + 1,751F); Vianello et al. 2013:997 (internet, N = 14,348) **OVERVIEW** *Meta-Analysis*: Lippa 2005:135 (d = .21)

Table 16.1.1.2 Conscientiousness

Nature of difference	*Pre-pubertal*		*Post-pubertal*		*Wide age rangel*
		Child	*Adolescent*	*Adult*	
More among males				**ASIA** *China*: Zheng, Lippa & Zheng 2010	
Not significant			**ASIA** *Bangladesh*: Faisal 2019:Table 2 **EUROPE** *Germany*: Steinmayr & Spinath 2008:Table 1 (N = 138M + 204F, F>M)	**AFRICA** *Burkina Faso*: Rossier et al. 2005:238* **EUROPE** *Austria*: Neubauer, Fink & Schrausser 2002:532 (N = 29M +31F, M>F); *Britain*: Woodfield et al. 2006:6 (undergrad); Nettle 2007:Table 2 (internet); *Poland*: Zawadzki et al. 1995; *Switzerland*: Rossier et al. 2005:238* **LATIN/CARIBBEAN AMERICA** *Bolivia*: Gurven et al. 2013:Table 2 (rural, N = 326M + 306F) **NORTH AMERICA** *Canada*: Weisberg, DeYoung & Hirsh 2011:Table 2 (F>M, d = .06); *United States*: Forbes & Adams-Curtis 2001:879 (undergrad); BP Chapman, Duberstein et al. 2007:Table 1 (ages 65–98, N = 486, M>F); **OCEANIA** *Australia*: van Eijk, Zhu et al. 2021:Supplement Table 5	
More among females		**EUROPE** *Italy*: Vecchione et al. 2012; *Switzerland*: Rossier et al. 2007:128 (parent rated); Quartier & Rossier 2008:583 (parent rated)	**ASIA** *Japan*: Iimura & Taku 2018 (ages 14–15, N = 310) **NORTH AMERICA** *United States*: Stefic & Lorr 1974 (N = 331M + 358F)	**EUROPE** *Britain*: Heineck 2011:Table 1; Rosenkranz & Charlton 2013:137 (N = 854); *Germany*: Scheibe et al. 2003:228 (among patients with depression, N = 139M + 246F); *Netherlands*: Nyhus & Pons 2005:381; *Poland*: Szarota 1996	**EUROPE** *Czech Republic*: Hrebickova et al. 2000; *Poland*: Szarota, Kosek & Borowiak 2005:Table 2 (ages 14-59, N = 1,616); *Multiple European Countries*: De Fruyt & Vollrath 2003 (ages 6–14)

(*Continued*)

Table 16.1.1.2 (Continued)

Nature of difference	*Pre-pubertal*		*Post-pubertal*		*Wide age rangel*
		Child	*Adolescent*	*Adult*	
		NORTH AMERICA *United States*: Hurlock 1924 **INTERNATIONAL** *Multiple Countries*: De Bolle, Fruyt et al. 2015:178 (N = 4,850)		**NORTH AMERICA** *United States*: Cartwright 1972:215 (among medical students, self-assessed); RD Goodwin & Gotlib 2004:138 (N = 1,269M + 1,337F); A Pearman 2009:Table 1 (middle age, N = 143M + 103F); R Goldsmith 2016:Table 3; Kajonius & Johnson 2018:127 (internet, N = 320,128, d = .12); Mac Giolla & Kajonius 2019 (internet, N = 55,334M + 75,268F) **INTERNATIONAL** *Multiple Countries*: Srivastana, John et al. 2003:Figure 1 (ages 21-60, N = 132,515); McCrae & Terracciano 2005:Table 4 (50 countries, d = .14); DP Schmitt, Realo et al. 2008:172 (N = 17,637, d = .12, 55 countries)	**LATIN/CARIBBEAN AMERICA** *Brazil*: Flores-Mendoza & Silva de Souza Saviotti 2021 **NORTH AMERICA** *United States*: Blaxter 1990 (providing more detailed answers to a health questionnaire) **INTERNATIONAL** *Multiple Countries*: Soto, John et al. 2011:Figure 1 (internet sample, ages 10-65, N = 443,526M + 823,692F); Vianello et al. 2013:997 (internet, N = 14,348) **OVERVIEW** *Meta-Analysis*: Lippa 2005:135 (d = .17)

Table 16.1.1.3a suggests that there are no strong tendencies for one sex to be more extraverted than the other, although when significant differences have been found in adulthood, most of them have suggested that males are more extraverted than females. The current pattern of results suggests that at least in Western countries, there may be a gradual shift from females being more extraverted among school-age children to males being slightly more so in adulthood. Oddly, two meta-analyses – one by Feingold (1994:429) and the other by Lippa (2005a:135) – both concluded that females are more extraverted than men, with the latter of these two meta-analyses estimating the effect size for the difference to be a rather small d = .19.

The inconsistencies just noted may involve the facts that (a) whatever difference does exist is likely to be small and (b) various sub-components of extraversion such as *assertiveness* and *excitement seeking* favor males while others such as *agreeableness* and *sociability* favor females (see Lippa 2005b:13–14). Obviously, the precise mix of questions that are used in a given study to measure these subcomponents of extraversion would impact the extent to which one sex is found to be more extraverted than the other.

One study assessed extraversion tendencies among chimpanzees. As shown in Table 16.1.1.3b, this study concluded that males surpassed females regarding extraversion tendencies.

16.1.1.4 Neuroticism

Neuroticism refers to being in a prolonged or frequent state of anxiety, often accompanied by at least mild depression (Skodol & Bender 2003:357). It is often measured using questions that are part of broad personality inventories (e.g., the Eysenck Personality Inventory) and has been identified by factor analysis as one of the Big Five personality traits (Costa et al. 2001).

Findings regarding sex differences in average scores on neuroticism measures are summarized in Table 16.1.1.4a. One can see that most studies have found neuroticism to be more prevalent among females than males, although several studies have failed to identify any significant difference.

A couple of studies were located that assessed a trait considered equivalent to human neuroticism. One study assessed this trait in two species of apes. As one can see by viewing Table 16.1.1.4b, the study concluded that, among chimpanzees, males appeared to be more neurotic while among orangutans, females were judged to be more so. The study involving domestic dogs concluded that there were no significant sex differences.

Table 16.1.1.3a Extraversion

Nature of difference	*Pre-pubertal*		*Post-pubertal*		*Wide age rangel*
		Child	*Adolescent*	*Adult*	
More among males		**NORTH AMERICA** *United States*: Marston 1925	**EUROPE** *Netherlands*: Branje et al. 2007	**ASIA** *South Korea*: Mok, Choi et al. 2014:Table 1 (undergrad) **EUROPE** *Britain*: HJ Eysenck 1958; SBG Eysenck 1960:53; Sanderman et al. 1991*; SBG Eysenck et al. 1993* (undergrad); Nettle 2007:Table 2 (internet); Heineck 2011:Table 1; *Netherlands*: Sanderman et al. 1991*; Austin et al. 2002:1119 (undergrad) **LATIN/CARIBBEAN AMERICA** *Bolivia*: Gurven et al. 2013:Table 2 (rural, N = 326M + 306F) **NORTH AMERICA** *Canada*: SB Eysenck et al. 1993* (undergrad); *United States*: Conklin 1927; Miles & Terman 1929; Whitman 1929; CKA Wang 1932; Bernreuter 1933; Stagner 1933; Stagner 1936; St Clair & Seegers 1937; Middleton 1941; Skaggs 1942 (undergrad); Costa & McCrae 1988 **INTERNATIONAL** *Multiple Countries*: Lynn & Martin 1997* (30/37 countries); Vianello et al. 2013 (N = 5,022M + 9,326F)	
Not significant		**ASIA** *Russia*: Knyazev & Wilson 2004:48 (Eysenck scale)	**ASIA** *Taiwan*: H Chen, Chen et al. 2010:478 (N = 31,734) **EUROPE** *Britain*: Costello & Brachman 1962* (high school) **NORTH AMERICA** *Canada*: Costello & Brachman 1962* (high school) **OCEANIA** *Australia*: Luciano, Leisser et al. 2004:Table 1 (ages 15-18, N = 1,068, twins)	**AFRICA** *Burkina Faso*: Rossier et al. 2005:238* **ASIA** *China*: Zheng, Lippa & Zheng 2010 **EUROPE** *Britain*: M Willmott & Brierley 1984 (Eysenck scale); Woodfield et al. 2006:6 (undergrad); Rosenkranz & Charlton 2013:137 (N = 854); *Germany*: Scheibe et al. 2003:228 (among depression patients, N = 139M + 246F); *Spain*: Aluja et al. 2003:456 (undergrad); *Sweden*: Klinteberg et al. 1987:692 (young); *Switzerland*: Rossier et al. 2005:238* **NORTH AMERICA** *Canada*: JDA Parker et al. 1989:601 (undergrad); *United States*: Heidbreder 1927 (undergrad); Broom 1929 (young); Stagner 1932 (undergrad); C Evans & McConnell 1941; BP Chapman, Duberstein et al. 2007:Table 1 (ages 65-98, N = 486, M>F); A Pearman 2009:Table 1 (middle age, N = 143M + 103F, F>M); R Goldsmith 2016:Table 3; Kajonius & Johnson 2018:127 (N = 320,128, d = .01) **INTERNATIONAL** *Multiple Countries*: Lynn & Martin 1997* (7/37 countries); Lippa 2010:627; Aluja, Rossier et al. 2020:Figure 1* (averages for 18 countries, ages 31-45 and elderly)	

More among females		**EUROPE** *Britain*: HJ Eysenck 1994:203	**ASIA** *Bangladesh*: Faisal 2019:Table 2 **EUROPE** *Britain*: G Penny 2014:Table 6.1 (ages 13-15, N = 5,199; *Germany*: Steinmayr & Spinath 2008:Table 1 (N = 138M + 204F) **NORTH AMERICA** *United States*: HJ Walberg 1969:49; McCrae et al. 2002 **INTERNATIONAL** *Multiple Countries*: Allik et al. 2004; De Bolle et al. 2015:178 (N = 4,850)	**ASIA** *Japan*: Kawamoto, Oshio et al. 2015 (ages 23-79, N = 4,588); *Russia*: Shchebetenko 2017:154 (undergrad, N = 339M + 691F) **EUROPE** *Austria*: Neubauer, Fink & Schrausser 2002:532 (N = 29M +31F); *Poland*: Zawadzki et al. 1995 **NORTH AMERICA** *Canada*: Weisberg, DeYoung & Hirsh 2011:Table 2 (d = .08); *United States*: Derlega et al. 1993 (in conversations); Forbes & Adams-Curtis 2001:879 (undergrad); Goodwin & Gotlib 2004:138 (N = 1,269M + 1,337F) **OCEANIA** *Australia*: van Eijk, Zhu et al. 2021:Supplement Table 5 (d = .49) **INTERNATIONAL** *Multiple Countries*: Srivastana, John et al. 2003:Figure 1 (ages 21-60, N = 132,515); McCrae & Terracciano 2005:Table 4 (50 countries, d = .15); DP Schmitt, Realo et al. 2008:172 (55 countries, N = 17,637, d = .11); Lippa 2010:619 (internet); Kajonius & Johnson 2018:127 (internet, N = 127,695M + 192,433F); Mac Giolla & Kajonius 2019:5 (internet, N = 55,334M + 75,268F); Aluja, Rossier et al. 2020:Figure 1* (averages for 18 countries, ages 18-30 & 46-60)	**LATIN/ CARIBBEAN AMERICA** *Brazil*: Flores-Mendoza & Silva de Souza Saviotti 2021 **INTERNATIONAL** *Multiple Countries*: Soto, John et al. 2011:Figure 1 (internet sample, ages 10-65, N = 443,526M + 823,692F); Weisberg, DeYoung & Hirsh, 2011:Figure 2 (ages 17-85, N = 892M + 1,751F); Vianello et al. 2013:997 (internet, N = 14,348) **OVERVIEW** *Meta-Analyses*: Feingold 1994:429; Lippa 2005a:135 (d = .19)

Table 16.1.1.3b Extraversion among non-humans

Nature of difference			*Post-pubertal*		
				Adult	
More among males				**PRIMATE** *Chimpanzee*: Rawlings, Flynn et al. 2020:Table 2	
Not significant					
More among females					

16.1.1.5 Openness (Openness to New Experiences)

Openness to new experiences is the last of the Big Five personality traits. Sometimes simply referred to as *openness*, this trait has been found related to emotional experiences, intellectual curiosity, and creativity. Table 16.1.1.5a shows that the findings regarding sex differences in this trait have been quite mixed. Some of the inconsistencies may be due to sex differences regarding the specific *types* of experiences subjects are willing or eager to experience. Specifically, whereas males seem to be more receptive to new intellectual experiences, females seem to desire new emotional and aesthetic experiences (De Bolle et al. 2015).

Openness to new experiences was assessed in one study of chimpanzees. Table 16.1.1.5b shows that it found no significant sex difference in this particular personality trait.

16.2.1.6 Intra-Sex Variability in the Big Five Personality Traits

Research has sometimes reported on within-sex variability in one or more of the Big Five traits. As shown in Table 16.1.2.6, most findings have indicated that males are more varied in each of the Big Five personality traits except for neuroticism, for which no significant sex difference was found.

16.2.1 Prosocial Personality and Behavioral Traits

Personality traits are those having to do with broad-ranging aspects of an individual's behavior and temperament. Without making sharp distinctions between personality traits and what might be simply called *behavioral tendencies*, the tables below pertain to studies of sex differences in personality traits besides those identified as the Big Five. Thus, even though numerous studies agree that there are five *overarching* personality traits exist, many other personality traits have been studied.

Table 16.1.1.4a Neuroticism

Nature of difference	*Pre-pubertal*		*Post-pubertal*		*Wide age rangel*
		Child	*Adolescent*	*Adult*	
Greater among males					
Not significant		**EUROPE** *Britain*: Eysenck & Eysenck 1975*	**ASIA** *Bangladesh*: Faisal 2019:Table 2 (F>M) **NORTH AMERICA** *United States*: Terman et al. 1925 (young) **INTERNATIONAL** *Multiple Countries*: De Bolle et al. 2015 (before age 14, N = 4,850)	**ASIA** *Japan*: Kawamoto, Oshio et al. 2015* (ages 23-79, N = 4,588, older adults) **EUROPE** *Austria*: Neubauer, Fink & Schrausser 2002:532 (N = 29M +31F, M>F); *Britain*: M Willmott & Brierley 1984 (Eysenck scale); DA Clark et al. 1987:7 (young); *Germany*: Scheibe et al. 2003:230 (N = 139M + 246F) **LATIN/CARIBBEAN AMERICA** *Bolivia*: Gurven et al. 2013:Table 2 (rural, N = 326M + 306F) **NORTH AMERICA** *Canada*: JD Parker et al. 1989:601 (young); *United States*: Bothwell & Scott 1997 (among depressed patients); A Pearman 2009:Table 1 (middle age, N = 143M + 103F, F>M) **INTERNATIONAL** *Multiple Countries*: Lippa 2010b:630* (1/53 countries)	**NORTH AMERICA** *United States*: F Brown 1934 (ages 9–14) **OVERVIEW** *Literature Review*: McCrae, Terracciano et al. 2005* (1/50 countries)
Greater among females		**ASIA** *Russia*: Knyazev & Wilson 2004:48 (Eysenck scale) **EUROPE** *Britain*: SB Eysenck et al. 1994:203	**ASIA** *India*: Donat et al. 2014:Table 1* **EUROPE** *Britain*: Costello & Brachman 1962* (high school); Eysenck & Eysenck 1975*; LJ Francis et al. 1995:622; G Penny 2014:Table 6.1 (ages 13-15, N = 5,199); *Germany*: Donat et al. 2014:Table 1*	**AFRICA** *Burkina Faso*: Rossier et al. 2005:238* **ASIA** *Japan*: Kawamoto, Oshio et al. 2015* (ages 23-79, N = 4,588, younger adults); *Russia*: Shchebetenko 2017:154 (N = 339M + 691F); *South Korea*: Mok, Choi et al. 2014:Table 1 (undergrad) **EUROPE** *Belgium*: Claes et al. 2006 (among psychiatric patients, scores on psycho-neuroticism scale); *Britain*: HJ Eysenck 1958; SBG Eysenck 1960:52; Sanderman et al. 1991*; SB Eysenck et al. 1993* (young adult); Faith et al. 2001; Austin et al. 2002:1119 (undergrad); Nettle 2007:Table 2 (internet); Heineck 2011:Table 1; Rosenkranz & Charlton 2013:137 (N = 854); *Germany*: Steinmayr & Spinath 2008:Table 1 (N = 138M + 204F); Lautenbacher & Neyse 2020:Table 2 (N = 1,52M + 1,794F, d = .51); *Netherlands*: Sanderman et al. 1991*; Nyhus & Pons 2005:381; *Spain*: Aluja et al.	**LATIN/ CARIBBEAN AMERICA** *Brazil*: Flores-Mendoza & Silva de Souza Saviotti 2021 **INTERNATIONAL** *Multiple Countries*: Soto, John et al. 2011:Figure 1 (internet sample, ages 10-65, N = 443,526M +

(*Continued*)

Table 16.1.1.4a (Continued)

Nature of difference	*Pre-pubertal*		*Post-pubertal*		*Wide age rangel*
		Child	*Adolescent*	*Adult*	
			NORTH AMERICA *Canada*: Costello & Brachman 1962* (high school); LaTorre et al. 1983 (N = 510); *United States*: Bernreuter 1933; HD Carter 1935 (twins); Remmers et al. 1938; HM Bell 1939; PA Brown 1939 (blind & sighted); Trumbull 1953; McKee & Sheriffs 1957; Hanna et al. 1965 (N = 1,154M + 804F, d = .30); McCrae et al. 2002 (among academically gifted students, N = 521M + 249F) **OCEANIA** *Australia*: O'Shea et al. 2002; Luciano, Leisser et al. 2004:Table 1 (ages 15–18, N = 1,068, twins) **INTERNATIONAL** *Multiple Countries*: De Bolle et al. 2015:178 (after age 14, N = 4,850)	2003:456 (undergrad); *Switzerland*: Rossier et al. 2005:238* **NORTH AMERICA** *Canada*: SB Eysenck et al. 1993* (young); Weisberg, DeYoung & Hirsh 2011:Table 2 (d = .39); *United States*: Casson 1930; Thurstone & Thurstone 1930; Stagner 1932; CKA Wang 1932; Bernreuter 1933; Stratton 1934; Willoughby 1934 (married couples); St. Clair & Seegers 1937; Crook 1937; P Eisenberg 1941; Middleton 1941; Lepley 1942 (undergrad); Skaggs 1942 (undergrad); Tubbs 1942; M Shepherd & Gruenberg 1957; Kessel & Shepherd 1962; Rosenkrantz et al. 1968; Jardine et al. 1984; Corbitt & Widiger 1995; SA Nolan et al. 1998:499 (undergrad, N = 135); Roberts, Gilboa & Gotlib 1998:416; Carter, Joyce et al. 1999; Forbes & Adams-Curtis 2001:879 (undergrad); Fanous et al. 2002 (twins, diagnosed); Shevlin et al. 2002; RD Goodwin & Gotlib 2004:138 (N = 1269M + 1337F); Wupperman & Neumann 2006:194 (undergrad, N = 589); BP Chapman, Duberstein et al. 2007:Table 1 (ages 65-98, N = 486, d = .52); Peterson, Geher & Kaufman 2011 (undergrad, N = 144M + 463F); Kajonius & Johnson 2018:127 (N = 320,128, d = .40); Kerry & Murray 2018 (undergrad) **OCEANIA** *Australia*: PK Jonason, Koehn et al. 2018; van Eijk, Zhu et al. 2021:Supplement Table 5 (d = .74) **INTERNATIONAL** *Multiple Countries*: Katz & McGuffin 1987; R Lynn & Martin 1997:370 (37/37 countries); Costa et al. 2001:327 (25/26 countries, N = 23,031); Srivastana, John et al. 2003:Figure 1 (ages 21-60, N = 132,515); McCrae & Terracciano 2005:Table 4 (50 countries, d = .49); Lippa 2008:182; DP Schmitt, Realo et al. 2008:172 (53/55 countries, N = 17,637, d = .40); Lippa 2010b:630* (52/53 countries, d = .34, internet sample); Vianello et al. 2013:997 (internet, N = 14,348); Mac Giolla & Kajonius 2019:5 (internet, N = 55,334M + 75,268F, 22 countries); Aluja, Rossier et al. 2020:Figure 1* (averages for 18 countries, ages 18-elderly)	823,692F); Weisberg, DeYoung& Hirsh, 2011:Figure 2 (ages 17-85, N = 892M + 1,751F); De Bolle, Fruyt et al. 2015 **OVERVIEW** *Literature Review*: Jorm 1987b; McCrae, Terracciano et al. 2005* (49/50 countries); *Meta-Analysis*: JA Hall 1984 (14 studies); Feingold 1994 (d = .28); Costa et al. 2001; Lippa 2005:135 (d = .48);

Table 16.1.1.4b Neuroticism among non-humans

Nature of difference			*Post-pubertal*		*Wide age rangel*
				Adult	
More among males				**PRIMATE** *Chimpanzee*: A Weiss & King 2015:Table 8* (N = 174)	
Not significant					**CANINE** *Domestic Dog*: Konno, Inoue-Murayama & Hasegawa 2011:Table 3
More among females				**PRIMATE** *Orangutan*: A Weiss & King 2015:Table 8* (N = 202)	

In this sub-section, the Big Five are set aside in order to focus on sex differences in personality and behavioral traits that are prosocial in nature (or are usually judged favorably by others). After sex differences in these traits have been assessed, findings involving personality and behavior traits that tend to be anti-social in nature (or are usually judged unfavorably by others) are examined. Thereafter, a number of other categories of personality and behavioral traits are given attention.

16.1.2.1 Prosocial Behavior in General

The concept of *prosocial behavior* is broad ranging. It includes taking actions such as going out of one's way to be helpful to others, being kind and considerate, comforting someone in distress, sharing, and donating to charity. Studies pertaining to these specific acts are presented in this book under their own specific table. Also, prosocial behavior is closely related to the concept of altruism or altruistic behavior, a concept also specifically covered in a separate table.

In Table 16.1.2.1, attention is focused on prosocial behavior in fairly general terms. Also, findings from experimental studies in which research participants are given opportunities to behave in prosocial ways are covered. From this table, one can see that the evidence for any sex differences in prosocial behavior is quite mixed, with most of the research suggesting that there are no significant differences.

16.1.2.2 Affectionate

A couple of studies were located having to do with sex differences in being affectionate. One can see in Table 16.1.2.2 that both studies indicated that females reported that they considered themselves more affectionate than did males.

Table 16.1.1.5a Openness (openness to new experiences)

Nature of difference			*Post-pubertal*		*Wide age rangel*
			Adolescent	*Adult*	
More among males			**EUROPE** *Netherlands*: Branje et al. 2007 (open to new experiences) **INTERNATIONAL** *Multiple Countries*: De Bolle et al. 2015:178* (N = 4,850)	**ASIA** *Japan*: Kawamoto, Oshio et al. 2015 (ages 23-79, N = 4,588) **EUROPE** *Britain*: Heineck 2011:Table 1 **LATIN/CARIBBEAN AMERICA** *Bolivia*: Gurven et al. 2013:Table 2 (rural, N = 326M + 306F) **NORTH AMERICA** *United States*: ET Fitzgerald 1966* (undergrad, N = 143, openness to new internal experiences); RD Goodwin & Gotlib 2004:138; Del Giudice, Booth, Irving 2012:Tables 1 & 2 (openness to change, N = 5,124M + 5,137F) **INTERNATIONAL** *Multiple Countries*: Costa et al. 2001:327* (openness to ideas, N = 23,031); Srivastana, John et al. 2003:Figure 1 (ages 21-60, N = 132,515); De Bolle et al. 2015:181* (N = 6,128)	**INTERNATIONAL** *Multiple Countries*: Soto, John et al. 2011:Figure 1 (internet sample, ages 10–65, N = 443,526M + 823,692F) **OVERVIEW** *Meta-Analysis*: Lippa 2005:135 (open to new experiences, d = .20)
Not significant			**ASIA** *Bangladesh*: Faisal 2019:Table 2 *Multiple Countries*: De Bolle et al. 2015:178* (openness to fantasy in general, N = 4,850)	**EUROPE** *Austria*: Neubauer, Fink & Schrausser 2002:532 (N = 29M +31F, M>F); *Britain*: Nettle 2007:Table 2 (internet sample); Rosenkranz & Charlton 2013:137 (N = 854) **NORTH AMERICA** *United States*: Forbes & Adams-Curtis 2001:879 (undergrad); BP Chapman, Duberstein et al. 2007:Table 1 (ages 65-98, N = 486, F>M); A Pearman 2009:Table 1 (middle age, N = 143M + 103F, M>F); R Goldsmith 2016:Table 3	**LATIN/CARIBBEAN AMERICA** *Brazil*: Flores-Mendoza & Silva de Souza Saviotti 2021 (F>M)
More among females			**EUROPE** *Germany*: Steinmayr & Spinath 2008:Table 1 (N = 138M + 204F); *Italy*: Vecchione et al. 2012 **NORTH AMERICA** *United States*: Costa, McCrae & Martin 2008 (open to new experiences, ages 12-13, N = 449) **INTERNATIONAL** *Multiple Countries*: De Bolle et al. 2015:178* (openness to aesthetics and feelings, N = 4,850)	**ASIA** *Russia*: Shchebetenko 2017:154 (openness in general, N = 339M + 691F) **NORTH AMERICA** *Canada*: Weisberg, DeYoung & Hirsh 2011:Table 2 (openness, ages 17-85, N = 892M + 1,751F, d = .27); *United States*: ET Fitzgerald 1966* (undergrad, N = 143, openness to new external experiences); Barrett, Robin et al. 1998:565 (openness to feelings, undergrad, N = 28M + 42F); Del Giudice et al. 2012:Table 1 & 2 (open to change, representative sample, N = 5,124M + 5,137F); Kajonius & Johnson 2018:127 (N = 127,695M + 192,433F) **OCEANIA** *Australia*: van Eijk, Zhu et al. 2021:Supplement Table 5 (d = .66) **INTERNATIONAL** *Multiple Countries*: R Katz & McGuffin 1987; Costa et al. 2001:327* (openness to feelings, N = 23,031); McCrae & Terracciano 2005:Table 4 (50 countries, d = .07); De Bolle et al. 2015:181* (openness to fantasy, to feelings, and to aesthetics, N = 6,128); Mac Giolla & Kajonius 2019:5 (openness in general, internet sample, N = 55,334M + 75,268F)	**INTERNATIONAL** *Multiple Countries*: De Bolle, Fruyt et al. 2015 (open to new experiences, adolescents & adults)

Table 16.1.1.5b Openness (openness to new experiences) among non-humans

Nature of difference				*Post-pubertal*	
				Adult	
More among males					
Not significant				**PRIMATE** *Chimpanzee*: Rawlings, Flynn et al. 2020:Table 2	
More among females					

Table 16.1.2.6 Overall intra-sex variability in the big five personality traits

Nature of difference			*Post-pubertal*		
				Adult	
More among males				**INTERNATIONAL** *Multiple Countries*: Lippa 2010:628 (agreeableness, internet sample); Barkenau et al. 2013* (agreeableness, conscientiousness, extraversion, & openness)	
Not significant				**INTERNATIONAL** *Multiple Countries*: Barkenau et al. 2013* (neuroticism)	
More among females					

Table 16.1.2.1 Prosocial behavior in general

Nature of difference	*Pre-pubertal*		*Post-pubertal*		*Wide age rangel*
		Child	*Adolescent*	*Adult*	
More among males			**NORTH AMERICA** *United States*: McMahon et al. 2006 (prosocial behavior, among blacks)		
Not significant			**ASIA** *China*: Ma et al. 1996; Ma et al. 2001; Ma 2005		**OVERVIEW** *Literature Reviews*: Radke-Yarrow, Zahn Waxler & Chapman 1983 (equivocal); Moore & Eisenberg 1984 (equivocal); *Meta-Analysis*: Eagly & Crowley 1986; Fabes & Eisenberg 1998* (adolescents & adults)

(*Continued*)

Table 16.1.2.1 (Continued)

Nature of difference	*Pre-pubertal*		*Post-pubertal*		*Wide age rangel*
		Child	*Adolescent*	*Adult*	
More among females		**NORTH AMERICA** *United States*: Porath 1998 (teacher ratings); Cote et al. 2002 (ages 6-12)	**NORTH AMERICA** *United States*: Fabes et al. 1999 (early)	**NORTH AMERICA** *United States*: Lento-Zwolinski 2007:413 (undergrad, N = 61M + 221F, self-report) **INTERNATIONAL** *Multiple Countries*: Falk & Hermle 2018 (76 countries)	**OVERVIEW** *Meta-Analysis*: Fabes & Eisenberg 1998* (children)

Table 16.1.2.2 Affectionate

Nature of difference			*Post-pubertal*		
				Adult	
More among males					
Not significant					
More among females				**NORTH AMERICA** *United States*: Cartwright 1972:215 (medical students, self-assessed); Mansson & Myers 2011 (undergrad, express more affection, on Facebook)	

16.1.2.3 Apologetic Behavior/Remorsefulness

One study was found regarding sex differences in tendencies to apologize for one's actions. Table 16.1.2.3 shows that this study found such behavior to be more prevalent among females.

Table 16.1.2.3 Apologetic behavior/remorsefulness

Nature of difference			*Post-pubertal*		
				Adult	
More among males					
Not significant					
More among females				**NORTH AMERICA** *United States*: Gonzales et al. 1990 (after thinking they had caused damage)	

16.1.2.4 Charitableness

Using a variety of methods, a few studies have sought to compare males and females regarding their tendencies to be charitable. Table 16.1.2.4 shows that the findings are mixed.

Table 16.1.2.4 Charitableness

Nature of difference			*Post-pubertal*		
				Adult	
More among males				**EUROPE** *Finland*: Myyry & Helkama 2001:35 (benevolent) **NORTH AMERICA** *United States*: Sell & Wilson 1991 (contribute to society, experimental study); Brown-Kruse & Hummels 1993 (contribute to society, experimental study); Andreoni & Vesterlund 2001* (when the cost is low); Solow & Kirkwood 2002 (public good experiment)	
Not significant				**NORTH AMERICA** *Canada*: Cadsby & Maynes 1998 (experimental study); *United States*: Sell et al. 1993 (social dilemma experiment); Solow & Kirkwood 2002 (experimental study); Andreoni & Petrie 2008 (experimental study)	
More among females				**NORTH AMERICA** *United States*: Thiessen & Ross 1990:302 (undergrad); Bolton & Katok 1995 (experimental study); Seguino et al. 1996 (contribute to society, experimental study); JD Marx 2000 (especially to charities providing human services); Andreoni & Vesterlund 2001* (especially when the cost is high); Andreoni et al. 2003 (among unmarried persons); PM Rooney et al. 2005 (especially among unmarried persons); DK Israel 2007 (environmental protection charities) **OVERVIEW** *Literature Review*: Piliavin & Charng 1990	

16.1.2.5 Compassion

Compassion refers to the tendency to feel pity and concern for those who suffer misfortunes. Three studies were located pertaining to possible sex differences in the tendency to be compassionate. Table 16.1.2.5 shows that two studies found this trait more pronounced among females, while the other study indicated that there was no significant sex difference.

Table 16.1.2.5 Compassion

Nature of difference			*Post-pubertal*		
				Adult	
More among males					
Not significant				**EUROPE** *Slovakia*: Kusa 2002:355 (self-rated)	
More among females				**NORTH AMERICA** *Canada*: Weisberg, DeYoung & Hirsh 2011:Table 2 (ages 17-85, N = 892M + 1,751F, d = .23); Salazar 2016:Table 2 (undergrad, N = 613)	

16.1.2.6 Cooperative Behavior

Cooperative behavior refers to the tendency to work with others, rather than against them, in order to obtain some objective. Most research concerning such behavior has involved challenging subjects with a game in which they have the option of either cooperating or competing with another person in order to win points or monetary rewards. An especially common game is known as the *prisoner's dilemma game* (*PDG*) experiment, a game widely used to assess whether individuals will cooperate for a modest reward or compete for a potentially greater payoff.

Results of studies on sex differences in cooperative behavior are summarized in three tables, one for Pre-pubertal humans, one for Post-pubertal humans, and the other for non-humans. Regarding Pre-pubertal humans, the evidence presented in Table 16.1.2.6a shows that findings have been mixed between those indicating that females are more cooperative than males and ones suggesting that there are no significant sex differences.

Table 16.1.2.6a Cooperative behavior before puberty

Nature of difference	*Pre-pubertal*	
	Infant/toddler	*Child*
More among males		
Not significant		**LATIN/CARIBBEAN AMERICA** *Mexico*: S Kagan & Madsen 1972* **NORTH AMERICA** *United States*: Sampson & Kardush 1965* (ages 9–11, PDG experiment); Harford & Cutter 1966* (whites); S Kagan & Madsen 1972*; Crockenberg et al. 1976; W Furman & Buhrmester 1985 (older); CJ Patterson et al. 1990 (self-reports) **OVERVIEW** *Literature Review*: Maccoby & Jacklin 1974:353
More among females	**NORTH AMERICA** *United States*: Minton et al. 1971 (toddler)	**NORTH AMERICA** *United States*: Hartshorne et al. 1929; Vinacke & Gullickson 1964*; Sampson & Kardush 1965* (ages 7–8, PDG experiment); Harford & Cutter 1966* (blacks); Tedeschi et al. 1968 (PDG experiment with some verbal communication); McClintock & Moskowitz 1976; Owens & Stratton 1980 (school projects); Pepitone 1980; DiPietro 1981 (turn-taking); Owens & Barnes 1982 (school projects); Pallas et al. 1990 (self-described); A Sheldon 1990 (in conversations with peers); JG Parker & Asher 1993 (self-reports); Bukowski et al. 1994 (older, self-reports); Mantzicopoulos 2004 (self-described); AJ Rose & Asher 2004 (ages 10–11, N = 511)

By examining Table 16.1.2.6b, one can see that a massive number of studies have been published on sex differences in cooperative behavior among adolescents and especially adults. Most of these are experimental in nature, especially involving PDG experiments or similar designs. Many of the studies have same sex game "opponents," while others have mixed sex "opponents" (very few had opposite sex "opponents"). One can see that the findings have been quite mixed regarding any sex difference in cooperative behavior.

Just one study was located pertaining to sex differences in cooperative behavior among non-humans. As shown in Table 16.1.2.6c, it indicated that among a troop of chimpanzees, same-sex cooperation was more common among males than among females.

16.1.2.7 Egalitarianism

Egalitarianism refers to the tendency to treat everyone equally (as opposed to treating people differently depending on factors such as sex, race, or social status). Studies undertaken to determine if sex differences exist in egalitarian tendencies or preferences are summarized in Table 16.1.2.7. One can see that most studies have found females to be significantly more egalitarian than males.

16.1.2.8 Enthusiasm/Liveliness

A few studies were located having to do with sex differences in tendencies to be enthusiastic and lively. By examining Table 16.1.2.8, one can see that the findings have been inconsistent.

16.1.2.9 Follow Social Cues

Most people rather instinctually look wherever other people happen to be looking. According to one experiment, cited in Table 16.1.2.9, this tendency is greater among females than among males. Inspiration for this research came from noting that persons with autism (which many more males have) rarely pay attention to visual social cues exhibited by others.

16.1.2.10 Gregariousness (Friendliness)

Gregariousness and friendliness usually refer to the tendency to behave in pleasant ways toward others. Table 16.1.2.10a shows that this tendency has been shown by numerous studies to be more characteristic of females than of males. Two exceptions were reported, one among children, and the other among adults.

Table 16.1.2.6b Cooperative behavior after puberty

Nature of difference	*Post-pubertal*		*Wide age rangel*
	Adolescent	*Adult*	
More among males		**AFRICA** *Kenya*: Greig & Bohnet 2009 (public good experiment, mixed sex) **ASIA** *Japan*: Yamagishi et al. 2007 (PDG experiment) **EUROPE** *Britain*: CL Hardy & van Vugt 2006 (public good experiment, mixed sex); *Netherlands*: Van Vugt et al. 2007 (undergrad, experimental game) **MIDDLE EAST** *Israel*: Ruffle & Sosis 2007 (N = 212) **NORTH AMERICA** *Canada*: Carment 1974 (experiment, same sex, N = 66); *United States*: Bixenstine et al. 1964 (PDG experiment, same sex, N = 64); Komorita 1965 (undergrad, experimental game); Oskamp & Perlaman 1965 (PDG experiment, same sex, N = 32); Rapoport & Chammah 1965 (undergrad, PDG experiment, same sex opponents, N = 140); Rapoport, Chammah, & Chammah 1965 (PDG experiment); Bixenstine & O'Reilly 1966 (PDG experiment, same sex, N = 64); Crowne 1966 (PDG experiment, same sex, N = 34); Evans & Crumbaugh 1966 (same sex, PDG experiment); Shomer et al. 1966 (same sex); Pruitt 1967 (experiment, same sex, N = 100); Sermat 1967 (undergrad, PDG experiment, N = 112M + 112F); PS Gallo et al. 1969 (PDG experiment, same sex); Oskamp & Kleinke 1970 (PDG experiment, same sex); A Kahn et al. 1971 (PDG experiment); D Mack et al. 1971 (PDG experiment); Marwell et al. 1971 (same sex, experiment); DC Speer 1972 (PDG experiment, mixed sex, N = 60); Hottes & Kahn 1974 (PDG experiment, same sex); Skotko et al. 1974 (PDG experiment, same sex, N = 134); Granberg & Stevens 1975 (same sex, experiment, N = 96); Van Egeren 1979 (PDG experiment, same sex); Meeker 1984 (PDG experiment, same sex, N = 18); J Sell & Wilson 1991 (public good experiment, mixed sex); Brown-Kruse & Hummels 1993 (public good experiment, same sex, N = 64); Kurzban & Houser 2001 (public good experiment, mixed sex); Solow & Kirkwood 2002 (public good experiment, mixed sex); ER Smith et al. 2003 (public good experiment, mixed sex); Kennelly & Fantino 2007	**OVERVIEW** *Meta-Analysis*: Balliet et al. 2011* (males were slightly more cooperative in same-sex experiments, d = .16)
Not significant	**NORTH AMERICA** *United States*: EE Sampson & Kardush 1965* (experimental game); Sibley et al. 1968* (blacks, experimental task); Sharabany et al. 1981 (self-reports)	**ASIA** *Japan*: Yamagishi 1986 (public good experiment, same sex); Ando 1999 (mixed sex, experiment); DA Small & Loewenstein 2005 (PDG experiment, mixed sex); Yamagishi et al. 2005* (PDG experiment); Shinada & Yamagishi 2007 (PDG experiment, mixed sex) **EUROPE** *Belgium*: Millet & Dewitte 2007 (public good experiment, mixed sex, N = 173); *Britain*: Petrides & Furnham 2000:454 (working as a team, self-rated); K Clark & Sefton 2001 (undergrad, mixed sex, PD, N = 120); Ames, Majolo et al. 2006 (PDG experiment, N = 20); D Farrelly et al. 2007 (mixed sex, PDG experiment); Hopthrow et al. 2007 (PDG experiment, mixed sex); *Germany*: Ortmann & Tichy 1999* (in second found of PDG experiment); *Netherlands*: Poppe & Utens 1986 (mixed sex, experiment, N = 94); Wit & Wilke 1992 (mixed sex, experiment); Wit & Wilke 1998; Van Lange 1999 PDG experiment, mixed sex); De Cremer & Van Dijk 2009 (mixed sex); *Sweden*:	**OVERVIEW** *Meta-Analysis*: Balliet et al. 2011* (d = .05, F>M)

		Eek & Biel 2008 (mixed sex, public good dilemma experiment, N = 68) **NORTH AMERICA** *Canada*: MJ Grant & Sermat 1969 (mixed sex, experiment, N = 48); C Reich & Purbhoo 1975 (PDG experiment, mixed sex, N = 57; Engle et al. 1992 (mixed sex, PD game, N = 134); *United States*: Lutzker 1961 (undergrad, experimental game, N = 40); Bixenstine & Wilson 1963 (undergrad, PD game, N = 80); McClintock et al. 1965 (same sex, N = 36); G Evans & Crumbaugh 1966 (undergrad, experimental game); Fry 1967 (experimental game); Komorita & Mechling 1967 (PDG experiment, same sex, N = 64); McKeown et al. 1967 (mixed sex experiment); RR Miller 1967 (same sex experiment); Aranoff & Tedeschi 1968 (same sex PDG experiment, N = 216); Dolbur et al. 1969 (mixed sex, PDG experiment); PW Gallo et al. 1969 (PDG experiment); Horai & Tedeschi 1969 (PDG experiment, same sex); Kershenbaum & Komorita 1970 (PDG experiment, same sex, N = 96); Swingle 1970 (experiment, same sex, N = 60); Bixenstine & Garebelein 1971 (PDG experiment, same sex, N = 64); A Kahn et al. 1971 (PDG experiment, sam sex); Voissem & Sistrunk 1971 (PDG experiment, same sex, N = 96); TE Black & Higbee 1973 (same-sex experiment); AH Patterson & Boles 1974 (PDG experiment, mixed sex, N = 72); Hamberger et al. 1975 (PDG experiment, same sex); Horai & Tedeschi 1975 (PDG experiment, mixed sex); Kuhlman & Marshello 1975 (PDG experiment, same sex); MD Caldwell 1976 (5-person PDG experiment); Dawes et al. 1977 (commons dilemma experiment); Hartman 1980 (PDG experiment, same sex); GP Knight 1980 (PDG experiment, mixed sex); Murnigham & Roth 1983 (PDG experiment, mix sex); RM Kramer & Brewer 1984 (resource taking experiment, mixed sex); McCallum et al. 1985 (mixed sex, N = 82); Lindskold et al. 1986 (PDG experiment, same sex); Insko et al. 1987 (mixed sex); Eleishman 1988 (same sex, public good experiment, N = 170); McClintock et al. 1988 (PDG experiment, mixed sex); CD Batson et al. 1995 (experiment); Kiesler et al. 1996 (PD game, N = 86); Orbell et al. 1996 (experimental game); KM Sheldon 1999 (PDG experiment, mixed sex, N = 90); KM Sheldon & McGregor 2000 (PDG experiment); F Baker & Rachlin 2001 (PDG experiment, N = 48; JW Jackson 2001 (public good experiment, mixed sex, N = 200); Wit & Kerr 2002; Sanna et al. 2003 (mixed sex experiment); B Simpson & Macy 2004 (mixed sex experiment, N = 114); Insko et al. 2005 (same sex experiment); Poppe 2005 (public good experiment, mixed sex, N = 91); JW Jackson 2008 (public good experiment, mixed sex, N = 66); Willer 2009 (public good experiment, mixed sex); Charness & Rustichini 2010 (same-sex, PDG experiment, N = 160) **OCEANIA** *Australia*: Yamagishi et al. 2005* (PDG experiment)	
More among females	**NORTH AMERICA** *United States*: Vinacke & Gullickson 1964*; EE Sampson & Kardush 1965*; SA	**ASIA** *Japan*: Oda 1997 (PDG experiment, mixed sex); Takahashi et al. 2006 (PDG experiment, mixed sex); Mitani & Flores 2007 (public good experiment, mixed sex); Yamagishi & Mifune 2009 (PDG experiment, same sex); *Taiwan*: Hu & Liu 2003 (PDG experiment, mixed sex) **EUROPE** *Belgium*: NcNeel et al. 1972 (experiment, same sex); *Britain*: D Mack et al. 1979 (PDG experiment); Iredale et al. 2008 (public good experiment, N = 30); *Germany*: Ortmann & Tichy 1999* (in first round of PDG experiment); *Netherlands*: Liebrand 1984 (multiple motive game	**NORTH AMERICA** *United States*: Gannon et al. 1971; Pucel et al. 1971; Ahlgren & Johnson

(*Continued*)

Table 16.1.2.6b (Continued)

Nature of difference	*Post-pubertal*		*Wide age rangel*
	Adolescent	*Adult*	
	Sibley et al. 1968* (whites, experimental task); Ahlgren & Johnson 1979; Lempers & Clark-Lempers 1993 (young, self-reports); Underwood et al. 1994 (in same-sex problem-solving task)	experiment, mixed sex); LB Mulder 2008 (PDG experiment); LB Mulder et al. 2009 (public good experiment); Belot et al. 2010 (experiment, same sex); Oberholzer-Gee et al. 2010 (mixed sex, experiment); *Switzerland*: Kummerli et al. 2007 (PDG experiment, mixed sex) **NORTH AMERICA** *Canada*: JS Gillis & Woods 1971 (PDG experiment, N = 98); GH Miller & Pyke 1973 (experiment, mixed sex); J Fox & Guyer 1978 (PDG experiment, same sex, N = 80); J Stockard et al. 1988 (public good experiment, mixed sex); Cadsby & Maynes 1998 (public good experiment, same sex, N = 220); T James et al. 2001 (PDG experiment, mixed sex, N = 33); Cadsby et al. 2007 (public good experiment); *United States*: Vinacke 1959 (3-person experimental gam); Vinacke & Gullickson 1964* (young); M Grant & Sermat 1967 (experimental game); Kanouse & Wiest 1967 (public good experiment, mixed sex); Aranoff & Tedeschi 1968 (PDG experiment); BM Jones et al. 1968 (PDG experiment); Sibley et al. 1968 (PDG experiment, same sex); Tedeschi et al. 1968 (PDG experiment, mixed sex); R Fisher & Smith 1969 (PDG experiment, same sex, N = 120); Tedeschi et al. 1969 (PDG experiment, mixed sex); Orwant & Orwant 1970 (PDG experiment, mixed sex); Tedeschi et al. 1970 (PDG experiment, mixed sex); Bonacich 1972 (experiment, mixed sex); Cartwright 1972:215 (medical students, self-assessed); Meux 1973 (experimental game); GH Miller & Pyke 1973 (experimental games); Vinache et al. 1974 (PDG experiment, same sex, N = 144); NS Smith et al. 1975 (PDG experiment, mixed sex); WM Becker & Miles 1978 (experiment, mixed sex); Kerr & MacCoun 1985 (large group tasks); Garza & Borchert 1990 (public good experiment, mixed sex, N = 84); CF Mason et al. 1991 (mixed sex, experiment, N = 82); RH Frank et al. 1993 (financial PDG experiment, mixed sex); Corfman & Lehmann 1994 (PDG experiment); Nowell & Tinkler 1994 (public good experiment, same sex); Orbell et al. 1994 (PDG experiment, mixed sex); Seguino et al. 1996 (public good experiment, mixed sex); Hemesath & Pomponio 1998 (PDG experiment, mixed sex); Ortmann & Tichy 1999 (PDG experiment, although the degree diminishes with trials and is affected by sex of the opponent, N = 96); Taenzer et al. 2000:672 (completed voluntary survey); McCabe 2004:64 (respond to survey questionnaires, both mail & web-based); WC Campbell et al. 2005 (resource experiment, mixed sex, N = 232); PM Rooney et al. 2005 (public good experiment); Kortenkamp & Moore 2006 (mixed sex); JA List 2006 (PDG experiment, mixed sex, N = 134); Kamas et al. 2008 (public good experiment, mixed sex, N = 162); Swope et al. 2008 (PDG experiment, N = 48); Kajonius & Johnson 2018:127 (d = .33, N = 320,128)	1979:47 (2nd–12th graders, N = 2,400); Deal 2000:719 (group decision making) **OVERVIEW** *Meta-Analysis*: Balliet et al. 2011* females were more cooperative in mixed-sex experiments, d = .22)

Table 16.1.2.6c Cooperative behavior among non-humans

Nature of difference				*Post-pubertal*	
				Adult	
More among males				**PRIMATE** *Chimpanzee*: IC Gilby & Wrangham 2008 (same sex)	
Not significant					
More among females					

Table 16.1.2.7 Egalitarianism

Nature of difference			*Post-pubertal*	
				Adult
More among males				
Not significant				**EUROPE** *Britain*: ME Price, Kang et al. 2011:638 (undergrad, N = 56M + 62F, F>M)
More among females				**NORTH AMERICA** *United States*: Beere, King et al. 1984 (undergrad, N = 367); Larsen & Long 1988; LA King & King 1990 (undergrad, N = 608)

Table 16.1.2.8 Enthusiasm/liveliness

Nature of difference			*Post-pubertal*		*Wide age rangel*
			Adolescent	*Adult*	
More among males			**NORTH AMERICA** *Canada*: Hakstian & Cattell 1975:307	**EUROPE** *Poland*: Szarota 1996 (dynamism)	**EUROPE** *Poland*: Szarota et al. 2005:87 (dynamism)
Not significant					
More among females				**NORTH AMERICA** *Canada*: Weisberg, DeYoung & Hirsh 2011:Table 2 (ages 17-85, N = 892M + 1,751F, d = .23); *United States*: Cartwright 1972:215 (medical students, self-assessed); Del Giudice et al. 2012:Tables 1 & 2 (liveliness, representative sample, N = 5,124M + 5,137F)	

Table 16.1.2.9 Follow social cues

Nature of difference				*Post-pubertal*	
				Adult	
More among males					
Not significant					
More among females				**EUROPE** *Wales*: Bayliss, Pellegrinor & Tipper 2005 (both directional gaze and arrow pointing)	

A few studies of gregariousness among non-human primates were found in which human observers rated sex differences in this trait. As shown in Table 16.1.2.10b, conclusions vary, with some indicating that males are more gregarious while others reported no significant sex differences, and one study suggesting that females were more gregarious.

16.1.2.11 Kindness (or Benevolence) Toward Others

People vary in the extent to which they are kind toward others or consider benevolence to be a valuable personal trait. As shown in Table 16.1.2.11, all the available evidence indicates that females exhibit such behavior to a greater degree than males.

16.1.2.12 Modesty

Substantial research has compared the sexes regarding their tendencies to exhibit modesty of various forms. As one can see in Table 16.1.2.12, all research indicated that females are more likely to be modest than are males.

16.1.2.13 Obedience (Compliant Behavior)

As shown in Table 16.1.2.13, a great deal of research has assessed males and females regarding their tendencies to be obedient, such as to parents, teachers, or law enforcement. The findings have been somewhat mixed although most findings point toward females being more obedient or compliant than males.

16.1.2.14 Organizational Commitment and Loyalty

Using various assessment methods, several studies have investigated sex differences in tendencies to be committed and loyal to organizations to which they belong. One can see in Table 16.1.2.14 that the majority of studies have concluded that such behavior is more common among females than males.

Table 16.1.2.10a Gregariousness (friendliness)

Nature of difference	*Pre-pubertal*		*Post-pubertal*		*Wide age rangel*
		Child	*Adolescent*	*Adult*	
More among males		**NORTH AMERICA** *United States*: Benenson, Stella & Ferranti 2015 (3-6 year-olds)			
Not significant				**NORTH AMERICA** *Canada*: CL Martin 1987:492 (self-report)	
More among females		**NORTH AMERICA** *Canada*: Pagani et al. 2001:306; *United States*: JD Walters et al. 1957; RN Walker 1962	**NORTH AMERICA** *Canada*: Hakstian & Cattell 1975:307; *United States*: Monge 1973 (self-report)	**EUROPE** *Poland*: Oniszczenko et al. 2014:66 (sociable, N = 551M + 351F) **NORTH AMERICA** *United States*: Vinacke 1959 (harmony-maintaining social behavior in an experimental game); Bond & Vinacke 1961 (harmony-maintaining social behavior); Uesugi & Vinacke 1963 (harmony-maintaining social behavior in an experimental game); Senn 1967 (harmony-maintaining social behavior); Leventhal & Lane 1970 (harmony-maintaining social behavior in an experimental game); Cartwright 1972:215 (medical students, self-assessed); A Kahn et al. 1980 (harmony-maintaining social behavior in an experimental game); LR Anderson & Blanchard 1982 (young); Gadzella & Williamson 1984 (self-report, young); Stake 1992 (self-report, undergrad); Barrett, Robin et al. 1998:565 (self-described pleasantness toward others, undergrad, N = 28M + 42F); Kajonius & Johnson 2018:127 (N = 320,128, d = .07) **INTERNATIONAL** *Multiple Countries*: Costa et al. 2001 (sociable); McCrae & Terracciano 2005:Table 4 (50 countries, self-rated and observer rated); Schmitt et al. 2008; Lippa 2010; De Bolle et al. 2015:178* (N = 4,850); Kajonius & Mac Giolla 2017:Table 3 (22 countries, N = 130,602)	**EUROPE** *Italy*: Tomada & Schneider 1997 **NORTH AMERICA** *United States*: Cattell et al. 1970; Rafaeli 1989 (among store clerks) **INTERNATIONAL** *Multiple Countries*: De Bolle et al. 2015:181* (N = 6,128) **OVERVIEW** *Meta-Analysis*: Feingold 1998:263

Table 16.1.2.10b Gregariousness among non-humans

Nature of difference	*Pre-pubertal*		*Post-pubertal*	*Wide age rangel*
	Infant/toddler		*Adult*	
More among males	**PRIMATE** *Chimpanzee*: Lonsdorf, Anderson et al. 2014 (N = 20)		**PRIMATE** *Chimpanzee*: Murray, Mane & Pusey 2007	
Not significant			**PRIMATE** *Chimpanzee*: Weiss & King 2015:Table 8* (N = 109); *Orangutan*: Weiss & King 2015:Table 8* (N = 131)	
More among females				**PRIMATE** *Lemur*: SL Meredith 2018:Table 2

Table 16.1.2.11 Kindness (or benevolence) toward others

Nature of difference	*Pre-pubertal*	*Post-pubertal*	*Wide age rangel*
	Child	*Adult*	
More among males			
Not significant			
More among females	**EUROPE** *Switzerland*: Rossier et al. 2007:128 (parental rating)	**EUROPE** *Multiple European Countries*: Schwartz & Rubel-Lifschitz 2009:177 (benevolence, undergrad, 25 countries, d = .36) **NORTH AMERICA** *United States*: JT Spence & Buckner 2000:50 (self-rated)	**EUROPE** *Multiple European Countries*: De Fruyt & Vollrath 2003 (ages 6-14, benevolence, parental ratings)

16.1.2.15 Patience

Patience has to do with people's willingness to wait their turn or to be understanding when things are being delayed. As one can see by examining Table 16.1.2.15, all the available research has indicated that females are more patient than males.

Table 16.1.2.12 Modesty

Nature of difference			*Post-pubertal*		
			Adolescent	*Adult*	
More among males					
Not significant					
More among females			**INTERNATIONAL** *Multiple Countries*: De Bolle et al. 2015:178* (N = 4,850)	**AFRICA** *Burkina Faso*: Rossier et al. 2005:238* **EUROPE** *Switzerland*: Rossier et al. 2005:238* **NORTH AMERICA** *United States*: Kajonius & Johnson 2018:127 (N = 320,128, d = .45) **INTERNATIONAL** *Multiple Countries*: McCrae & Terracciano 2005:Table 4 (50 countries, self-rated and observer rated); De Bolle et al. 2015:181* (N = 6,128); Kajonius & Mac Giolla 2017:Table 3 (22 countries, N = 130,602)	

16.1.2.16 Politeness/Considerateness

Substantial amounts of research have sought to determine if males or females are more polite or considerate of others. As shown in Table 16.1.2.16, these inquiries have all determined that females surpass males regarding these behavioral tendencies.

16.1.2.17 Resolving Interpersonal Disputes

In one study, researchers assessed the ability of males and females to resolve disputes that they have with others in an amicable fashion. Table 16.1.2.17 shows that the study concluded that females did so to a greater degree than did males.

16.1.2.18 Submissiveness

Submissiveness refers to the tendency to comply with requests and orders from others even if one is doubtful of the merits of the requests or orders. As one can see in Table 16.1.2.18a, all the available studies have concluded that females are more submissive than males.

Two studies of submissiveness among non-humans were found. Table 16.1.2.18b shows that they both indicated that females were more submissive than males among two species of primates.

Table 16.1.2.13 Obedience (compliant behavior)

Nature of difference	*Pre-pubertal*		*Post-pubertal*		*Wide age rangel*
	Infant/toddler	*Child*	*Adolescent*	*Adult*	
More among males		**NORTH AMERICA** *United States*: Keasey 1971 (in a resisting temptation experiment, age 11, N = 155)			
Not significant		**EUROPE** *Switzerland*: Rossier et al. 2007:128 (parent rated) **NORTH AMERICA** *United States*: Biaggio & Rodrigues 1971 (age 7, N = 39; Hartig & Kanfer 1973 (ages 3-7, N = 261); Rosenkoetter 1973 (ages 3-7, N = 48); GS Goodman et al. 1994; Cassel & Bjorkland 1995	**INTERNATIONAL** *Multiple Countries*: De Bolle et al. 2015:178* (N = 4,850)	**INTERNATIONAL** *Multiple Countries*: De Bolle et al. 2015:181* (N = 6,128)	
More among females	**NORTH AMERICA** *United States*: Minton et al. 1971; P Smith & Daglish 1977; M Lewis et al. 1989 (age 3, N = 33); Kochanska et al. 1996 (toddler, impulse control, N = 103)	**ASIA** *China*: Kyratzis & Guo 1996*; *Taiwan*: Wu & Smith 1997 (self-rated) **EUROPE** *France*: Granie 2007 (pedestrian safety rules) **NORTH AMERICA** *Canada*: Morrongiello & Dawber 1998 (with requests by adults); *United States*: Douvan 1960:205 (towards parents); RD Parke 1967 (in a resisting temptation experiment, N = 80); F Pederson & Bell 1970; Slaby & Parke 1971 (ages 5-8, in a resisting temptation experiment, N = 132); Stouwie 1971 (complying with adult orders & requests); Stouwie 1972 (age 8, complying with adult orders & requests, N = 112); JH Block & Block 1980 (complying with adult orders & requests); Kuczynski et al. 1987; Pallas et al. 1990 (self-report); Kyratzis & Guo 1996*; Yagil 2000; DA Cole et al. 2001 (teacher rated); Mantzicopoulos 2004 (self-report); Rosenbloom et al. 2004 (pedestrian safety rules) **OVERVIEW** *Literature Review*: Maccoby & Jacklin 1974:354	**NORTH AMERICA** *Canada*: Bosacki 2003 (self-rated); *United States*: MA Gibson 1991 (children of immigrants); Lightman 1998 (waiting for & following instructions when dealing with an unfamiliar computer)	**EUROPE** *Austria*: Kastlunger et al. 2010 (comply with tax laws, experimental design) **LATIN/CARIBBEAN AMERICA** *Chile*: M Diez 2002 (pedestrian safety rules) **NORTH AMERICA** *United States*: Sashkin & Maier 1971 (when involved in leadership training); E Beck et al. 1974 (with physician's advice); Konecni et al. 1976 (stopping at yellow traffic lights, direct observation); Luthar et al. 1996:182 (obey rules, among opiate addicts, retrospective accounts of childhood); LF Barrett, Robin et al. 1998:565 (self-assess, undergrad, N = 28M + 42F)	**OCEANIA** *New Zealand*: BD Jamieson 1977 (yield right-of-way when appropriate) **OVERVIEW** *Meta-Analysis*: Basow 1992:103 (d = .20); Gentile et al. 2009:39 (d = .17)

Table 16.1.2.14 Organizational commitment and loyalty

Nature of difference				*Post-pubertal*	*Wide age rangel*
				Adult	
More among males					
Not significant				**NORTH AMERICA** *United States*: Chelte & Tausky 1986; Mottaz 1988; Aryee & Hung 1990; Marsden et al. 1993 (among full-time workers)	
More among females				**ASIA** *Japan*: JR Lincoln & Kalleberg 1985*; JR Lincoln & Kalleberg 1996* **EUROPE** *Norway*: Kalleberg & Mastekaasa 1994* **NORTH AMERICA** *United States*: Cartwright 1972:215 (medical students, self-assessed); JR Lincoln & Kalleberg 1985*; Loscocco 1990 (blue-collar workers); Masden et al. 1993; Kalleberg & Mastekaasa 1994*; JR Lincoln & Kalleberg 1996*; Lee & Peccei 2007 **INTERNATIONAL** *Multiple Countries*: Hult & Svallfors 2002	**OVERVIEW** *Meta-Analysis*: Mathieu & Zajac 1990, Aven et al. 1993

Table 16.1.2.15 Patience

Nature of difference				*Post-pubertal*	
				Adult	
More among males					
Not significant					
More among females				**NORTH AMERICA** *United States*: Doob & Gross 1968 (in traffic); LK Cartwright 1972 (young, medical students); Ebbesen & Haney 1973 (in traffic); Leff & Gunn 1973 (while driving); RE Hagen 1975 (in traffic) **INTERNATIONAL** *Multiple Countries*: Falk & Hermle 2018 (76 countries)	

16.1.2.19 Tactfulness

Tactfulness refers to the ability to interact with others in ways that are not offensive or intimidating. As one can see in Table 16.1.2.19, just one study of sex differences in tactfulness was located, and it concluded that there were no significant differences.

16.1.2.20 Tender Mindedness

Tender mindedness refers to the tendency to be attentive to and concerned about the well-being of others; it is closely related to the concepts of

Table 16.1.2.16 Politeness/considerateness

Nature of difference	*Pre-pubertal*		*Post-pubertal*		
	Infant/toddler	*Child*	*Adolescent*	*Adult*	
More among males					
Not significant					
More among females	**NORTH AMERICA** *United States*: Berne 1930 (toddler)	**NORTH AMERICA** *United States*: R Carlson 1971; Pallas et al. 1990 (self-report); Sadker & Sadker 1994; KA Martin 1998:501; Mantzicopoulos 2004 (self-report)	**MIDDLE EAST** *Israel*: Karniol et al. 1998 **NORTH AMERICA** *United States*: Cartwright 1972:215 (meekness, medical students, self-assessed); Rosenberg & Simmons 1975 (pleasing others); SI Woodruff et al. 1997:165; Sussman & Tyson 2000* (email)	**ASIA** *Japan*: Hill et al. 1986 **NORTH AMERICA** *Canada*: Weisberg, DeYoung & Hirsh 2011:Table 2 (ages 17-85, N = 892M + 1,751F, d = .36); *United States*: R Carlson 1971 (self-report); Eakins & Eakins 1976 (being supportive in mixed sex conversations); Bellinger & Gleason 1982 (parents of young children); Baxter 1984 (young); Sussman & Tyson 2000* (email); Skoe et al. 2002:306 (undergrad)	

Table 16.1.2.17 Resolving interpersonal disputes

Nature of difference			*Post-pubertal*		
More among males					
Not significant					
More among females			**NORTH AMERICA** *United States*: LO Murphy & Ross 1987		

empathy and *sympathy*. Findings on sex differences in tender mindedness are summarized in Table 16.1.2.20. It shows that most studies have concluded that females exhibit tender minded tendencies to a greater degree than do males.

Table 16.1.2.18a Submissiveness

Nature of difference	*Pre-pubertal*		*Post-pubertal*		
		Child	*Adolescent*	*Adult*	
More among males					
Not significant					
More among females		**NORTH AMERICA** *United States*: Chaplin et al. 2005:83 (submissive gestures, N = 60)	**NORTH AMERICA** *United States*: Stefic & Lorr 1974 (N = 331M + 358F)	**NORTH AMERICA** *United States*: Cartwright 1972:215 (meekness, medical students, self-assessed); G Vall et al. 2015:Supplement 1	

Table 16.1.2.18b Submissiveness among non-humans

Nature of difference					*Wide age rangel*
More among males					
Not significant					
More among females					**PRIMATE** *Assamese Macaque*: MA Cooper & Bernstein 2002; *Spider Monkey*: LM Fedigan & Baxter 1984:Table 1

Table 16.1.2.19 Tactfulness

Nature of difference			*Post-pubertal*		
				Adult	
More among males					
Not significant				**NORTH AMERICA** *Canada*: CL Martin 1987:492 (self-rated)	
More among females					

16.1.2.21 Trusting Others

Several studies have sought to determine if there are sex differences in tendencies to trust others. As shown in Table 16.1.2.21, the findings have been mixed, with only a slight tendency for females to surpass males in

Table 16.1.2.20 Tender mindedness

Nature of difference			*Post-pubertal*		*Wide age rangel*
			Adolescent	*Adult*	
More among males					
Not significant				**EUROPE** *Slovakia*: Kusa 2002:355 (undergrad, self-rated gentle and tender)	
More among females			**NORTH AMERICA** *Canada*: Hakstian & Cattell 1975:307; *United States*: Stefic & Lorr 1974 (N = 331M + 358F)	**INTERNATIONAL** *Multiple Countries*: McCrae & Terracciano 2005:Table 4 (50 countries, self-rated and observer rated)	**OVERVIEW** *Meta-Analysis*: Feingold 1994:429 (d = .97)

Table 16.1.2.21 Trusting others

Nature of difference			*Post-pubertal*		
			Adolescent	*Adult*	
More among males				**NORTH AMERICA** *United States*: Snijders & Keren 2001 (experimental games); Leigh 2006; Chaudhuri & Gangadharan 2007 (experimental games); Buchan et al. 2008 (investment game experiment); EJ Lee & Schumann 2009 (regardless of the sex of others); Del Giudice et al. 2012:Table 1 & 2 (personality measure, representative sample, N = 5,124M + 5,137F); Wu, Hall et al. 2020:Figure 2 (N = 22M + 22F)	
Not significant				**NORTH AMERICA** *United States*: Kajonius & Johnson 2018:127 (N = 320,128, d = .02)	
More among females			**INTERNATIONAL** *Multiple Countries*: De Bolle et al. 2015:178* (N = 4,850)	**EUROPE** *Britain*: Glaeser et al. 2000 **NORTH AMERICA** *United States*: O Patterson 1999; DM Siegel et al. 1999:340 (of the other sex, regarding sexual matters, undergrad) **OCEANIA** *New Zealand*: Moffit et al. 2001:128 (trusting of others) **INTERNATIONAL** *Multiple Countries*: McCrae & Terracciano 2005:Table 4 (50 countries, self-rated and observer rated); De Bolle et al. 2015:181* (N = 6,128); Falk & Hermle 2018 (76 countries)	

this regard. At least some of the inconsistencies are likely to be the result of different ways the *trusting others* variable has been measured. For example, in experimental games, males appear to be more likely to behave in ways indicative of trusting one's gaming partner, but in surveys where self-ratings are provided, the results have been mixed.

16.1.3 Anti-Social Personality and Behavior Traits

Personality traits that most people consider offensive or at least somewhat undesirable will be given consideration in the following sub-section. Note that the traits to be considered here do not include what is known as the *anti-social personality syndrome*, which is a form of mental disorder specifically addressed in Chapter 14.

16.1.3.1 Acting Out

Individuals who exhibit temper tantrums when frustrated, especially in social circumstances, are said to be *acting out*. To measure this variable, researchers usually use questionnaire data or interviews with parents or teachers. Table 16.1.3.1 shows that all available studies have indicated that acting out is more common among males than females.

Table 16.1.3.1 Acting out

Nature of difference	*Pre-pubertal*		*Post-pubertal*		
		Child	*Adolescent*	*Adult*	
More among males		**NORTH AMERICA** *Canada*: S Wilkinson et al. 1995 (disruptive in school); *United States*: Zunich 1964 (in response to failure); Serbin et al. 1973 (teacher ratings); Heatherington 1985 (acting out, among children of divorced parents); Shaywitz et al. 1990 (disruptive in school); GJ Duncan et al. 1994:305; Bussing et al. 1998 (disruptive in school) **OCEANIA** *New Zealand*: Fergusson & Horwood 1997 (disruptive in school); Prochnow et al. 2001:232 (disruptive in school)	**NORTH AMERICA** *United States*: Weinstein & Geisel 1960 (young)	**NORTH AMERICA** *Canada*: Benson & Fuchs 1999 (among persons who have mental retardation)	
Not significant					
More among females					

16.1.3.2 Aggressive Personality

While having an aggressive personality cannot be entirely separated from tendencies to exhibit actual aggression (to be examined separately later in this chapter), an aggressive personality basically involves being unusually combative and prone to "pick fights" when challenged. Table 16.1.3.2a provides a review of studies on the tendency to have an aggressive personality. One can see that all but a single study (which reported no significant difference) have concluded that males have more aggressive personalities on average than do females.

Table 16.1.3.2a Aggressive personality

Nature of difference	*Pre-pubertal*		*Post-pubertal*		*Wide age rangel*
		Child	*Adolescent*	*Adult*	
More among males		**EUROPE** *Sweden*: Tuvblad et al. 2005:219 (twins, child behavior checklist) **NORTH AMERICA** *United States*: Lyons & Serbin 1986 (ratings by undergrad student observers); Eisenberg et al. 1995:1377 (aggressive coping, parent reports); DL Clay et al. 1996* (parental reports); Ostrov & Crick 2007 (at school)	**NORTH AMERICA** *United States*: Everett & Price 1995 (peer reports); DL Clay et al. 1996* (parental reports)	**EUROPE** *Britain*: Rushton et al. 1986 (twins); P Smith et al. 2006:392 (self-rated) **NORTH AMERICA** *Canada*: CL Martin 1987:492 (self-report); JA Harris et al. 1996 (undergrad, self-rated); *United States*: Lagerspetz et al. 1988 (older adults, socially aggressive); AH Buss & Perry 1992 (self-report)	**EUROPE** *Finland*: Kokko & Pulkkinen 2005 **NORTH AMERICA** *United States*: Huesmann et al. 1984 **INTERNATIONAL** *Multiple Countries*: PL Walker 2001 (historic & prehistoric data)
Not significant					**EUROPE** *Finland*: Pulkkinen & Pitkanen 1993 (peer-rated)
More among females					

One study was located in which sex differences in general tendencies to be aggressive were assessed for a breed of domestic dog. Table 16.1.3.2b shows that the study found no significant sex difference.

Table 16.1.3.2b Aggressive personality

Nature of difference					*Wide age rangel*
More among males					
Not significant					**CANINE** *Domestic Dog*: Konno, Inoue-Murayama & Hasegawa 2011:Table 3
More among females					

16.1.3.3 Argumentative

People who are argumentative often seem to look for opportunities to dispute whatever other people may assert to be correct. Table 16.1.3.3 shows that the one located study on sex differences in argumentativeness concluded that males exhibit this tendency more that do females.

Table 16.1.3.3 Argumentative

Nature of difference			*Post-pubertal*		
				Adult	
More among males				**NORTH AMERICA** *United States*: Cartwright 1972:215 (medical students, self-assessed)	
Not significant					
More among females					

16.1.3.4 Attention Seeking (Attention-Getting) Behavior

Attention-seeking (attention-getting) behavior includes a variety of joking, clowning, and "showing off" activities that cause others to laugh or otherwise pay either favorable or unfavorable attention to the individual engaging in the behavior. Table 16.1.3.4 shows that males engage in such behavior more than do females.

16.1.3.5 Authoritarianism

Authoritarianism is a tendency to justify one's beliefs and actions with reference to an authority figure (e.g., an individual's parents, teachers, governmental leaders, or God). Table 16.1.3.5 shows that both of the two available studies of sex differences in authoritarianism indicated that it is a tendency that is more characteristic of females than of males.

Table 16.1.3.4 Attention-seeking (attention-getting) behavior

Nature of difference	*Pre-pubertal*				*Wide age rangel*
		Child			
More among males		**INTERNATIONAL** *Multiple Countries*: Castell & Goldstein 1977			**NORTH AMERICA** *United States*: AJ Chapman et al. 1980
Not significant					
More among females					

Table 16.1.3.5 Authoritarianism

Nature of difference			*Post-pubertal*		
				Adult	
More among males					
Not significant					
More among females				**NORTH AMERICA** *United States*: Kelman & Barclay 1963 (undergrad); TL Good et al. 1973 (teachers in secondary school)	

16.1.3.6 Callous-Unemotionality

Some people exhibit strong tendencies to be cruel and sadistic toward others accompanied by little or no remorse. Such tendencies have come to be known as *callousness* or *callous-unemotionality*. As shown in Table 16.1.3.6, all the research findings on callous-unemotionality have indicated that males exhibit these tendencies to a greater degree than do females.

Table 16.1.3.6 Callous-unemotionality

Nature of difference	*Pre-pubertal*		*Post-pubertal*		
		Child	*Adolescent*	*Adult*	
More among males		**EUROPE** *Britain*: Blanchard & Lyons 2010; *Germany*: Essau et al. 2006:Table 3 (children, callous-unemotionality) **NORTH AMERICA** *United States*: Frick,	**MIDDLE EAST** *Cyprus*: Fanti et al. 2009:289 (adolescent, callous-unemotionality) **NORTH AMERICA** *United States*: BR	**NORTH AMERICA** *United States*: G Vall et al. 2015:Supplement 1; Kavish, Boisvert et al. 2019:222 (undergrad); Jonason et al. 2017:181	

(*Continued*)

Table 16.1.3.6 (Continued)

Nature of difference	*Pre-pubertal*		*Post-pubertal*		
		Child	*Adolescent*	*Adult*	
		Stickle et al. 2005:474 (children, callous-unemotionality)	Loney et al. 2006 (callous-unemotional)	(undergrad, being sadistic)	
Not significant					
More among females					

16.1.3.7 Defensive Behavior

A few studies of male-female differences in defensive behavior were located. Table 16.1.3.7 shows that, with the exception of a couple of studies reporting no significant sex differences, research has indicated that males are more likely to behave defensively when challenged by someone with whom they are interacting than is the case for females under the same circumstances.

Table 16.1.3.7 Defensive behavior

Nature of difference	*Pre-pubertal*		*Post-pubertal*		
		Child		*Adult*	
More among males		**NORTH AMERICA** *United States*: KT Hill & Sarason 1966 (when challenged); DC Gilbert 1969 (when challenged); Brody et al. 1985 (when challenged)		**NORTH AMERICA** *United States*: Croxton & Klonsky 1982 (self-defensive when they fail at a sporting contest)	
Not significant		**NORTH AMERICA** *United States*: Rothenberg 1970; JD Douglas & Rice 1979			
More among females					

16.1.3.8 Defiance/Rebellious/Disobedient toward Authority

Studies of sex differences in the display of defiance, rebelliousness, and disobedience toward authority are summarized in Table 16.1.3.8. While many studies have found no significant sex differences, especially among children, when differences are found, Table 16.1.3.8 shows that males exhibit such behavior toward persons in authority (such as parents and teachers) more than do females.

Table 16.1.3.8 Defiance/rebellious/disobedient toward authority

Nature of difference	*Pre-pubertal*		*Post-pubertal*		
	Infant/toddler	*Child*	*Adolescent*	*Adult*	
More among males	**NORTH AMERICA** *Canada*: Silverman & Ippolito 1995 (toddler, when tempted, touching forbidden objects); Silverman & Ippolito 1997 (toddler, when tempted, touching forbidden objects); Silverman & Ragusa 1990 (toddler, when tempted, touching forbidden objects); *United States*: Berne 1930 (toddler, toward parents); Minton et al. 1971 (toddler, toward parents); Londerville & Main 1981 (toddler, touching forbidden objects); Snow et al. 1983 (toddler, toward parents); Schneider-Rosen & Wenz-Gross 1990 (toddler, when tempted, playing with forbidden objects); Kochanska & Aksan 1995 (toddler, touching forbidden toy); Kochanska et al. 1996 (toddler, various measures); Kochanska 1997 (toddler, touching objects instead of working on assignment); Kochanska et al. 1998 (toddler, various measures); Kochanska et al. 2000 (various measures)	**NORTH AMERICA** *Canada*: Kuczynski & Kochanska 1990 (ages 2-5); *United States*: Goodenough 1928; Goodenough 1929; Caille 1933; Sheehy 1938; H Koch 1955; JS Hatfield et al. 1967:376* (one-tailed significance test); RP Walsh 1967 (touching forbidden toy); WD Ward & Furchak 1968 (touching forbidden toy); Stouwie 1971 (playing with forbidden toys); LaVoie 1973 (play with forbidden objects); Rosenkoetter 1973 (when tempted, looking at a forbidden movie); Kanfer & Zich 1974 (when tempted, looking at un-allowed objects); Fry & Preston 1979 (when tempted, touching a forbidden toy); RG Simmons & Blyth 1987 (toward parents); SL Olson 1989 (touching forbidden objects); Kawakami & Takai 1995 (when tempted, looking at un-allowed toys); Polak & Harris 1999 (ages 2-6, looking inside forbidden toy box)	**NORTH AMERICA** *United States*: HD Williams 1933 (in school); Tuma & Livson 1960; Douvan & Adelson 1966 (toward parents); J Coleman 1974:129; Langbehn et al. 1998:824 (N = 88M + 87F, adoptees)	**EUROPE** *Britain*: LA Osman 1982 (naturalistic observation)	
Not significant	**NORTH AMERICA** *United States*: JF Nelson 1931 (toddler); Vaughn et al. 1984 (toddler, touching forbidden objects); TG Power & Chapieski 1986 (toddler, touching forbidden objects)	**NORTH AMERICA** *Canada*: Grusec et al. 1979 (when tempted, rather than working on assigned tasks); *United States*: MM Reynolds 1928; BA Mayer 1935; JS Hatfield et al. 1967:376* (2-tailed significance test); Biaggio & Rodrigues 1971 (playing with a forbidden toy); Slaby & Parke 1971 (touching forbidden object); Hartig & Kanfer 1973 (when tempted, looking at un-allowed toys); LaVoie 1974a (when tempted, play with forbidden toy); LaVoie 1974b (when tempted, play with forbidden toy); Karoly & Briggs 1978 (when tempted, playing with un-allowed toys); Kurtz & Eisenberg 1983 (when tempted, playing with un-allowed toys); BL Dawson et al. 1988 (eating a forbidden food)			
More among females					

16.1.3.9 Dogmatism

Persons who are dogmatic tend to be very opinionated and to hold to their opinions no matter what evidence or logical arguments might be presented to the contrary. As shown in Table 16.1.3.9, several studies have sought to determine if sex differences exist in dogmatism, but these studies have reached very inconsistent conclusions.

Table 16.1.3.9 Dogmatism

Nature of difference			*Post-pubertal*		*Wide age rangel*
			Adolescent	*Adult*	
More among males			**EUROPE** *Britain*: LJ Francis 1997 **NORTH AMERICA** *United States*: HJ Walberg 1969:49*	**NORTH AMERICA** *United States*: Alter & White 1966 (young); Heyman 1977 (young)	
Not significant			**NORTH AMERICA** *United States*: Pannes 1963; CC Anderson 1962	**NORTH AMERICA** *United States*: Ehrlich & Bauer 1966 (among psychiatric patients); Kilpatrick et al. 1970 (young)	**NORTH AMERICA** *United States*: Mangis 1965 (among church goers); Schmitz 1985
More among females			*Spain*: Gonzalez-Tamayo 1974* **NORTH AMERICA** *United States*: HJ Walberg 1969*	**EUROPE** *Spain*: Gonzales-Tamayo 1974* (undergrad) **NORTH AMERICA** *United States*: Gonzales-Tamayo 1974* (undergrad)	

16.1.3.10 Egocentrism/Self-Centeredness

Two studies were located that investigated possible sex differences in being egocentric. As shown in Table 16.1.3.10, one study found no significant difference while the other reported this trait to be higher among males.

Table 16.1.3.10 Egocentrism/self-centeredness

Nature of difference			*Post-pubertal*		
			Adolescent	*Adult*	
More among males				**NORTH AMERICA** *United States*: Lilianfeld & Andrews 1996 (undergrad)	
Not significant			**EUROPE** *Switzerland*: Rossier et al. 2007:128 (rated by parents)		
More among females					

16.1.3.11 Hostility/Conflict-Oriented Behavior

Hostility is a difficult concept to identify, especially in any quantifiable terms. Nevertheless, few would question that some individuals exhibit hostile behavior substantially more than do others. Most of the studies of this behavior are based largely on ratings by parents, teachers, or trained observers. As shown in Table 16.1.3.11a, the evidence reported so far on sex differences in hostile behavior has concluded that it is more characteristic of males than of females.

Two studies of primates were located in which sex differences in hostile behavior were assessed. Table 16.1.3.11b shows that both studies concluded that males exhibited such behavior to a greater degree than did females.

16.1.3.12 Introversion (Shyness)

Introversion is usually conceived of as being the opposite of extraversion (discussed above). Therefore, the findings for sex differences in extraversion can simply be inverted to suggest sex differences in introversion. However, a substantial number of studies were located pertaining specifically to introversion or shyness. Table 16.1.3.12 shows that most of these studies, based either on self-reports or assessments made by parents and teachers, suggest that females are more introverted than males or that there are no significant sex differences.

16.1.3.13 Machiavellianism (Being Exploitive of Others)

The concept of *Machiavellianism* refers to the tendency to use extraordinary means to get what one wants from others no matter how much harm it may cause them. As shown in Table 16.1.3.13, most studies have found such tendencies to be more characteristic of males than of females, although a few studies have reported no significant differences.

16.1.3.14 Manipulative Behavior

Manipulative behavior in interpersonal relationships refers to the tendency to try to change the behavior or attitudes of others in subtle ways, usually without the awareness of those being manipulated. Table 16.1.3.14 shows that the one study of sex differences in such behavior concluded that males were more manipulative than females.

16.1.3.15 Possessiveness

Some people readily share what they have with others, while other people are prone to take things away from others without even asking. As shown in Table 16.1.3.15, one study of toddlers reported that males are more likely than females to exhibit this latter type of possessive behavior.

Table 16.1.3.11a Hostile/conflict-oriented behavior

Nature of difference	*Pre-pubertal*		*Post-pubertal*		*Wide age rangel*
	Infant/toddler	*Child*	*Adolescent*	*Adult*	
More among males	**NORTH AMERICA** *United States*: Goodenough 1931 (toddler)	**EUROPE** *Netherlands*: Stoltz et al. 2013 (4th graders, N = 206) **NORTH AMERICA** *United States*: LB Ames et al. 1952; J Walters et al. 1957; Baumrind & Black 1967; Lindskold & Horai 1974 (threatening behavior); PM Miller et al. 1986 (school age more conflict between same-sex friends); Chung & Asher 1996; Rose & Asher 1999	**NORTH AMERICA** *United States*: Gill & Spilka 1962 (Mexican-Americans); Slaby & Guerra 1988; Lempers & Clark-Lempers 1993 (more conflict between same-sex friends); Furman 1996 (more conflict between same-sex friends); Lindeman et al. 1997	**ASIA** *Japan*: Ramirez et al. 2001* (undergrad, self-report) **EUROPE** *Spain*: Ramirez et al. 2001* (undergrad, self-report); *Sweden*: Prochazka & Agren 2003 (self-rated) **NORTH AMERICA** *United States*: EM Bennett & Cohen 1959:119 (self-defined); Rothaus & Worchel 1964 (undergrad); Youssef 1968 (undergrad); Tedeschi et al. 1970 (threatening behavior, undergrad)	**NORTH AMERICA** *United States*: Bennett & Cohen 1959
Not significant		**NORTH AMERICA** *United States*: Vernon et al. 1967		**EUROPE** *Spain*: Condon et al. 2006 **NORTH AMERICA** *United States*: Pytokowicz et al. 1967 (undergrad); Prerost 1976 (undergrad, self-report)	
More among females					

Table 16.1.3.11b Hostile/conflict-oriented behavior among non-humans

Nature of difference			*Post-pubertal*		*Wide age rangel*
				Adult	
More among males				**PRIMATE** *Squirrel Monkey*: Cubicciotti & Mason 1975 (young)	**PRIMATE** *Squirrel Monkey*: Anzenberger et al. 1986
Not significant					
More among females					

Table 16.1.3.12 Introversion (shyness)

Nature of difference	*Pre-pubertal*		*Post-pubertal*		
	Infant/toddler	*Child*	*Adolescent*	*Adult*	
More among males					
Not significant		**NORTH AMERICA** *United States*: Goodenough 1928	**NORTH AMERICA** *United States*: Skim et al. 2003 (young)	**NORTH AMERICA** *United States*: Heidberger 1927; Stagner 1932; C Evans & McConnell 1941; IR Bell et al. 1993:41	
More among females	**NORTH AMERICA** *United States*: Hattwick 1937; Jacklin et al. 1983 (toddler)	**EUROPE** *Switzerland*: Rossier et al. 2007:128 (parent rated) **NORTH AMERICA** *United States*: Marston 1925; Terman et al. 1925 (teacher observation, extremely timid & shy); JP Guilford 1934	**EUROPE** *Britain*: Crozier 1995 (ages 9-12) **NORTH AMERICA** *United States*: Trumbull 1953; Stapley & Haviland 1989 (11th graders, N = 262)	**ASIA** *Japan*: Bond & Ho 1978 (self-report) **NORTH AMERICA** *United States*: Conklin 1927; Miles & Terman 1929; Whitman 1929; CKA Wang 1932; Bernreuter 1933; Stagner 1933; Stagner 1936; St Clair & Seegers 1937; Middleton 1941; Skaggs 1942 (undergrad); Cartwright 1972:215 (medical students, self-assessed)	

Table 16.1.3.13 Machiavellianism (being exploitive of others)

Nature of difference	*Pre-pubertal*		*Post-pubertal*		*Wide age rangel*
		Child	*Adolescent*	*Adult*	
More among males		**NORTH AMERICA** *United States*: Vinacke & Gullickson 1964*; Shears & Behrens 1969	**NORTH AMERICA** *United States*: Vinacke 1964* (undergrad, age form exploitive coalitions during experimental games); Vinacke & Gullickson 1964*; Hudak et al. 1980:362 (Machiavellianism)	**EUROPE** *Britain*: J Andrew, Cooke & Muncer 2008 (Machiavellianism) **NORTH AMERICA** *United States*: Vinacke 1959 (exploitative gaming strategies); Vinacke & Gullickson 1964* (undergrad); Lane & Meese 1971 (undergrad); Leventhal & Lane 1970 (undergrad); Jonason, Li et al. 2009:Table 1 (undergrad, N = 88M + 136F, Machiavellianism); Jonason et al. 2017:181 (undergrad, Machiavellianism)	**INTERNATIONAL** *Multiple Countries*: Karlsson & Kajonius 2020 (ages 15-80, internet sample, N = 220)
Not significant		**NORTH AMERICA** *United States*: Vinacke 1964* (school age, forming exploitive coalitions during experimental games)			**INTERNATIONAL** *Multiple Countries*: Kavanagh et al. 2013:668 (Machiavellianism, internet sample)
More among females					

Table 16.1.3.14 Manipulative behavior

Nature of difference				*Post-pubertal*	
				Adult	
More among males				**EUROPE** *Britain*: A Blanchard & Lyons 2010 (N = 54)	
Not significant					
More among females					

Table 16.1.3.15 Possessiveness

Nature of difference	*Pre-pubertal*				
	Infant/toddler				
More among males	**NORTH AMERICA** *United States*: Hay et al. 1983 (toddlers, grabbing for attractive toys)				
Not significant					
More among females					

16.1.3.16 Psychoticism

Psychoticism should not be confused with either *psychopathy* or *psychosis* (both of these latter concepts will be considered elsewhere in this book). As the term has come to be used in the field of psychology, *psychoticism* refers to a personality trait typified by aggressiveness and interpersonal hostility (Eysenck & Nias 1978:239; Claridge 1983). In terms of sex differences, Table 16.1.3.16 shows that most studies have found males to score higher in psychoticism, although some studies have reported no significant sex differences in this personality trait.

Table 16.1.3.16 Psychoticism

Nature of difference	*Pre-pubertal*		*Post-pubertal*		
		Child	*Adolescent*	*Adult*	
More among males		**EUROPE** *Britain*: SB Eysenck et al. 1993*; SB Eysenck 1994:203* **MIDDLE EAST** *Iran*: SB Eysenck 1994:203*	**EUROPE** *Britain*: DL Smith 1996:1063 **OCEANIA** *Australia*: Luciano, Leisser et al. 2004:Table 1 (ages 15-18,	**EUROPE** *Britain*: DA Clark et al. 1987:7 (young); Sanderman et al. 1991; Faith et al. 2001 **NORTH AMERICA** *Canada*: JD Parker et al. 1989:601 (young); *United States*: Zuckerman & Litle	

(*Continued*)

Table 16.1.3.16 (Continued)

Nature of difference	*Pre-pubertal*		*Post-pubertal*		
		Child	*Adolescent*	*Adult*	
		NORTH AMERICA *Canada*: SB Eysenck et al. 1993*	N = 1,068, twins)	1986 (young); Zuckerman 1971 (young) **OCEANIA** *Australia*: Heaven 1993:70 (young) **INTERNATIONAL** *Multiple Countries*: Lynn & Martin 1997* (34/37 countries)	
Not significant		**ASIA** *Russia*: Knyazev & Wilson 2004:48 (Eysenck scale)		**ASIA** *South Korea*: Mok, Choi et al. 2014:Table 1 (undergrad) **INTERNATIONAL** *Multiple Countries*: Lynn & Martin 1997* (3/37 countries)	
More among females					

16.1.3.17 Selfishness

Research on selfishness is largely confined to research involving experiments in which subjects can either share or try to obtain all, or at least the lion's share, of the winnings for themselves. As shown in Table 16.1.3.17, the findings have been quite inconsistent with regard to any overall sex difference in selfish tendencies.

Table 16.1.3.17 Selfishness

Nature of difference			*Post-pubertal*		
				Adult	
More among males				**NORTH AMERICA** *United States*: D Araroff & Tedesch 1968 (experimental game); D Mack et al. 1971 (experimental game); EP Meux 1973 (experimental game); Seguino et al. 1996 (experimental game); CC Eckel & Grossman 1998 (undergrad, to an anonymous partner in an experimental game); Jonason et al. 2017:181 (undergrad)	
Not significant				**NORTH AMERICA** *United States*: RM Dawes et al. 1977 (experimental game); J Stockard et al. 1988; Thiessen & Ross 1990:301 (undergrad); Mason et al. 1991 (experimental game); Orbell et al. 1994 (experimental game); GE Bolton & Katok 1995 (experimental game)	
More among females				**NORTH AMERICA** *United States*: A Rapoport & Crammah 1965 (experimental game); D Mack et al. 1971 (experimental game)	

16.1.3.18 Self-Serving Behavior

Self-serving behavior is behavior designed to make oneself look good (usually in either an achievement or a moral sense). As shown in Table 16.1.3.18, the two relevant studies both indicated that males were more self-serving than were females.

Table 16.1.3.18 Self-serving behavior

Nature of difference	*Pre-pubertal*		*Post-pubertal*		
		Child		*Adult*	
More among males		**NORTH AMERICA** *United States*: Pitcher & Schultz 1983:57		**NORTH AMERICA** *United States*: M Zuckerman 1979:254	
Not significant					
More among females					

16.2 Reliable/Dependable Aspects of Behavior

Considerable evidence has been accumulated regarding sex differences in people's reliability. Findings are summarized in the following section.

16.2.1 Honesty and Deception

Studies of sex differences in tendencies to be honest and trustworthy have taken a variety of forms. A summary of the results from these studies are provided below.

16.2.1.1 Trustworthiness

People have been shown to vary in their tendencies to be honest and trustworthy. To measure such tendencies among children, social scientists usually rely upon reports by parents, teachers, and peers (Loeber & Stouthamer-Loeber 1987:337). For obvious reasons, self-reports of such tendencies may not be very reliable, even on anonymous questionnaires.

Studies undertaken to determine if trustworthiness, honesty, and related tendencies are associated with gender are summarized in Table 16.2.1.1. While limited in number, most of these studies indicate that females are more trustworthy than males, even according to the males' own self-reported assessments.

Table 16.2.1.1 Trustworthiness

Nature of difference			*Post-pubertal*		
			Adolescent	*Adult*	
More among males			**EUROPE** *France*: Chau et al. 2007:329 (self-report)		
Not significant					
More among females			**NORTH AMERICA** *United States*: Bronfenbrenner 1960 (teacher rating); Udry & Chantala 2006:801 (in answering a questionnaire)	**NORTH AMERICA** *United States*: Cartwright 1972:215 (medical students, self-assessed); KA Harris & Morrow 1992 (self-report); Sondhaus et al. 2001:419 (undergrad, self-rated)	

16.2.1.2 Honesty

Studies of sex differences in honesty are summarized in Table 16.2.1.2. As one can see, the evidence is quite varied with respect to any differences, possibly depending on the topics being examined and the specific methods for measuring honesty that were utilized.

Table 16.2.1.2 Honesty

Nature of difference	*Pre-pubertal*		*Post-pubertal*		*Wide age rangel*
		Child		*Adult*	
Males more				**EUROPE** *Sweden*: Barkow et al. 2002 (regarding personal mental health data) **NORTH AMERICA** *United States*: Assaf et al. 2002 (self-reported smoking verified with a biochemical test); MG Alexander & Fisher 2003 (undergrad, more honest reporting the number of sex partners, using a bogus pipeline research design)	**NORTH AMERICA** *United States*: Hancock & Toma 2009 (photos on a dating site more accurate)
Not significant		**NORTH AMERICA** *United States*: Terman et al. 1925 (honesty)		**ASIA** *Malaysia*: Hartley, Ellis & Hoskin 2019* (self-rated honesty at the end of a questionnaire) **NORTH AMERICA** *United States*: Prusoff et al. 1988 (regarding personal mental health data); Hartley, Ellis & Hoskin 2019* (self-rated honesty at the end of a questionnaire)	
Females more				**NORTH AMERICA** *United States*: Farrer et al. 1989	

(*Continued*)

Table 16.2.1.2 (Continued)

Nature of difference	*Pre-pubertal*		*Post-pubertal*		*Wide age rangel*
		Child		*Adult*	
				(regarding personal mental health information); JC Evans et al. 1997 (self-reported smoking verified with a biochemical test); TP Johnson & Mott 2001 (inferred honesty, more consistent in reporting earliest age of first illegal drug use); Marabia et al. 2001 (self-reported smoking verified with a biochemical test)	

16.2.1.3 Lying, Deception, and Dishonesty in General

Do the sexes differ in terms of lying and deception? As shown in Table 16.2.1.3, studies have reached inconsistent conclusions in this regard.

16.2.1.4 Lie Scale Scores

Some established personality tests, such as the Eysenck Personality Inventory, contain items that provide researchers with what is known as a *lie scale*. Basically, this scale provides a gage of the extent to which research participants are providing answers that are "socially desirable" rather than being totally consistent with other answers being provided (MR Dadds et al. 1998:312). Table 16.2.1.4 shows that, as with deception in general (see table above), findings have not been consistent regarding sex differences.

16.2.1.5 Dishonesty about Weight

A few studies have compared males and females regarding their stated or written reports of weight compared to an object scale-based measure. As shown in Table 16.2.1.5, the results have consistently indicated that females tend to underestimate their weight to a greater degree that do males.

16.2.1.6 Cheating

Most studies of cheating have been based on experimental games where individuals have an opportunity to cheat or to not do so, often when they are led to believe that no one but themselves will know the outcome. As one can see in Table 16.2.1.6, studies have failed to find consistent sex differences in cheating tendencies.

Table 16.2.1.3 Lying, deception, and dishonesty in general

Nature of difference	*Pre-pubertal*		*Post-pubertal*		
	Infant/toddler	*Child*	*Adolescent*	*Adult*	
More among males	**NORTH AMERICA** *United States*: M Lewis et al. 1989 (toddler, lying about having looked at forbidden toy)	**EUROPE** *Netherlands*: Engels et al. 2006:954 (self-report)	**NORTH AMERICA** *Canada*: Gervais et al. 2000 (parent-reported); *United States*: Langbehn et al. 1998:824 (N = 88M + 87F, adoptees); RS Strauss 1999 (exaggerating one's height); Dreber & Johannesson 2008 (to obtain monetary reward; self-reported likelihood); Erat & Gneezy 2012* (for a small hypothetical monetary reward) **OVERVIEW** *Meta-Analysis*: Wilgenbusch & Merrell 1999:112	**NORTH AMERICA** *United States*: Wiederman 1997 (exaggerating the number of sex partners they have had)	
Not significant		**NORTH AMERICA** *United States*: V Jones 1936; Rie 1963 (lie detector, anxiety test)	**NORTH AMERICA** *United States*: RS Strauss 1999 (exaggerating height)	**EUROPE** *Netherlands*: van Batenburg-Eddes et al. 2012:34 (about ever having been arrested) **NORTH AMERICA** *Canada*: CL Martin 1987:492 (self-report)	
More among females	**NORTH AMERICA** *United States*: Polak & Harris 1999 (age 2-6, looking inside a forbidden box and then lying about it)	**NORTH AMERICA** *United States*: Hartshorne & May 1928	**NORTH AMERICA** *United States*: Erat & Gneezy 2012* (for a large hypothetical monetary reward)	**NORTH AMERICA** *United States*: Bersoff 1999 (keeping an overpayment) **EUROPE** *Netherlands*: Arrindell & Buikhuisen 1992:309 (Eysenck scale)	

Table 16.2.1.4 Lie scale scores

Nature of difference	*Pre-pubertal*		*Post-pubertal*		
		Child	*Adolescent*	*Adult*	
More among males		**NORTH AMERICA** *United States*: Castaneda & McCandkess 1956 (Eysenck scale); MR Dadds et al. 1998*		**NORTH AMERICA** *United States*: Thiessen & Ross 1990:301 (undergrad)	
Not significant			**NORTH AMERICA** *United States*: MR Dadds et al. 1998*	**AFRICA** *Nigeria*: Nmor, Nwaka & Nmor 2013 (undergrad, N = 203) **NORTH AMERICA** *Canada*: JD Parker et al. 1989:601 (young)	
More among females			**EUROPE** *Britain*: DL Smith 1996:1063; *Netherlands*: Sanderman et al. 1991 (lie scale of EPI) **OCEANIA** *Australia*: Luciano, Leisser et al. 2004:Table 1 (ages 15–18, N = 1,068, twins)	**EUROPE** *Britain*: Willmott & Brierley 1984 (Eysenck scale); SB Eysenck et al. 1993 (young); *Spain*: Aluja et al. 2003:456 (undergrad) **NORTH AMERICA** *Canada*: SB Eysenck et al. 1993 (young)	

Table 16.2.1.5 Dishonesty about weight

Nature of difference			*Post-pubertal*		
			Adolescent	*Adult*	
Males under-estimate more					
Not significant					
Females under-estimate more			**EUROPE** *Norway*: LF Andersen et al. 2005:100 (under-estimate more) **NORTH AMERICA** *United States*: RS Strauss 1999	**NORTH AMERICA** *United States*: RR Wing et al. 1979; Pirie et al. 1981; Palta et al. 1982; NE Betz et al. 1994; JR Shapiro & Anderson 2003 (undergrad)	

16.2.1.7 Cheating on Tests or Class Assignments

Cheating on tests or class assignments is commonly known as academic cheating. Many studies have sought to determine if males or females are more likely to engage in such cheating, usually based on anonymous self-

Table 16.2.1.6 Cheating in general

Nature of difference	*Pre-pubertal*		*Post-pubertal*		
	Infant/toddler	*Child*	*Adolescent*	*Adult*	
More among males		**NORTH AMERICA** *Canada*: Silverman 1967 (older child, counting tasks); *United States*: Dmitruk 1973 (guessing game) **OVERVIEW** *Meta-Analysis*: Whitley et al. 1999	**ASIA** *India*: Donat et al. 2014:Table 1* (in school, self-reports) **NORTH AMERICA** *United States*: Rebelsky et al. 1963 (experimental game); Keasey 1971 (young, on scoring in bowling game); Guttman 1984 (young, on a tracing task); DePalma et al. 1995 (in competitive task)	**ASIA** *Russia*: Poltorak 1995:236 (undergrad) **NORTH AMERICA** *United States*: WJ Bowers 1964 (young); Faulkner & de Jong 1966:41 (undergrad); LI Jacobson et al. 1970 (undergrad, on digit-symbol task); Fakouri 1972 (young); Baird 1980 (young); JS Baird 1980 (young); Newhouse 1982 (undergrad, experimental game); DA Ward 1986 (young); J Michaels & Miethe 1989 (young); Aiken 1991 (young); McCabe & Trevino 1993 (young); McCabe & Bowers 1996 (undergrad); McCabe & Travino 1996:32; Newstead et al. 1996 (young); Tibbetts 1997 (undergrad); BE Whitley 2001 (undergrad, academic cheating)	
Not significant	**NORTH AMERICA** *United States*: Kochanska et al. 1995 (toddler)	**NORTH AMERICA** *United States*: RV Burton et al. 1966 (bean bag game); KH David 1967 (racing task); Mumbauer & Gray 1970 (bean-bag game); Eisen 1972 (older child, experimental task); Doster & Chance 1976 (coordination task); Coady & Sawyer 1986 (guessing game); Covey et al. 1989 (racing task); Eisenberg et al. 1996 (experimental puzzle task)	**EUROPE** *Germany*: Donat et al. 2014:Table 1* (in school, self-reports) **NORTH AMERICA** *United States*: Grinder & McMichael 1963 (young, shooting gallery game); CD Johnson & Gormly 1972; Diener & Wallbom 1976 (competitive task)	**NORTH AMERICA** *Canada*: Geniole, Keys et al. 2014:60 (undergrad, N = 146M + 77F, 13%M vs. 20%F); *United States*: Karabenick & Srull 1978 (undergrad, experimental game); JR Kelly & Worell 1978 (undergrad, experimental game); JS Baird 1980* (undergrad); Antion & Michall 1983 (undergrad, experimental game); JP Houston 1983 (young); DR Forsyth et al. 1985 (young, experimental games); VJ Haines et al. 1986 (young); MK Covey et al. 1989 (young, experimental games); AR Perry et al. 1990 (undergrad, experimental game); KM May & Loyd 1993 (young); McCabe & Travino 1996:32 (in the 1990's); Hendershott et al. 1999:352 (undergrad, helping others cheat)	
More among females		**NORTH AMERICA** *United States*: Hartshorne & May 1928 (self-reports); Grinder 1962 (shooting game gallery); LI Jacobson et al. 1970 (N = 276); Asendorpf & Nunner-Winkler 1992 (guessing game); Kochanska & Murray 2000 (young child)		**NORTH AMERICA** *United States*: LI Jacobson et al. 1970; MA Graham et al. 1994 (undergrad)	

reports. As one can see in Table 16.2.1.7, the evidence is quite mixed regarding any significant sex differences in academic cheating.

16.2.1.8 Faking Happiness

Two studies asked children to pretend to be happy after being told sad news. As shown in Table 16.2.1.8, both of these studies found girls being better than boys at faking happiness.

16.2.1.9 Detecting Deception

Studies of sex differences in the ability to detect deception are summarized in Table 16.2.1.9. Most of these studies have found no significant difference between males and females in this ability.

16.2.2 Self-Regulatory Tendencies

The ability to regulate one's own behavior can be assessed in a number of ways. Results regarding sex differences in self-regulatory behavior are summarized below.

16.2.2.1 Boredom Proneness

Persons who are boredom prone feel that their lives lack sufficient elements of variety and excitement. To assess tendencies toward such feelings, researchers have relied on various types of self-reports, usually by asking research participants one or more questions about how often they feel bored under various real or hypothetical conditions (Cochran et al. 1994). Research concerning sex differences in boredom proneness (or feeling bored) are summarized in Table 16.2.2.1. One can see that the vast majority of studies indicate that such tendencies are more common among males than among females.

16.2.2.2 Hedonism

Hedonism refers to the tendency to live for whatever pleasures one can experience at a given point in time, usually with little concern for how it may affect others. As shown in Table 16.2.2.2, all the available research indicates that males are significantly more hedonistic than females.

16.2.2.3 Impulsivity/Disinhibition (Acting on the Spur of the Moment)

Impulsivity (or impulsiveness) refers to people's varying tendencies to act on matters quickly, while giving little forethought to the consequences. Other terms that are sometimes used to describe the same trait are

Table 16.2.1.7 Cheating on tests or class assignments

Nature of difference	*Pre-pubertal*		*Post-pubertal*		*Wide age rangel*
		Child	*Adolescent*	*Adult*	
More among males		**NORTH AMERICA** *United States*: SE Feldman & Feldman 1967* (creativity test)		**EUROPE** *Sweden*: Witmer & Johansson 2015 (undergrad) **NORTH AMERICA** *United States*: Howells 1938 (undergrad); Leming 1980 * (undergrad, on extra credit assignment); Baldwin, Daugherty et al. 1996 (medical school); JK Cochran, Wood et al. 1998 (undergrad)	**NORTH AMERICA** *United States*: LA Jense, Arnett et al. 2002 (age 14–23, N = 490) **OVERVIEW** *Meta-Analysis*: Whitley, Nelson & Jones 1999
Not significant		**NORTH AMERICA** *United States*: Fischer 1970 (older child); Vitro & Schoer 1972 (older child, vocabulary exam); P David 1973; Houser 1978 (reading test)	**NORTH AMERICA** *United States*: LH Johnson 1943; Dienstbier & Munter 1971 (vocabulary test); CD Johnson & Gormly 1972; Antion & Michael 1983	**NORTH AMERICA** *United States*: Millham 1974 (undergrad); RE Smith et al. 1975 (undergrad, class exam); Srull & Karabenick 1975 (undergrad, on bogus IQ test); Houston 1983 (undergrad); Nowell & Laufer 1997 (undergrad)	**OVERVIEW** *Meta-Analysis*: IW Silverman 2003a
More among females			**NORTH AMERICA** *United States*: SF Feldman & Feldman 1967* (classroom exam); Fakouri 1972; Erickson & Smith 1974; Lobel & Levanon 1988; Lobel et al. 1989; Lobel 1993	**ASIA** *Japan*: Burns, Davis et al. 1998 **NORTH AMERICA** *United States*: Hetherington & Feldman 1964 (undergrad); JP Houston 1977 (undergrad); JA Kelly & Worell 1978 (undergrad, class assignment); Leming 1980* (undergrad, on exams with low risk of being spotted); Karlins 1989 (undergrad, plagiarizing a written assignment); DA Ward & Beck 1990 (undergrad, classroom exam)	

Table 16.2.1.8 Faking happiness

Nature of difference	*Pre-pubertal*				
		Child			
More among males					
Not significant					
More among females		**NORTH AMERICA** *United States*: P Cole 1986 (masking sadness or disappointment); TL Davis 1995 (masking sadness or disappointment)			

Table 16.2.1.9 Detecting deception

Nature of difference			*Post-pubertal*	
				Adult
More among males				
Not significant				**NORTH AMERICA** *United States*: Pfaff 1954; Feeley et al. 1995; Millar & Millar 1995; Vrij & Semin 1996
More among females				**NORTH AMERICA** *United States*: Kalbfleisch 1990

disinhibited and *uninhibited*. The ways developed for measuring impulsivity are numerous (MacKillop, Weafer et al. 2016). They include simply asking people for self-ratings to providing research participants with various hypothetical or real scenarios that can elicit either impulsive or carefully-thought-out responses. Still other studies are experimental in nature; examples include studies in which participants are given the opportunity to respond to various incentives (e.g., monetary rewards) and then measure the time taken to respond (e.g., Arbuthnot et al. 1987:148). In the case of young children, researchers often simply rely on assessments made by parents or teachers (e.g., Vitiello et al. 1990:112).

So much research on impulsiveness was located that the human findings are presented in two tables, one for Pre-pubertal participants and the other for those following puberty. Table 16.2.2.3a shows that most of the studies of children have concluded that boys appear to be more impulsive than girls.

Regarding adolescents and adults, Table 16.2.2.3b shows that the findings on sex differences in impulsiveness are very inconsistent, especially for adults. Many of the differences may be due to the various types of incentives used in many of the studies.

In the case of non-humans, some studies of impulsiveness have also been conducted. Most of these studies were experimental in nature,

Table 16.2.2.1 Boredom proneness

Nature of difference	*Pre-pubertal*		*Post-pubertal*		*Wide age rangel*
	Infant/toddler	*Child*	*Adolescent*	*Adult*	
More among males	**NORTH AMERICA** *United States*: McCall & Kagan 1970 (toddler, parental assessment)	**NORTH AMERICA** *United States*: Vodanovich & Kass 1990*	**EUROPE** *Britain*: Zuckerman, Eysenck & Eysenck 1978:147* **NORTH AMERICA** *United States*: Zuckerman, Eysenck & Eysenck 1978:147*; Vodanovich & Kass 1990*; SM Shaw et al. 1996	**ASIA** *China*: Sundberg et al. 1991:214* (undergrad, Hong Kong) **EUROPE** *Britain*: Austin et al. 2002:119 (undergrad) **MIDDLE EAST** *Lebanon*: Sundberg et al. 1991:214* (undergrad) **NORTH AMERICA** *United States*: KG Ratliff & Burkhart 1984 (undergrad, N = 70M + 70F); Farmer & Sundberg 1986 (young); Pilkington et al. 1988 (young); Tolor 1989 (young); Vodanovich & Kass 1990 (young); Sundberg et al. 1991:214* (undergrad); Watt & Vodanovich 1992* (whites, undergrad); Watt & Blanchard 1994 (young); MR Levenson et al. 1995:154 (undergrad); Rosenblitt et al. 2001:399 (undergrad); DA MacDonald & Holland 2002:1116 (undergrad); Dahlen et al. 2005:344; Kavish, Boisvert et al. 2019:222 (undergrad) **INTERNATIONAL** *Multiple Countries*: Sundberg et al. 1991:209 (4 countries)	**EUROPE** *Norway*: Breivik, Sand & Sookmany 2017:Table 3 (N = 1,000) **NORTH AMERICA** *United States*: Zuckerman et al. 1978; Zuckerman 1979; M Zuckerman & Neeb 1980:200; Tolor 1989; Vodanovich & Kass 1990* **OVERVIEW** *Meta-Analysis*: CP Cross et al. 2011:111 (d = .20); CP Cross et al. 2013 (d = .35)
Not significant			**MIDDLE EAST** *Turkey*: Akgul 2015	**NORTH AMERICA** *United States*: AK Wolfgang 1988:74 (young)	
More among females				**NORTH AMERICA** *United States*: Watt & Vodanovich 1992* (blacks, undergrad)	

Table 16.2.2.2 Hedonism

Nature of difference			*Post-pubertal*		
			Adolescent	*Adult*	
More among males			**EUROPE** *Finland*: Verkasalo et al. 1996	**EUROPE** *Finland*: Myyry & Helkama 2001:35 **INTERNATIONAL** *Multiple Countries*: Verkasalo et al. 1994; Schwartz & Rubel 2005; Schwartz & Rubel-Lifschitz 2009:178 (valuing hedonism, d = .11)	
Not significant					
More among females					

Table 16.2.2.3a Impulsivity/disinhibition (acting on the spur of the moment)

Nature of difference	*Pre-pubertal*	
	Infant/toddler	*Child*
More among males	**NORTH AMERICA** *United States*: Kochanska et al. 1996 (toddler, N = 103)	**EUROPE** *Britain*: Whitebread & Neilson 1998; *Sweden*: B Bohm et al. 2004 **NORTH AMERICA** *Canada*: Cote et al. 2002a:614; *United States*: Sutton-Smith & Rosenberg 1959 (N = 334); Beller & Neubauer 1963; Loo & Wenar 1971 (ages 5-6, N = 40); Werry & Quay 1971; Bjorklund & Butter 1973 (in school); JH Block & Block 1980; K Paulsen & Johnson 1980 (preschool, N = 55); PC Kendal et al. 1981 (ages 7-11, N = 98); LL Humphrey 1982 (ages 9-11, N = 763); J Block 1983; Logue & Chavarro 1992; M Prior et al. 1993 (age 8); N Eisenberg et al. 2001; Duckworth & Seligman 2006: Table 1 (5th graders, N = 140)
Not significant		**EUROPE** *Spain*: Sanchez-Martin et al. 2010 (age 9) **NORTH AMERICA** *United States*: JD McKinney 1973 (in problem solving experimental tasks)
More among females		**NORTH AMERICA** *United States*: Crick 1997

utilizing a variety of incentives such as food for incentives to act impulsively or cautiously. As shown in Table 16.2.2.3c, the findings have not been consistent with regard to sex differences.

16.2.2.4 Resisting Temptation

Research regarding sex differences in resistance to temptation is sometimes based on self-reports or parental reports. Other times, especially with

Table 16.2.2.3b Impulsivity/disinhibition (acting on the spur of the moment)

Nature of difference	*Post-pubertal*		*Wide age rangel*
	Adolescent	*Adult*	
More among males	**NORTH AMERICA** *United States*: Duckworth & Seligman 2006:200 (N = 140); Chapple & Johnson 2007:225; Boes et al. 2008:Table 1 (young); Kong, Smith et al. 2013:Table 1	**ASIA** *China*: Wu et al. 2000* (middle age) **EUROPE** *Britain*: Austin et al. 2002:1119 (undergrad, uninhibited); CP Cross 2010 (impulsive same-sex aggression); *Spain*: G Vall et al. 2015:Table 1 **NORTH AMERICA** *United States*: Doob & Gross 1968; KG Ratliff & Burkhart 1984 (undergrad, N = 70M + 70F); Gladue 1991a (undergrad); Waldeck & Miller 1997 (in drug use); M Zuckerman & Kuhlman 2000; Kreuger et al. 2002 (among drug abusers); Lejuez et al. 2002 (among drug abusers); A Walsh & Walsh 2002:214 (undergrad); M Hunt et al. 2005; Zhang & Shrum 2009 (in making purchases); J Liu et al. 2012; Thibodeau et al. 2015:Table 2 (blacks); Kavish, Boisvert et al. 2019:222 (disinhibition, undergrad) **OCEANIA** *Australia*: SM Moore & Rosenthal 1993 (young) **INTERNATIONAL** *Multiple Countries*: McCrae & Terracciano 2005:Table 4* (50 countries, observer rated)	**EUROPE** *Britain*: Zuckerman, Eysenck & Eysenck 1978:143*; *Norway*: Breivik, Sand & Sookmany 2017:Table 3 (N = 1,000) **NORTH AMERICA** *United States*: Zuckerman et al. 1978:143*; Zuckerman & Neeb 1980:200; Langhinrichsen-Rohling et al. 1998; Ramtekkar et al. 2010:Table 1 (N = 9,380) **INTERNATIONAL** *Multiple Countries*: De Bolle et al. 2015:181* (N = 6,128) **OVERVIEW** *Literature Review*: Maccoby & Jacklin 1974:Table 3.9* (8/37 studies); Cross et al. 2011; Weafer & deWit 2014 (despite many inconsistent findings); *Meta-Analysis*: Feingold 1994 (14 studies of impulsivity, slight male-higher sex difference); Gershon & Gershon 2002; CP Cross, Copping & Campbell 2011:112* (impulsiveness, d = .08); CP Cross et al. 2013 (disinhibited, d = .46)
Not significant	**ASIA** *China*: Wu et al. 2000* **NORTH AMERICA** *United States*: Vazsonyi et al. 2006:523	**ASIA** *China*: Wu et al. 2000* (young) **EUROPE** *Britain*: Corulla 1987 (young); Corulla 1988* (young); P Smith et al. 2006:392; *Netherlands*: Lijffijt et al. 2005:1127 (undergrad); *Spain*: Luengo et al. 1991:660 (undergrad); *Sweden*: Klinteberg et al. 1987:692 (undergrad)	**NORTH AMERICA** *United States*: Ketzenberger & Forrest 1998 **OVERVIEW** *Literature Review*: Maccoby & Jacklin 1974:Table 3.9* (26/37 studies)

(*Continued*)

Table 16.2.2.3b (Continued)

Nature of difference	*Post-pubertal*		*Wide age rangel*
	Adolescent	*Adult*	
		NORTH AMERICA *Canada*: Geniole, Keys et al. 2014:61 (undergrad, self-centered impulsivity, N = 146M + 77F, M>F); *United States*: Luthar et al. 1996:182 (opiate addicts, retrospective childhood recollections); Mulvihill et al. 1997 (go/no-go experiments, loss of inhibition due to alcohol consumption); Nagoshi 1999:299 (among alcohol users, M>F); Rosenblatt et al. 2001:399 (undergrad, disinhibition); G Vall et al. 2015:Supplement 1) **OCEANIA** *Australia*: Heaven 1993:70 (young) **INTERNATIONAL** *Multiple Countries*: Caci et al. 2003; De Bolle et al. 2015:178* (N = 4,850)	
More among females	**EUROPE** *Netherlands*: Sijtesma et al. 2010:497	**EUROPE** *Britain*: Eysenck et al. 1985 (young); Corulla 1988* (young) **NORTH AMERICA** *Canada*: Wardell & Yeudall 1980:164 (young); C Anderson & Berdahl 2002; Keltner et al. 2003; Lejuez et al. 2005 (among drug users); *United States*: Cartwright 1972:215 (medical students, self-assessed); Reynolds, Ortengren et al. 2006 (monetary choices); Smith & Hantula 2008 (monetary choices, undergrad, N = 23M + 31F) **OCEANIA** *Australia*: Malle & Neubauer 1991:867 (undergrad, N = 65) **INTERNATIONAL** *Multiple Countries*: McCrae & Terracciano 2005:Table 4* (self-report, 50 countries)	**NORTH AMERICA** *United States*: Beck & Triplett 2009 (choices, ages 15-30, N = 131M + 168F) **OVERVIEW** *Literature Review*: Maccoby & Jacklin 1974:Table 3.9* (3/37 studies)

Table 16.2.2.3c Impulsiveness/disinhibition (acting on the spur of the moment), among non-humans

Nature of difference				*Post-pubertal*	
				Adult	
More among males				**PRIMATE** *Chimpanzee*: King, Weiss & Sisco 2015 **RODENT** *Rat*: Jentsch & Taylor 2003 (N = 24M + 24F)	
Not significant				**RODENT** *Rat*: JL Perry, Nelson et al. 2007* (for accessing food); Anker, Gliddon & Carroll 2008* (for access to food); JL Perry, Nelson & Carroll 2008 (for accessing cocaine)	
More among females				**RODENT** *Rat*: van Haaren, van Hest & van de Pool 1987; JL Perry, Nelson et al. 2007* (for accessing cocaine); Anker, Gliddon & Carroll 2008* (for access to cocaine)	

children, researchers will excuse themselves from a room in which they leave a child with clear instructions not to touch some tempting object. Table 16.2.2.4 shows that the findings have not been consistent with respect to any sex differences.

Table 16.2.2.4 Resisting temptation

Nature of difference	*Pre-pubertal*				*Wide age rangel*
	Infant/toddler	*Child*			
More among males		**NORTH AMERICA** *United States*: RV Burton 1971* (when alone); Keasey 1971 (when alone)			
Not significant		**NORTH AMERICA** *United States*: Grinder 1964 (when alone); RR Sears et al. 1965; RP Walsh 1967 (when alone); Eisen 1972 (when alone); Hartig & Kanfer 1973 (when alone); Rosenkoetter 1973 (when alone)			
More among females	**NORTH AMERICA** *United States*: Goldsmith et al. 1997 (toddler)	**NORTH AMERICA** *United States*: Rebelsky et al. 1963 (when alone); Walters & Demkow 1963 (when alone); Medinnus 1966 (when alone); WD Ward & Furchak 1968 (when alone)			**NORTH AMERICA** *United States*: Slaby & Parke 1971; Kochanska et al. 1996 **OVERVIEW** *Literature Review*: Bjorklund & Kippa 1996; *Meta-Analysis*: IW Silverman 2003a (d=.27-.41)

16.2.2.5 Delayed Gratification

People's varying tendencies to delay in gratifying their desires are typically measured in children by having them engage in a task at which they succeed and are then given a choice of two possible rewards, such as a special treat now or two of the treats the following day. Table 16.2.2.5 shows that a large number of experiments along these lines have been conducted. It shows that most studies have found no significant sex differences in delayed gratification tendencies, but when significant differences have been found, they usually favor females.

16.2.2.6 Self-Control

The concept of *self-control* (including *self-regulating behavior* and *inhibitory control*) refers to the ability to regulate one's own actions within appropriate limits. A wide variety of methods have been developed for measuring self-control, including some that are inferred from direct observation of behavior while others come from self-reports (Ponitz et al. 2008; Ellis, Hoskin et al. 2014). Most measures involving direct observation infer self-control by determining how well individuals abide by instructions not to do something that they are naturally tempted to do (e.g., not touching an interesting object while they are alone with the object). Such measures make the concept of *self-control* tantamount to *obedience*.

Of course, what is appropriate as an expression of self-control can vary somewhat, depending on who is making the assessment. For instance, consider acts of aggression. According to one research team, females view acts of physical aggression as resulting from a *loss* of self-control. Men, on the other hand, tend to view aggression as *expressions* of self-control (or of self-control efforts) (A Campbell & Muncer 1987).

Differences in what constitutes self-control could be responsible for some of the inconsistencies in findings on sex differences in self-control. Table 16.2.2.6 shows that most studies have concluded that females exhibit greater degrees of self-control than do males, especially before puberty. However, following puberty, the findings have been mixed.

16.2.2.7 Self-Disciplined

Self-discipline refers to the ability of individuals to keep their behavior within boundaries that are prescribed by others, such as parents, teachers, or law enforcement officials. One can see in Table 16.2.2.7 that most studies of sex differences in self-discipline have concluded that females do so more than males. The main exception has to do with maintaining a prescribed exercise schedule.

Table 16.2.2.5 Delayed gratification

Nature of difference	*Pre-pubertal*		*Post-pubertal*		*Wide age rangel*
		Child	*Adolescent*	*Adult*	
More among males		**NORTH AMERICA** *United States*: Ferrarese 1981 (ages 8-12, N = 45M + 51F, inner city sample, D = .22)	**NORTH AMERICA** *United States*: ML Simpson 1982 (age 12, N = 52M + 52F, D = .19)		
Not significant		**EUROPE** *Germany*: Jacobsen 1997 (age 6, N = 16M + 16F, F>M, d = .34); Jacobsen 1998 (age 6, F>M, d = .38); *Scotland*: Ritchie & Toner 1984 (ages 3-5, N = 22M + 26F) **MIDDLE EAST** *Israel*: Nisan 1976; Nisan & Koriat 1984 (ages 5-6); Kreitler & Zigler 1990 (ages 5-6, N = 30M + 30F, F>M, d = .20); Pener-Tessler et al. 2013 (among twins, N = 320) **NORTH AMERICA** *United States*: Mischel 1961a; Mischel 1961b; Mischel 1961c; Mischel & Metzer 1962; Bandura & Mischel 1965 (ages 9-10, N = 120); Mischel & Grusec 1967 (ages 9-10, N = 96); Grusec 1968 (age 8, N = 40); Klaus & Gray 1968 (ages 3-7, N = 80); Mischel & Ebbesen 1970; Shipman 1971 (ages 3-4, N = 1,458); Kelman 1972; Shipman 1972 (ages 3-6); Schack & Massari 1973; Strickland 1973; WH Anderson 1974; Mischel & Underwood 1974; Nisan 1974; Seeman & Schwartz 1974 (age 9, N = 97); Corfield et al. 1976; Montgomery 1976; BS Moore et al. 1976, Randolph-Johnson 1977; Schwarz & Pollack 1977; Toner et al. 1977; Herzberger & Dweck 1978 (age 9, N = 50M + 59F, F>M, d = .10); Weisz 1978; McGavin 1979; Fry & Preston 1980; Mischel & Moore 1980; Paulsen & Johnson 1980 (preschoolers, N = 55); GC Yates et al. 1981; Lomranz et al. 1983; JC Schwarz et al. 1983 (preschoolers, N = 66); Toner & Ritchie 1984; Mischel et al. 1988 (ages 3-5, N = 42M + 53F); Rotenberg & Mayer 1990; Logue & Chavarro 1992 (ages 3-5, N = 9M + 10F, M>F, d = .13); Kirby & Marakovic 1995; Logue et al. 1996 (single delayed gratification task); SL Olson 1999 (age 6)	**NORTH AMERICA** *United States*: Staub 1972 (young); Struckland 1972 (ages 11-13, N = 300); Funder & Block 1989; Wulfert et al. 2002	**EUROPE** *Britain*: Petrides & Furnham 2000:454 (self-rated)	**LATIN/ CARIBBEAN AMERICA** *Bolivia*: Kirby et al. 2002 (Native Americans, M>F) **OCEANIA** *Australia*: Bockner & David 1968 (ages 7-15, N = 18M + 26F, F>M, aboriginal sample, d = .08)

(*Continued*)

Table 16.2.2.5 (Continued)

Nature of difference	*Pre-pubertal*		*Post-pubertal*		*Wide age rangel*
		Child	*Adolescent*	*Adult*	
More among females		**NORTH AMERICA** *Canada*: C Thompson et al. 1997 (ages 3–5, N = 27M + 25F, d = .16); *United States*: RP Walsh 1967 (ages 6-8, play with a forbidden toy); RT Walls 1971 (age 5); Staub 1972 (ages 12-13, N = 144, d = .20); Kanfer & Zich 1974; TM Flynn 1975 (ages 3-4, N = 61M + 71F, blacks, d = .16); Atkinson 1977 (preschool); S K Paulson & Johnson 1980 (ages 3-5, N = 28M + 27F, d = .24); Drucker 1982 (N = 43M + 77F, d = .17); Funder et al. 1983; SL Olson 1989 (ages 4-5, N = 79); Logue & Chavarro 1992 (ages 3-5, N = 20); Kochanska et al. 1996; Sethi et al. 2000 (age 5, N = 51M + 46F, d = .17) **OVERVIEW** *Meta-Analysis*: Bjorklund & Kipp 1996 (small difference); IW Silverman 2003a (d = .19)	**EUROPE** *Germany*: Trommsdorff & Schmidt-Rinke 1980 (ages 16-19, N = 114M + 129F, d = .29) **NORTH AMERICA** *United States*: L Weller & Berkowitz 1975; Funder & Black 1989 (age 14, N = .50M + 54F, d = .08); Wulfert et al. 2002 (ages 11-18)		**NORTH AMERICA** *United States*: Kochanska et al. 1996

Table 16.2.2.6 Self-control

Nature of difference	*Pre-pubertal*		*Post-pubertal*		*Wide age rangel*
	Infant/toddler	*Child*	*Adolescent*	*Adult*	
More among males			**NORTH AMERICA** *United States*: Karoly & Ruehlman 1982 (self-reports)	**ASIA** *Malaysia*: L Ellis, Hoskin et al. 2014:12* (self-control, self-report, N = 1,291)	**OVERVIEW** *Meta-Analysis*: CP Cross et al. 2011:114* (ages 18-21, impulse control, d = .40; all ages in the Americas, d = .27)
Not significant			**NORTH AMERICA** *United States*: Duckworth & Seligman 2006:Table 8* (parent-rated: d = .19, F>M, N = 140) **OCEANIA** *New Zealand*: B Henry et al. 1999:1055	**MIDDLE EAST** *Iran*: Ghorbani, Watson et al. 2016:Table 3 (N = 296, internet) **NORTH AMERICA** *United States*: Tangney et al. 2004 (undergrad); Jonason & Tost 2010 (using the Tangney et al. 2004 self-report scale); L Ellis, Hoskin et al. 2014:12* (self-control, self-report, N = 1,291)	**OVERVIEW** *Literature Review*: de Ridder et al. 2012:92 (little if any difference)
More among females	**NORTH AMERICA** *United States*: Kochanska et al. 2000 (effortful control, toddler); McClelland et al. 2000 (self-regulating, kindergarteners, N = 540);	**ASIA** *Russia*: Knyazev & Wilson 2004:48 (behavioral inhibition) **EUROPE** *Germany*: M Weis et al. 2013 (self-regulating, 5th graders, N = 53) **NORTH AMERICA** *United States*: Kendall & Wilcox 1979	**EUROPE** *Netherlands*: Engels et al. 2006:954 (self-rated); *Portugal*: Pechorro et al. 2019:Table 7 **NORTH AMERICA** *Canada*: LaGrange & Silverman 1999:55 (N = 961M + 1,134F); Nakhaie, Silverman & LaGrange 2000:45 (indirect	**NORTH AMERICA** *United States*: Keane, Maxim & Teevan 1993 (undergrad); JJ Gibbs, Giever & Martin 1998 (undergrad); CL Gibson, Ward & Wright 2010 (indirect measure); CD	**INTERNATIONAL** *Multiple Countries*: Steketee, Junger & Junger-Tax 2013:Table 1 **OVERVIEW** *Meta-Analysis*: Else-Quest, Hyde et al. 2006 (inhibitory control); CP Cross et al. 2011:114* (in Europe, Australia &

(*Continued*)

Table 16.2.2.6 (Continued)

Nature of difference	*Pre-pubertal*		*Post-pubertal*		*Wide age rangel*
	Infant/toddler	*Child*	*Adolescent*	*Adult*	
	Kochanska et al. 2001 (ages 1-4); DCR Kerr et al. 2004:376 (toddler, mother's report); Ready et al. 2005 (self-regulating, kindergarteners)	(teacher-rated); LL Humphrey 1982 (both self-rated & teacher-rated); LL Humphrey 1984 (self-rated & teacher rated); Duckworth & Seligman 2006:Table 1 (5^{th} graders, both parent-rated and teacher-rated); Ponitz et al. 2008 (self-regulation); JS Matthews, Ponitz & Morrison 2009 (self-regulation, N = 268)	measure); *United States*: Keane et al. 1993; VS Burton et al. 1998; Tittle et al. 2003a (undergrad); Duckworth & Seligman 2006:Table 8* (self-rated: d = .42, teacher-rated: d = .61, N = 140); Higgins & Tewksbury 2006:490; LT Winfree et al. 2006:264; Shekarkhar & Gibson 2011:69 (ages 9-15, N = 739, Hispanics) **OCEANIA** *New Zealand*: Caspi et al. 1994; Moffit et al. 2001:128	Marcum, Higgins et al. 2014:544 (undergrad)	New Zealand, impulse control, d = .55)

Table 16.2.2.7 Self-disciplined

Nature of difference	*Pre-pubertal*		*Post-pubertal*		*Wide age rangel*
		Child	*Adolescent*	*Adult*	
More among males			**NORTH AMERICA** *Canada*: Mummery et al. 2000 (in maintaining exercise activities); *United States*: Craig et al. 1996 (over frequency of exercise); Downs et al. 2006:94 (in maintaining exercise regimen)		
Not significant		**EUROPE** *Britain*: SB Eysenck et al. 1984 (F>M)			
More among females		**NORTH AMERICA** *United States*: Sarni 1984 (ratings by proctor monitor); PM Cole 1986; Duckworth & Seligman 2006:200* (composite scale, 5th graders, N = 140)	**EUROPE** *Germany*: F Fischer, Schult & Hell 2013 **NORTH AMERICA** *United States*: TL Davis 1995; Duckworth & Seligman 2006:206* (8th graders, N = 140) **INTERNATIONAL** *Multiple Countries*: De Bolle et al. 2015:178* (N = 4,850) **OVERVIEW** *Meta-Analysis*: IW Silverman (d = .19)	**NORTH AMERICA** *United States*: Kajonius & Johnson 2018:127 (d = .11, N = 320,128) **INTERNATIONAL** *Multiple Countries*: McCrae & Terracciano 2005:Table 4 (50 countries, self-rated and observer rated); De Bolle et al. 2015:181* (N = 6,128)	**OVERVIEW** *Meta-Analysis*: Silverman 2003

16.2.2.8 Self-Efficiency

The concept of self-efficiency refers to an individual's subjective assessment of how well individuals assess their abilities to reach some specific goal, such as quitting smoking, losing weight, or completing college. Obviously, this self-assessment may or may not be accurate. As shown in Table 16.2.2.8, the two pertinent studies of sex differences in self-efficiency indicate that males give themselves higher scores than do females.

16.2.2.9 Self-Motivation

Individuals who are highly self-motivated (or self-directed) tend to choose to behave in ways of their own choosing, typically with reference to fairly long-term tasks. As shown in Table 16.2.2.9, most studies have indicated that males tend to be more self-motivated than are females.

Table 16.2.2.8 Self-efficiency

Nature of difference			*Post-pubertal*		
				Adult	
More among males				**EUROPE** *Germany*: Ninz et al. 2006 (self-assessed); F Fischer et al. 2013 (undergrad, N = 317M + 353F, self-rated)	
Not significant					
More among females					

Table 16.2.2.9 Self-motivation

Nature of difference			*Post-pubertal*		
			Adolescent	*Adult*	
More among males			**NORTH AMERICA** *United States*: Gough 1968	**EUROPE** *Multiple European Countries*: SH Schwartz, Rubel-Lifschitz 2009:178 (self-directedness) **INTERNATIONAL** *Multiple Countries*: Schwartz & Rubel 2005 (self-directedness)	
Not significant				**EUROPE** *Britain*: Petrides & Furnham 2000:454 (self-rated)	
More among females					

16.2.2.10 Self-Sufficiency/Resourcefulness/Independence

A self-sufficient and independent (individualistic) person is one who is unusually prone to rely on himself/herself for doing daily activities as well as when crises arise. Essentially, the opposite of self-sufficiency is communalism. Table 16.2.2.10 shows that whenever statistically significant differences have been found, they have indicated that males are more self-sufficient, self-reliant, and independent than are females.

16.2.2.11 Reward Dependency

Reward dependence has to do with the tendency to respond to signals of reward, especially in the form of verbal signals of social approval. As shown in Table 16.2.2.11, most studies have concluded that females are more reward dependent than males.

Table 16.2.2.10 Self-sufficiency/resourcefulness/independence

Nature of difference	*Pre-pubertal*		*Post-pubertal*		
		Child	*Adolescent*	*Adult*	
More among males		**NORTH AMERICA** *United States*: RR Sears et al. 1953; Beller & Neubauer 1963 (parent-reports)	**NORTH AMERICA** *Canada*: Hakstian & Cattell 1975:307; Marcotte 2002 (instrumental/self-directed); *United States*: HJ Walberg 1969; Cartwright 1972:215 (medical students, self-assessed); Stefic & Lorr 1974 (N = 331M + 358F); Rosenberg & Simmons 1975; Marcia 1980; RM Ryan et al. 1994; NR Thomson & Zand 2007:293 (self-rated)	**AFRICA** *Cameroon*: Meekers & Klein 2002 (young, to avoid venereal disease) **EUROPE** *France*: Guimond, Chatard et al. 2006 (undergrad, independent); *Germany*: A Hinz et al. 2006 (self-efficient); F Fischer et al. 2013:534 (undergrad, N = 554) **NORTH AMERICA** *United States*: Bernreuter 1933; St Clair & Seegers 1937; Middleton 1941; Tubbs 1942; HM Richardson & Hanawalt 1943; R Carlson 1971 (individualistic); CM Blanchard et al. 2002 (heart disease patients, making behavioral and lifestyle changes); SL Grace et al. 2002 (heart disease patients, making lifestyle changes); O'Hea et al. 2003 (to stop smoking and exercise more); Guimond et al. 2006 (independent, self-rated) **INTERNATIONAL** *Multiple Countries*: Kashima et al. 1995; PB Smith, Easterbrook et al. 2020 (undergrad, N = 5,230 in 24 countries)	
Not significant		**NORTH AMERICA** *United States*: RR Sears et al. 1957 (mothers' reports)	**EUROPE** *Slovakia*: Kusa 2002:354* (undergrad)	**NORTH AMERICA** *United States*: JT Spence & Buckner 2000:49 (self-report)	
More among females					

Table 16.2.2.11 Reward dependency

Nature of difference			*Post-pubertal*		
				Adult	
More among males					
Not significant				**ASIA** *Taiwan*: WJ Chen et al. 2002 **MIDDLE EAST** *Turkey*: Arkar et al. 2005	
More among females				**ASIA** *Japan*: Ando et al. 2004; Itoh et al. 2004; *South Korea*: Sung et al. 2002 **EUROPE** *Belgium*: Hansenne et al. 2001; *Britain*: Otter et al. 1995; *Finland*: Miettunen et al. 2004; *France*: Le Bon et al. 1998; Pélissolo & Lépine 2000; Purper-Ouakil et al. 2004; *Germany*: Weyers et al. 1995; Richter et al. 2003; *Hungary*: Ronai et al. 2001; *Italy*: Manfredonia et al. 1991; *Netherlands*: Duijsens et al. 2000; *Poland*: Zakrzewska et al. 2001; Samochowiec et al. 2004; *Sweden*: Schlette et al. 1998; Lundberg et al. 1999; Brändström et al. 2001*; *Yugoslavia*: Švrakić et al. 1991 **MIDDLE EAST** *Iran*: Richter et al. 2004; *Israel*: ME Stewart et al. 2004; Kremer et al. 2005 **NORTH AMERICA** *United States*: Cloninger et al. 1991; Brändström et al. 2001*; Vaidya et al. 2004; Cloninger et al. 2006; G Vall et al. 2015:Supplement 1 **OVERVIEW** *Meta-Analysis*: Miettunen et al. 2007 (d = .63)	

16.2.3 Risk-Taking Tendencies

Life, of course, is filled with risks. However, people seem to vary considerably in terms of how much risk they are willing to take and even enjoy doing so. In the following tables, findings from a large number of studies of sex differences in risk-taking tendencies of several types are summarized.

16.2.3.1 Risk-Taking/Recklessness in General

Definitions of *risk-taking* vary considerably. Broadly speaking, risk-taking could include the driving beyond the speed limits or not wearing seat-belts when in a moving vehicle (Nathanson 1977). Narrower definitions are usually confined to activities that pose fairly obvious immediate risk of injury or death, such as jumping off of tall structures or walking on thin ice.

To measure risk-taking tendencies in general, many studies use self-reports or peer ratings. In the case of children, the preferred method has been for teachers or researchers to observe children at play and record instances in which they seem to take unusual risks to varying degrees (Ginsburg & Miller 1982; Rosen & Peterson 1990; Coppens & Gentry 1991).

Tables 16.2.3.1a presents a summary of findings of infants, toddlers and children. This table shows that the majority of studies have concluded that prior to puberty, males are more prone toward risk-taking behavior than females.

Table 16.2.3.1a Risk-taking/recklessness in general before puberty

Nature of difference	*Post-pubertal*	
	Infant/toddler	*Adult*
More among males	**NORTH AMERICA** *Canada*: Morrongiello et al. 1996 (toddler); Morrongiello & Dawber 1998 (toddler, exploring dangerous objects); Morrongiello & Dawber 1999 (toddlers); Morrongiello & Dawber 2000 (toddlers)	**EUROPE** *Sweden*: Cardenas, Dreber et al. 2012:Figure 7* (ages 9-12) **LATIN/CARIBBEAN AMERICA** *Colombia*: Cardenas, Dreber et al. 2012:Figure 7* (ages 9-12) **NORTH AMERICA** *Canada*: Morrongiello & Dawber 1996 (of physical injury); Morrongiello & Dawber 2004 (of physical injury); *United States*: Hurlock 1927 (self-rated); Tuddenham 1952 (peer-rated); N Kass 1964; Slovic 1966*; HJ Ginsburg & Miller 1982 (when others were present); Kourilsky & M Campbell 1984; Cloninger et al. 1988; Rosen & Peterson 1990; Speltz et al. 1990; Coppens & Gentry 1991 (playground activities); Potts et al. 1994; Potts et al. 1995; DC Miller & Byrnes 1997* (when others were present); L Peterson et al. 1997 (favorable attitudes toward risk-taking)
Not significant		**MIDDLE EAST** *Israel*: Weller et al. 1976:104; Slovic 1966* **NORTH AMERICA** *United States*: Ginsburg & Miller 1982* (when alone); DC Miller & Byrnes 1997* (when alone)
More among females		**NORTH AMERICA** *United States*: Kopfstein 1973:191 (N = 60)

Research pertaining to sex differences in risk-taking following the onset of puberty is summarized in Table 16.2.3.1b. One can see that the bulk of the findings points toward males being more prone toward taking risks than is the case of females. It is worth noting that the types of risky behavior investigated have included both physical and financial activities. Additional research findings specific to both health-related and financial-related risk-taking appear in subsequent tables.

One study of sex differences in risk-taking behavior was conducted among chimpanzees. Table 16.2.3.1c shows that it indicated that males were more reckless in their behavior than were females.

Table 16.2.3.1b Risk-taking/recklessness in general after puberty

Nature of difference	*Post-pubertal*		*Wide age rangel*
	Adolescent	*Adult*	
More among males	**AFRICA** *Tanzania*: Apicella et al. 2017 (experimental risk-taking, Hadza hunter-gatherers) **ASIA** *India*: Verma 1991 **EUROPE** *Britain*: DA Routledge et al. 1974; Elliott & Baughan 2004 (as pedestrians, self-report); *Denmark*: Arnett & Jensen 1994*; *Spain*: MJM Sullman, Gras et al. 2011 (as pedestrians, self-report, N = 2,180) **NORTH AMERICA** *Canada*: Keane et al. 1989; *United States*: Kuhlen & Lee 1943; Slovic 1966*; McManis & Bell 1968 (persons with mental retardation); HJ Walberg 1969; C Barns & Olson 1977; Starrett 1983*; Jonah 1986; Levin et al. 1988; Wyatt 1988; Fagley & Miller 1990; Lyng 1990; CE Irwin & Millstein 1991; S Moore & Rosenthal 1991b; Rowe 1991; J Kagan 1992; Lyng 1993; Rothman et al. 1993; Arnett & Jensen 1994*;	**AFRICA** *South Africa*: Flisher, Ziervogel et al. 1993 **ASIA** *China*: X He et al. 2008; *India*: Begum & Ahmad 1986 (young); *Malaysia*: L Ellis & Hoskin et al. 2014:12* (self-rated, undergrad, N = 2,059) **EUROPE** *Britain*: Eysenck & Eysenck 1977; M Powell & Ansic 1997 (financial decision-making experiment); *Netherlands*: Prevoo & ter Weel 2015; *Slovakia*: Kusa 2002:354 (undergrad, willing to take risks); *Spain*: Zinkhan & Karande 1991* (self-assessed); *Sweden*: Ostrom et al. 1995 (unsafe driving) **MIDDLE EAST** *Israel*: Taubman et al. 2003:611 (risk death); *Turkey*: Ertak & Gurdal 2012 **NORTH AMERICA** *Canada*: Stenstrom et al. 2011:414 (undergrad, N = 219M + 194F); Mishra & Sritharan 2012:762; *United States*: MR Green 1964; Kenney & White 1966 (daring, self-rated); DL McManis & Bell 1968:270 (retarded adolescents seeking reward/avoiding punishment in physical skill game); Longstreth 1970 (undergrad, self-rated); Ebbsen & Haney 1973 (in traffic); Hottes & Kahn 1974 (young); Yinon et al. 1975; McGaffney 1976; EB Schwartz & Waerjen 1976 (ratings by employee supervisors); Deaux & Farris 1977 (self-assessed); T Michaels & Oetting 1979; Muldrow & Bayton 1979 (business executives); WB Clark & Midanik 1980 (young); McInish 1982 (stock investing); Lichtenstein et al. 1982 (self-assessed); Starrett 1983* (young); Finney 1984*; Hudgens & Fatkin 1985 (military personnel, simulated combat exercises); Beutell & Brenner 1986 (young); Chusmir & Koberg 1986; Veevers & Gee 1986 (young); Levin et al. 1987; Scherer 1987 (young); Estes & Hosseini 1988 (self-assessed); R Masters 1989 (financial planning, self-assessed); Levin, Snyder, & Chapman 1988 (in simulated gambling experiment); Parra 1988; DA Ward et al. 1988; Subich et al. 1989; Antonucci et al. 1990; Thiessen & Ross 1990:300 (undergrad); Verma & Sharma 1990; M Zuckerman et al. 1990 (undergrad); Breakwell et al. 1991 (young); Dahlback 1991; D Schneider & Morris 1991 (undergrad); Sexton & Bowman-Upton 1991 (entrepreneurs); Stinerock et al. 1991 (self-assessed); Zinkhan & Karande 1991* (self-assessed); Riley & Chow 1992 (financial); DS Shaw et al. 1992 (young); Sarrentino et al. 1992; Boverie et al. 1994 (young); Lundeberg et al. 1994 (self-assessed); Bonnelle 1995 (young); Brinig 1995 (willing to take a large financial risks for a large gain); McGoldrick 1995 (in occupational earnings potential); AS Miller & Hoffman 1995*; Sheer & Cline 1995 (young); Bajtelsmit & Bernasek 1996 (undergrad, willingness to take risks); Hersch 1996 (health risks); MP Kohler 1996 (young); Bajtelsmit & Van	**EUROPE** *Britain*: Llewellyn & Sanchez 2008 (adolescents & adults, when rock-climbing, N = 88M + 28F) **NORTH AMERICA** *United States*: Heilizer & Cutter 1971; Konecni et al. 1976; Bromiley & Curley 1992 **INTERNATIONAL** *Multiple Countries*: Lendrem et al. 2014 (inferred from a study of post-mortum "Darwin Award" recipients); Bansal et al. 2018:829 (deaths while taking risky selfies, 153M vs. 58F) **OVERVIEW** *Literature Review*: Arch 1993; Eckel & Grossman 2008); Charness & Gneezy 2012 (financial risk experiments); *Meta-Analysis*: JP Byrnes, Miller & Schafer 1999:379 (overall average d = .13 many types of risk-taking); CP

	Jessor et al. 1995; AS Miller & Hoffmann 1995:69*; Rudolph 1996; Deery 1999 (while driving); Harre et al. 2000 (favorable attitudes toward risk-taking while driving); Rosenbloom & Wolf 2002 (favorable attitudes toward risk-taking)	Derhei 1997 (pension-fund investments); RP Hinz et al. 1997 (household money management); Powell & Ansic 1997 (undergrad); Jianakoplos & Bernasek 1998 (risky investing); Langhinrichsen-Rohling et al. 1998 (young); Sunden & Surette 1998 (in retirement planning); Bjtelsmit et al. 1999 (undergrad); Schrader & Wann 1999 (sporting activities); JT Spence & Buckner 2000:49 (self-report); M Zuckerman & Kuhlman 2000; Bernasek & Shwiff 2001 (household finances); Halek & Eisenhauer 2001; Courtenay et al. 2002 (undergrad); Dwyer et al. 2002 (mutual funds investments); Eckel & Grossman 2002 (experimental financial games); Hirschberger et al. 2002:127 (undergrad); Holt & Laury 2002* (in low-payoff decision gambling); SM Atkinson et al. 2003 (mutual fund investing); Eckel & Grossman 2003 (experimental game); Larkin & Pines 2003 (in publicly televised game shows); Soll & Klayman 2004 (investment decisions, self-assessed); CR Harris et al. 2006:52 (enjoy risk-taking, undergrad, N = 657); JR Walker 2006 (in occupational earnings potential); Ding, Powe et al. 2007 (ages 40-70, N = 783, whites); RB Goldstein et al. 2007 (among persons with antisocial personalities or alcoholism); Niederle & Vesterlund 2007 (self-assessed); Samuel, Vugia et al. 2007:225 (eat more high-risk foods); He, Inman & Mittal 2008 (wagers by contestants in the game show Jeopardy);Wang, Kruger & Wilke 2009; Charness & Gneezy 2012; Ertac & Gurdal 2012; Shiferaw, Verrill et al. 2012:Table 3 (eat more high-risk foods); L Ellis & Hoskin et al. 2014:12* (self-rated, undergrad, N = 1,291); JP Hoffmann 2019:221; Otufowora et al. 2020 (N = 6,544) **INTERNATIONAL** *Multiple Countries*: S Thomas, Anisya & Mueller 2000; Falk & Hermle 2018 (76 countries)	Cross et al. 2011:113 (d = .32, careless)
Not significant	**EUROPE** *Britain*: Jamieson 1969 **NORTH AMERICA** *United States*: Wallach & Kogan 1959 **OCEANIA** *New Zealand*: MJM Sullman & Mann 2009 (as pedestrians, self-report)	**ASIA** *China*: Lam 2014 (in a hypothetical lottery game, N = 100M + 100F) **NORTH AMERICA** *United States*: Finney 1984* (young); SJ Nixon & Parsons 1989 (young); J Arnett 1991; Holt & Laury 2002* (in high-payoff decision gambling)	**NORTH AMERICA** *United States*: Harbaugh et al. 2002 (experimental games of chance)
More among females			

Table 16.2.3.1c Risk-taking/recklessness among non-humans

Nature of difference					*Wide age rangel*
More among males					**PRIMATE** *Chimpanzee*: JE King et al. 2008
Not significant					
More among females					

16.2.3.2 Trends in Sex Differences in Risk-Taking

One meta-analysis sought to determine if there seemed to be any changes in sex differences regarding risk-taking. Table 16.2.3.2 shows that the researchers concluded that the magnitude of the sex differences seems to have lessened somewhat during the latter half of the 20th century.

Table 16.2.3.2 Trends in sex differences in risk-taking

Nature of difference			*Post-pubertal*		
			Adolescent		
Difference increasing					
Not significant					
Differences decreasing			**OVERVIEW** *Meta-Analysis*: Byrnes, Miller & Schafer 1999 (1960s to 1990s)		

16.2.3.3 Cautiousness (Risk-Aversive)

The concept of cautiousness denotes the tendency to avoid taking risks; thus, it can be thought of as the opposite of risk-taking. As shown in Table 16.2.3.3, findings have been inconsistent, with most pointing toward females being more risk aversive or cautious when it comes to taking risks (especially when the potential for any benefits are low).

16.2.3.4 Being Involved in a Motor Vehicle Accident

Studies of sex differences in being involved in a motor vehicle accident are summarized in Table 16.2.3.4. Such studies are primarily based on official accident investigations by police and insurance agents. The table suggests that among adolescents, males are more often involved in motor vehicle accidents than are females, but that there appears to be little sex difference among adults.

Table 16.2.3.3 Cautiousness (risk-aversive)

Nature of difference	*Pre-pubertal*		*Post-pubertal*		
	Infant/toddler		*Adolescent*	*Adult*	
More among males				**NORTH AMERICA** *United States*: Schubert et al. 1999* (in insurance-domain gambling)	
Not significant				**ASIA** *China*: Lam 2015 (undergrad) **NORTH AMERICA** *United States*: Wallach & Kogan 1959 (young); Botwinick 1966 (elderly); R Master & Meier 1988 (among entrepreneurs & managers); Harbaugh et al. 2002* when the probability of gains and losses are low); Fehr-Duda et al. 2006* (when the probability of rewards are low, experiment); Kajonius & Johnson 2018:127 (d = .04, M>F, N = 320,128)	
More among females	**NORTH AMERICA** *United States*: Rothbart 1988 (cautious when approaching a new toy)		**NORTH AMERICA** *United States*: LV Gordon 1978 (cautious); Branas-Garza & Rustichini 2011 (risk-aversive, N = 73M + 116F)	**EUROPE** *Netherlands*: Cobey et al. 2013 (financial, theft, fines, N = 555) **NORTH AMERICA** *United States*: Meyers-Levy 1989 (process more information before making important decisions); Powell & Ansic 1997 (financial); Schubert et al. 1999* (in financial-domain gambling); Eckel & Grossman 2002 (financial); Harbaugh et al. 2002* when the probability of gains are high); Fehr-Duda et al. 2006* (when the probability of rewards are high, experiment); Sapienza et al. 2009 (more risk aversive in financial affairs, MBA students, experiment, N = 381M + 169F); KT Gagnon, Cashdan et al. 2016 (cautious when exploring a virtual world, undergrad, N = 42M + 36F) **OVERVIEW** *Generalization*: Croson & Gneezy 2009:1; *Literature Review*: Eckel & Grossman 2008	

Table 16.2.3.4 Being involved in a motor vehicle accident

Nature of difference			*Post-pubertal*		
			Adolescent	*Adult*	
More among males			**EUROPE** *Finland*: S Laapotti & Keskinen 1998 (as the driver, judged culpable, ages 18-21, 338M vs. 75F) *Spain*: Claret et al. 2003* (as the driver, motor vehicle collisions, both adjusted & unadjusted for miles driven) **NORTH AMERICA** *United States*: Stamatiadis & Deacon 1995* (as the driver)		
Not significant				**EUROPE** *Spain*: Claret et al. 2003* (as the driver, motor vehicle collisions, adjusted for miles driven) **NORTH AMERICA** *United States*: Stamatiadis & Deacon 1995* (as the driver)	
More among females				**EUROPE** *Spain*: Claret et al. 2003* (as the driver, motor vehicle collisions, unadjusted for miles driven)	

16.2.3.5 Speeding When Driving

According to the available studies, males are more likely than females to drive motor vehicles at speeds exceeding legal limits. The relevant evidence is summarized in Table 16.2.3.5.

Table 16.2.3.5 Speeding when driving

Nature of difference			*Post-pubertal*		
				Adult	
More among males				**EUROPE** *Britain*: L Evans 1991; *Finland*: Laapotti & Keskinen 1998 **NORTH AMERICA** *United States*: DW Harrington & McBride 1970 (ages 18-21); RE Hagen 1975 (simulated driving); CR Harris et al. 2006:53 (undergrad, N = 657)	
Not significant					
More among females					

16.2.3.6 Gambling

Gambling refers to a variety of risk-taking gaming activities in which money or other things of value are wagered for a chance to receive a high return. According to Table 16.2.3.6, most studies have indicated that males gamble significantly more often than do females, but the specific types of gambling is sometimes relevant. Specifically, forms of gambling that appear to be most appealing to females are forms that are strictly based on chance (such as bingo and slot machines). As indicated in the table following this one, males seem to gravitate toward so-called "strategic" forms of gambling in which the odds of winning and losing can be roughly calculated and at least slightly altered by players each time a hand is played (such as in poker). Additional research on gambling is presented in the chapter on mental illnesses and disorders under a table pertaining to pathological and compulsive gambling.

16.2.3.7 Strategic (vs. Chance) Gambling

Strategic gambling involves forms of gambling where one is usually competing against another person (e.g., poker or craps). Chance gambling, on the other hand, involves simply playing the odds (e.g., slot machines or lottery). As shown in Table 16.2.3.7, the available research indicates that, among gamblers, males are more likely than females to gravitate toward strategic gambling.

16.2.3.8 Risk-Taking in Experimental Games

Many experimental games have been devised by researchers to assess how prone people are to take risks under a variety of conditions. Usually, the experiments resemble real-world gambling, and in some of these experiments, sex differences in risk-taking have been reported. As shown in Table 16.2.3.8, most of these studies have concluded that males usually take more risks in these contrived games than do females.

16.2.3.9 Risky Shift Behavior

The tendency for group decision making to exhibit greater degrees of risk than the risk-taking decisions made by individuals on their own is known as *risky shift behavior*. As shown in Table 16.2.3.9, studies have found that all-male groups are more prone toward risky shift behavior than are all-female groups.

16.2.3.10 Taking Health Risks

Research on sex differences in taking risks specific to one's health is cited in Table 16.2.3.10. Most of the findings cited indicate that males are more prone to take health risks than is true for females.

Table 16.2.3.6 Gambling

Nature of difference	*Pre-pubertal*		*Post-pubertal*		*Wide age rangel*
		Child	*Adolescent*	*Adult*	
More among males		**EUROPE** *Poland*: Walesa 1975* **NORTH AMERICA** *Canada*: Gupta & Derevensky 1997*; *United States*: Kass 1964; Slovic 1966	**AFRICA** *South Africa*: AJ Flisher & Chalton 1995 **EUROPE** *Britain*: Jamieson 1969; Ide-Smith & Lea 1988:115 (N = 30M + 20F); Griffiths 1990; M Griffiths & Sutherland 1998 **NORTH AMERICA** *Canada*: Govoni, Rupcich & Frisch 1996:Table 1 (N = 965); Gupta & Derevensky 1997*; Adebayo 1998; Gupta & Derevensky 1998:326 (N = 381M + 599F); Ladouceur et al. 1999a; Ladouceur et al. 1999b; Adlaf & Lalomiteanu 2000:754 (N = 2,371); Hardoon, Gupta & Derevensky 2004:173 (N = 981M + 1,326F); *United States*: Lupfer et al.1971; S Snyder 1984; KC Winters, Stinchfield & Fulkerson 1993:72 (N = 477M + 491F); Buchta 1995 (N = 97M + 102F); D Miller & Byrnes 1997; Proimos et al. 1998:E233; Winters & Anderson 2000; Barnes et al. 2002; Desai	**ASIA** *Malaysia*: Hartley, Ellis & Hoskin 2019:Table 3* (illegal gambling, self-report) **EUROPE** *Britain*: DM Downes et al. 1976* (self-report); RTA Wood & Griffiths 1998 (lotteries & scratch cards, N = 1,195); Sproston et al. 2000 (self-report); M Griffiths & Barnes 2008:197-201 (online, N = 213m + 260F); *Netherlands*: Hartog et al. 2002 (lottery experiment); *Switzerland*: Bondolfi et al. 2000 **NORTH AMERICA** *Canada*: Derevensky & Gupta 2000:235 (undergrad, N = 381M + 599F); *United States*: Heilizer & Cutter 1971 (young); Cvetkovich 1972 (young); Kallick et al. 1979 (self-report); Zenker & Wolfgang 1982 (young); Levin et al. 1988 (gambling experiment); AK Wolfgang 1988 (young); WP Mok & Hraba 1991* (except bingo, elderly, N = 1,011); AC Bruce & Johnson 1994 (amount bet); Feigelman et al. 1995 (among meth addicts); Hraba & Lee 1996; Winters et al. 1998 (undergrad); Winters & Rich 1998 (twins); McCrary & Pavlak 2002 (lottery); JW Welte, Barnes et al. 2002:326 (N = 2,630); SR McDaniel & Suckermann 2003:1392 (N = 347M + 436F); JW Welte, Barnes est al. 2004 (N = 2,631); Nower et al. 2004:50 (self-reports); Vander Bilt, Dodge et al. 2004:Tables 1-3 (elderly, N = 356M + 614F); C Blanco, Hasin et al. 2006;	**EUROPE** *Britain*: O Newman 1972; Downes et al. 1976*; DB Cornish 1978; *Sweden*: Volberg et al. 2001 **NORTH AMERICA** *United States*: Gebhard & Johnson 1979:92; Kallick et al. 1979; HR Greenberg 1980; Volberg & Steadman 1988; Volberg & Steadman 1989; RJ Rosenthal & Lesieur 1992; Sorrentino et al. 1992; Volberg 1994; PB Gray 2004 (high stakes); SL Hershberger & Bogaert 2005; JW Welte, Barnes et al. 2011:Table 1 (n = 4,905) **OCEANIA** *Australia*: Allcock 1986; SM Moore & Ohtsuka 1999 (N = 435M + 577F); Productivity Commission 1999:13; *New Zealand*: D Clarke, Abbott et al. 2006:87* (Asians) **OVERVIEW** *Literature Review*: DB Cornish 1978; *Meta-Analysis*: JP Byrnes, Miller & Schafer 1999 (gambling risks-taking, d = .21)

			et al. 2005 (N = 534); SS Martins et al. 2009 (blacks, N = 452)	CR Harris et al. 2006:53 (self-report, undergrad, N = 657); Stinchfield, Hanson & Olson 2006:64 (undergrad); NM Petry 2013 (sports gambling & horse racing, N = 347); Hartley, Ellis & Hoskin 2019:Table 3* (illegal gambling, self-report) **OCEANIA** *Australia*: MB Walker 1992* (except slot machines); Delfabbro 2000* (except slot machines); Hing & Breen 2001 **OVERVIEW** *Literature Review*: M Griffiths 1989	
Not significant		**NORTH AMERICA** *United States*: CS Hayes 1973; GT Montgomery & Landers 1974; Arenson 1978	**AFRICA** *South Africa*: AJ Flisher & Chalton 1995* **EUROPE** *Britain*: S Fisher 1993 (ages 11-16); *Germany*: Lamm 1979*; *Poland*: Walesa 1975* **NORTH AMERICA** *United States*: Hraba & Lee 1996 (N = 1,011)	**NORTH AMERICA** *United States*: Kogan & Wallach 1964; FW Irwin & Tolkmitt 1968; Kindgren et al. 1987 (casual gambling); Hraba & Lee 1996 (recreational gambling); Welte et al. 2002 **OCEANIA** *Australia*: Maddern & Golledge 1997 (casual gambling)	**OCEANIA** *Australia*: Ohtsuka et al. 1997 (playing gambling machines, N = 44M + 60F); *New Zealand*: D Clarke, Abbott et al. 2006:87* (whites & Maori)
More among females		**NORTH AMERICA** *United States*: Kopfstein 1973	**EUROPE** *Germany*: Lamm 1979*	**EUROPE** *Germany*: Beckert & Luther 2009:483 (lottery) **NORTH AMERICA** Canada: Smart & Ferris 1996 (lottery); *United States*: Mindock 1972; Lesieur & Blume 1991 (slot machine); WP Mok & Hraba 1991* (bingo, elderly, N = 1,011); Tomlinson 2003:269 (lottery) **OCEANIA** *Australia*: MB Walker 1992* (slot machines); Delfabbro 2000* (slot machines)	

Table 16.2.3.7 Strategic (vs. chance) gambling

Nature of difference			*Post-pubertal*		
			Adolescent	*Adult*	
More among males			**NORTH AMERICA** *United States*: Potenza et al. 2001* (among problem gamblers)	**NORTH AMERICA** *United States*: Potenza et al. 2001* (among problem gamblers); Desai et al. 2006:150 (N = 747M + 724F)	
Not significant					
More among females					

Table 16.2.3.8 Risk-taking in experimental games

Nature of difference			*Post-pubertal*		*Wide age rangel*
			Adolescent	*Adult*	
More among males			**NORTH AMERICA** *United* States: Hudgens & Fatkin 1985 (military experimental computer games)	**NORTH AMERICA** *United States*: Karabenick & Addy 1979 (games of chance); IP Levin, Snyder & Chapman 1988; R Shubert et al. 1999 (undergrad, lottery experiment); Eckel & Grossman 2002 (undergrad, experimental lottery); CA Holt & Laury 2002 (undergrad, lottery experiment)	**NORTH AMERICA** *United States*: Calhoun 1978 (experimental computer games)
Not significant					
More among females					

16.2.3.11 Taking Monetary/Financial Risks

Research findings having to do with sex differences in taking monetary or financial risk (other than explicit gambling) appear in Table 16.2.3.11. One can see that except for a couple of studies reporting no significant differences, males are more likely than females to take such risks (usually in their business dealings).

16.2.3.12 Taking Physical Risks

In a few studies, researchers have sought to determine if males or females are more likely to take physical risk (i.e., risks that could result in physical pain or harm). Table 16.2.3.12 shows that all these studies concluded that males do so more.

Table 16.2.3.9 Risky shift behavior

Nature of difference				*Post-pubertal*	
				Adult	
More among all-male groups				**NORTH AMERICA** *United States*: Coet & McDermott 1979 (young); Seeborg et al. 1980 (young); DiBerardinis et al. 1984 (young) **OCEANIA** *Australia*: Ronay & Kim 2006	
Not significant					
More among all-female groups					
More among mixed-sex groups					

16.2.4 Sensation Seeking and Adventure Seeking

Considerable research has sought to determine if males and females differ regarding the types of experiences they seek to have. In the following section, specific attention is given to sensation seeking and adventure seeking in general.

16.2.4.1 Sensation Seeking (General)

Sensation seeking refers to the desire for varied and complex sensations and experiences, often to the point of taking physical and social risks to have such experiences (Zuckerman 1994:27). As this definition implies, an important element in sensation seeking is the tendency to be reckless (Arnett 1996).

The most widely used measure for sensation seeking is a self-report scale developed in the 1960s (Zuckerman 1994:389; also see Arnett 1994). Many studies have been conducted on sensation seeking since that time. Throughout the world, research has indicated that there are at least three "components" of sensation seeking: boredom susceptibility, thrill and adventure seeking, and a tendency to be spontaneous and uninhibited (Zuckerman 1971; IL Ball et al. 1983:1158).

Considerable research has sought to determine if males or females differ regarding sensation seeking tendencies. Table 16.2.4.1 shows that most studies have found males being more prone toward sensation seeking than females, while a minority of studies have reported no significant sex differences in this regard.

16.2.4.2 Thrill and Adventure Seeking (Venturesomeness)

The tendency to be a thrill seeker or adventure seeker denotes an unusual willingness to experiment with new sensations and experiences.

Table 16.2.3.10 Taking health risks

Nature of difference	*Pre-pubertal*		*Post-pubertal*		*Wide age rangel*
		Child	*Adolescent*	*Adult*	
More among males		**NORTH AMERICA** *United States*: Flaherty & Arenson 1978; MS Stanford et al. 1996*; Whissell & Bigelow 2003	**NORTH AMERICA** *United States*: Flaherty & Arenson 1978; MS Stanford et al. 1996*; Whissell & Bigelow 2003	**AFRICA** *Nigeria*: Alagh & Omokhodion 2004 (undergrad) **ASIA** *Thailand*: Nanakorn et al. 1999 (undergrad) **EUROPE** *Germany*: Stock et al. 2001 (undergrad); *Sweden*: Vaez & Laflamme 2003 (undergrad); von Bothmer & Fredlund 2005 (undergrad); *Multiple European Countries*: Schwartz & Rubel-Lifschitz 2009:178 **MIDDLE EAST** *Turkey*: Oksuy & Malhan 2005 (undergrad) **NORTH AMERICA** *Canada*: SS Martins et al. 2004 (risky sexual behavior among pathological gamblers); KA Dawson et al. 2007:40 (undergrad); *United States*: DS Shaw et al. 1992 (young); Bonnelle 1995 (young); MS Stanford et al. 1996* (young); Hersch 1997; Paulson et al. 1998 (undergrad, risky sexual behavior); J Davies et al. 2000 (undergrad); Anding et al. 2001 (undergrad); Von Ah et al. 2004 (undergrad); Pawlowski et al. 2008	**EUROPE** *Netherlands*: Cobey et al. 2013 (no bike locking, not using lights while biking, risky maneuvering on bikes) **NORTH AMERICA** *United States*: J Hersch 1997 (health & safety); Beier & Ackerman 2003 (health risks)
Not significant			**EUROPE** *Denmark*: Arnett & Jensen 1994* **NORTH AMERICA** *United States*: Bachman et al. 1991; Ingersoll et al. 1993; Arnett & Jensen 1994*; Dolcini & Adler 1994	**NORTH AMERICA** *United States*: Gibbons & Gerrard 1995 (young)	
More among females			**NORTH AMERICA** *United States*: Tinsley et al. 1995	**NORTH AMERICA** *United States*: Wayment et al. 1993; Dwyer et al. 1994	

Table 16.2.3.11 Taking monetary/financial risks

Nature of difference	*Post-pubertal*	
	Adult	
More among males	**EUROPE** *Austria*: Meier-Pesti & Penz 2008; *Britain*: Sexton & Bowman-Upton 1990 (among entrepreneurs); Johnson & Powell 1994; M Powell & Ansic 1997 (financial decision-making experiment in a computer lab); *Germany*: Muldrow & Bayton 1979 (business decisions) **NORTH AMERICA** *United States*: Blume & Friend 1978 (stock investing); IP Levin, Snyder & Chapman 1988 (undergrad, gambling experiment); R Master & Meier 1988 (small business owners); Bailey 1989 (among entrepreneurs); Subich et al. 1989 (business decisions); Sexton & Bowman-Upton 1991 (business decisions); Stinerock et al. 1991; Chauvin & Ash 1994 (career decisions); Bajtelsmit & Bernasek 1996 (retirement savings); Bajtelsmit & VanDerhei 1997 (stock investing); Bajtelsmit & Van Derhie 1997 (retirement savings); Bajtelsmit et al. 1997 (pension investments); Barsky et al. 1997 (prefer higher risk investments in retirement planning); RP Hinz et al. 1997 (pension investments); Powell & Ansic 1997 (undergrad, experimental investments); JC Glass & Kilpatrick 1998 (elderly; financial investing); Jianakoplos & Bernasek 1998 (financial investments); Sunden & Surette 1998 (unmarried persons, stock allocations); Finucane et al. 2000* (among whites); BM Barber & Odean 2001; Bernasek & Shwiff 2001 (with retirement savings); RA Olson & Cox 2001 (among professional stock investors); Dwyer et al. 2002 (mutual fund investments); Eckel et al. 2002 (undergrad, experimental lottery); Weber et al. 2002 (financial); Hallahan et al. 2003 (higher risk tolerance); Fehr-Duda et al. 2006 (undergrad, lottery experiment); Croson & Gneezy 2009; Sapienza et al. 2009 (MBA students, undergrad) **INTERNATIONAL** *Multiple Countries*: Zinkhan & Karande 1991 **OVERVIEW** *Meta-Analysis*: Byrnes et al. 1999	
Not significant	**EUROPE** *Switzerland*: R Schubert et al. 1999:384 (under controlled economic conditions) **NORTH AMERICA** *United States*: Finucane et al. 2000* (among non-whites)	
More among females		

Table 16.2.3.12 Taking physical risks

Nature of difference	*Pre-pubertal*	*Post-pubertal*	*Wide age rangel*
	Child	*Adult*	
More among males	**NORTH AMERICA** *United States*: Longstreth 1970	**NORTH AMERICA** *United States*: Ebbesen & Haney 1973; RE Hagen 1975	**NORTH AMERICA** *United States*: Leff & Gunn 1973 (adolescents & adults)
Not significant			
More among females			

Table 16.2.4.1 Sensation seeking (general)

Nature of difference	*Pre-pubertal*		*Post-pubertal*		*Wide age rangel*
		Child	*Adolescent*	*Adult*	
More among males		**NORTH AMERICA** *United States*: Russo et al. 1991; Resnick et al. 1993*	**EUROPE** *Belgium*: Simo et al. 1991; *Netherlands*: Feij et al. 1982; Feij et al. 1997; Cohen-Bendahan et al. 2005; *Spain*: Perez & Torrubia 1985*; Muro et al. 2012 **NORTH AMERICA** *United States*: K Baker et al. 1991; Arnett 1994:289; Kong, Smith et al. 2013:Table 1	**ASIA** *Thailand*: Berkowitz 1967 (young) **EUROPE** *Britain*: IL Ball et al. 1984; Furnham 1984 (young); Coventry & Hudson 2001:874 (overall SSS, among gamblers); *Spain*: Perez & Torrubia 1985* (young); *Multiple European Countries*: Schwartz & Rubel-Lifschitz 2009:177 (undergrad, 25 countries) **MIDDLE EAST** *Kuwait*: Torki 1993 (young) **NORTH AMERICA** *Canada*: O Ridgeway & Russel 1980; Rowland et al. 1986:213 (undergrad); *United States*: Kurtz & Zuckerman 1978 (young); Zuckerman & Litle 1986 (young); Resnick et al. 1993 (except for experience seeking subscale); Kalichman & Rompa 1995; Rosenblitt et al. 2001:399 (undergrad); Hirschberger et al. 2002:126 (undergrad); TR Alley, Willet & Muth 2006:686 (undergrad, N = 308) **OCEANIA** *Australia*: IL Ball et al. 1984 (young) **INTERNATIONAL** *Multiple Countries*: Aluja, Rossier et al. 2020:Figure 1* (averages for 18 countries, ages 31-elderly)	**EUROPE** *Britain*: Zuckerman, Eysenck & Eysenck 1978:143*; *Croatia:* A Butkovic & Bratko 2003; *Norway*: Breivik, Sand & Sookmany 2017:Table 3 **NORTH AMERICA** *United States*: M Zuckerman et al. 1978:143*; M Zuckerman & Neeb 1980:200 **OVERVIEW** *Meta-Analysis*: LC Wilson & Scarpa 2010; CP Cross et al. 2011:111 (d = .50); CP Cross, Cyrenne & Brown 2013 (difference has remained stable over time)
Not significant			**EUROPE** *Multiple Scandinavian Countries*: Braathen & Svebak 1992 (athletes) **NORTH AMERICA** *United States*: FD Mann et al. 2015:Table 1	**ASIA** *China*: Yang et al. 2009:53 (undergrad, N = 118M + 103F, self-report) **EUROPE** *Italy*: Magaro et al. 1979 (young) **NORTH AMERICA** *United States*: Farley & Cox 1971 (young); Bone et al. 1972 (young); Zuckerman 1984b (undergrad)	
More among females					

Such tendencies often result in individuals taking extended trips into unfamiliar territories or taking rides on frightening roller coasters. Most measures of thrill and adventure seeking involve self-reports. As shown in Table 16.2.4.2, the evidence is mixed, but generally indicating that traits such as thrill seeking and adventure seeking are more characteristic of males than of females.

16.2.4.3 Novelty Seeking (Experience Seeking)

People vary in terms of the extent to which they yearn to, or are at least willing to, experience new things. As shown in Table 16.2.4.3, mixed results have emerged regarding sex differences in novelty seeking behavior, except possibly among pre-adults, where all the studies point toward more novelty seeking among males.

16.2.4.4 Excitement Seeking

A few studies have sought to determine if there is a sex difference in excitement seeking. One can see in Table 16.2.4.4 that all the located studies reported excitement seeking tendencies to be more characteristic of males than of females.

16.3 Health-Related Aspects of Personality and Behavior

Behavior that is likely to affect one's health and life expectancy will be the focus of this section. It is divided into two sub-sections, one having to do with eating habits and the other concerned with other forms of behavior that are likely to affect health.

16.3.1 Dietary Health-Related Behavior

Eating habits are often motivated by desires to maintain or enhance one's health. These habits can not only involve what types of foods are eaten but also the amounts. Studies of sex differences in eating habits are reviewed below.

16.3.1.1 Eating Healthy Foods

The extent to which people eat what are generally considered healthy foods (particularly those containing high proportions of fresh fruits and vegetables) has been assessed in numerous studies regarding sex differences. According to Table 16.3.1.1, most studies have found females eat healthy foods to a greater extent than do males.

Table 16.2.4.2 Thrill and adventure seeking (venturesomeness)

Nature of difference			*Post-pubertal*		*Wide age rangel*
			Adolescent	*Adult*	
More among males			**EUROPE** *Britain*: M Zuckerman et al. 1978; *Netherlands*: Sijtesma et al. 2010:497 (adventuresome) **NORTH AMERICA** *Canada*: Hakstian & Cattell 1975:307; *United States*: M Zuckerman 1971; M Zuckerman 1978; M Zuckerman 1979; J Thorson & Powell 1987; Cochran et al. 1994:119 **OCEANIA** *Australia*: SM Moore & Rosenthal 1993	**EUROPE** *Britain*: SBG Eysenck et al. 1985* (young); Corulla 1987 (young); Corulla 1988 (young); *Spain*: Luengo et al. 1991:660 (young); *Sweden*: Bargeman et al. 1993:167 (twins) **NORTH AMERICA** *United States*: Ratliff & Burkhart 1984:29 (undergrad, N = 70M + 70F); AK Wolfgang 1988:74 (young); Nagoshi 1999:299 (undergrad, among alcohol users); Rosenblitt et al. 2001:399 (experience & adventure seeking, undergrad); Levenson et al. 1995:154 (undergrad); Kajonius & Johnson 2018:127* (adventuresome, d = .10, N = 320,128); Kavish, Boisvert et al. 2019:222 (undergrad) **OCEANIA** *Australia*: Eysenck et al. 1985* (young)	**EUROPE** *Britain*: Zuckerman, Eysenck & Eysenck 1978:143*; *Norway*: Breivik, Sand & Sookmany 2017:Table 3 **NORTH AMERICA** *United States*: Zuckerman et al. 1978:143*; M Zuckerman & Neeb 1980:200 **OVERVIEW** *Meta-Analysis*: CP Cross et al. 2011:111 (d = .41); CP Cross et al. 2013 (d = .42)
Not significant				**NORTH AMERICA** *United States*: Levenson et al. 1995:154 (undergrad, experience seeking)	
More among females				**NORTH AMERICA** *United States*: Kajonius & Johnson 2018:127* (experience seeking, d = .19, N = 320,128)	

Table 16.2.4.3 Novelty seeking (experience seeking)

Nature of difference			*Post-pubertal*		*Wide age rangel*
	Infant/toddler		*Adolescent*	*Adult*	
More among males	**ASIA** *China*: Hsu et al. 1981 (infant, approach toward novel objects) **NORTH AMERICA** *Canada*: Maziade et al. 1984, infant, approach toward novel objects); *United States*: WB Carey & McDevitt 1978 (toddler, approach toward novel objects)		**NORTH AMERICA** *United States*: LG Scheier et al. 1995 (approach toward novel objects)	**EUROPE** *Britain*: ME Stewart et al. 2004; *Finland*: Miettunen et al. 2004; *Germany*: Wayers et al. 1995; *Netherlands*: Duijsens et al. 1000 (among psychiatric patients); *Poland*: Samochowiec et al. 2004 **MIDDLE EAST** *Turkey*: Arkar et al. 2005 **NORTH AMERICA** *Canada*: Pliner & Hobden 1992 (willing to try new foods); *United States*: Cloninger et al. 1991; Vaidya et al. 2004 (among medical students); Alley et al. 2006 (undergrad, willing to try new foods)	
Not significant				**ASIA** *Taiwan*: WJ Chen et al. 2002 **EUROPE** *Belgium*: Hansenne et al. 2001; *Czech Republic*: Kozeny et al. 1989; *France*: Purper-Ouakil et al. 2004; *Germany*: K Krebs et al. 1998; Richter et al. 2003 (among depressed patients); *Hungary*: Ronai et al. 2001; *Sweden*: Schlette et al. 1998; Brandstrom et al. 2001*; *Yugoslavia*: Svrakic et al. 1991 **MIDDLE EAST** *Israel*: Zohar et al. 2001; Kremer et al. 2005 **NORTH AMERICA** *United States*: Stallings et al. 1998; Kavish, Boisvert et al. 2019:222 (experience seeking, undergrad)	**OVERVIEW** *Meta-Analysis*: Miettunen et al. 2007 (d = .04)
More among females				**EUROPE** *Britain*: Otter et al. 1995; *France*: Le Box et al. 1998; *Germany*: Weyers et al. 1995; *Italy*: Manfredonia et al. 1991; *Poland*: Zakrzewska et al. 2001; *Sweden*: M Lundberg et al. 1999 **NORTH AMERICA** *United States*: Brandstrom et al. 2001*	

Table 16.2.4.4 Excitement seeking

Nature of difference			*Post-pubertal*		
			Adolescent	*Adult*	
More among males			**INTERNATIONAL** *Multiple Countries*: De Bolle et al. 2015:178* (N = 4,850)	**ASIA** *India*: G Lewis & Krishnan 2004:Table 2 (N = 42M + 42F) **NORTH AMERICA** *United States*: Kajonius & Johnson 2018:127 (excitement oriented, N = 320,128, d = .29) **INTERNATIONAL** *Multiple Countries*: McCrae & Terracciano 2005:Table 4 (50 countries, self-rated and observer rated); De Bolle et al. 2015:181* (N = 6,128)	
Not significant					
More among females					

Table 16.3.1.1 Eating healthy foods

Nature of difference	*Pre-pubertal*		*Post-pubertal*		*Wide age rangel*
		Child	*Adolescent*	*Adult*	
More among males					
Not significant		**EUROPE** *Britain*: JR Gregory et al. 1995		**INTERNATIONAL** *Multiple Countries*: Wardle, Haase et al. 2004:110 (undergrad, 1/23 countries)	
More among females			**NORTH AMERICA** *United States*: Perry et al. 1985; Striegel-Moore & Rodin 1985; R Cohen et al. 1990; Neumark-Sztainer et al. 1998; KD Reynolds et al. 1999; Fardy et al. 2000; Bere et al. 2008	**ASIA** *Malaysia*: Othman, Ab Karim et al. 2012; *Singapore*: Teoh et al. 2009:Table 12; *Thailand*: Nanakorn, Osaka et al. 1999 (undergrad, N = 155M + 384F) **EUROPE** *Britain*: Baker & Wardle 2003; *Finland*: Roos et al. 1998 **LATIN/ CARIBBEAN AMERICA** *Uruguay*: Ares & Gambaro 2007 (preference for)	**EUROPE** *Britain*: Marmot & Davey Smith 1997:Table 2*; Wardle et al. 2000; AH Baker & Wardle 2003:272; *Norway*: L Johansson et al. 1999 **NORTH AMERICA** *United States*: Food Marketing Institute 1990; AM Smith & Smith 1994; Nayga 1997;

(*Continued*)

Table 16.3.1.1 (Continued)

Nature of difference	*Pre-pubertal*		*Post-pubertal*		*Wide age rangel*
		Child	*Adolescent*	*Adult*	
				OCEANIA *Australia*: G Turrell 1997 (preferences, N = 330) **INTERNATIONAL** *Multiple Countries*: J Wardle, Haase et al. 2004:110 (undergrad, 22/23 countries)	Marmot & Davey Smith 1997:Table 2*; RL Thompson et al. 1999

16.3.1.2 Gluttony (Overeating)

Gluttony refers to eating to excess. As shown in Table 16.3.1.2, one study concluded that males did so more than did females.

Table 16.3.1.2 Gluttony (overeating)

Nature of difference			*Post-pubertal*		
				Adult	
More among males				**NORTH AMERICA** *United States*: Jonason, Ziegler-Hill & Okan 2017:181 (undergrad, N = 1,236, d = .14)	
Not significant					
More among females					

16.3.1.3 Dieting (Attempting to Lose Weight)

Studies of sex differences in efforts made to lose weight (or to maintain it at a level that is below some level) are largely based on self-reports. Table 16.3.1.3 shows that all but one of the available studies of sex differences have concluded that dieting (or making an effort to lose weight) is more common among females than males.

16.3.1.4 Attempting to Gain Weight

One study was located regarding sex differences in attempting to gain (rather than lose) weight. Table 16.3.1.4 shows that greater proportions of males than females made such efforts.

Table 16.3.1.3 Dieting (attempting to lose weight)

Nature of difference	*Pre-pubertal*		*Post-pubertal*		*Wide age rangel*
		Child	*Adolescent*	*Adult*	
More among males					
Not significant				**NORTH AMERICA** *United States*: Oakes et al. 2003 (undergrad)	
More among females		**EUROPE** *Britain*: EM White et al. 1995 **NORTH AMERICA** *United States*: AE Field et al. 2001*; V Phares et al. 2004 (SE region of US)	**EUROPE** *Britain*: Viner & Cole 2006:1370; *Germany*: Hein et al. 1998; *Spain*: Sanchez-Carracedo et al. 1996; *Sweden*: Engstrom & Norring 2002; Thurfjell et al. 2004 **MIDDLE EAST** *Israel*: Latzer et al. 2014:Table 3 (both Arabs & Jews); *Lebanon*: Konaan & Afifi 2010 **NORTH AMERICA** *United States*: A Frazier & Lesonbee 1950 (want/tried to lose weight); Huenemann et al. 1966; RG Simmons & Rosenberg 1975 (preference for being thin); RS George & Krondl 1983 (preference for being thin); Tobin-Richards et al. 1983 (preference for being thin); Dornbusch et al. 1987; JC Rosen & Gross 1987; Shore & Porter 1990; Paxton et al. 1991; DR White et al. 1991; Killen et al. 1992; DC Moore 1993; Serdula et al. 1993* (15%M vs. 44%F); K Fox et al. 1994; SA French & Jeffery 1994; SA French, Story et al. 1995; Felts et al. 1996; Nowak et al. 1996; Oliver & Thelen 1996; Steen et al. 1996; Keel et al. 1997; GC Patton et al. 1997; Pingitore et al. 1997; ME Pritchard et al. 1997; Perl et al. 1998; Neumark-Sztainer & Hannan 2000 (20% M vs. 45%F are dieting); Pate et al. 2000:908; Crespo et al. 2001:364; AE Field et al. 2001*; DT Barry & Grilo 2002:339 **OCEANIA** *Australia*: Vincent & McCabe 2000	**EUROPE** *Britain*: Wardle & Griffith 2001:187; *Norway*: Kjelsas & Augestad 2003 (marathon runners, control weight); *Finland*: Keski-Rahkonen et al. 2005 (young adult); *Multiple European Countries*: Bellisle et al. 1995 (17%M vs. 44%F) **MIDDLE EAST** *Lebanon*: Khawaja & Afifi-Soweid 2004 (young) **NORTH AMERICA** *Canada*: Provencher et al. 2004; *United States*: Jakobovits et al. 1977 (young); TM Miller et al. 1980 (young); RW Jeffery et al. 1984 (self-report); Drewnowski & Yee 1987 (undergrad); Conner-Greene 1988 (undergrad); Rolls et al. 1991; RW Jeffery et al. 1991; SG Ziegler 1991 (marathon runners, control weight); DF Williamson et al. 1992; Serdula et al. 1993* (24% M vs. 38%F); S Burton et al. 1994:71; Carmody et al. 1995; Meltzer & Everhart 1995; Beren et al. 1996; Fennell 1997 (undergrad); Neumark-Sztainer et al. 1999; Serdula et al. 1999; Neumark-Sztainer et al. 2000; Kabeer et al. 2001:130; Rozin et al. 2003 (undergrad); Hicks & Miller 2006:26 (undergrad) **OCEANIA** *Australia*: DA Crawford & Worsley 1988 **INTERNATIONAL** *Multiple Countries*: Wardle, Haase et al. 2004:110 (young)	**EUROPE** *Sweden*: Halvarsson et al. 2002 **NORTH AMERICA** *United States*: Dwyer & Mayer 1970; Serdula et al. 1993; AE Field et al. 2003 (childhood & adolescent)

Table 16.3.1.4 Attempting to gain weight

Nature of difference			*Post-pubertal*		
			Adolescent		
More among males			**EUROPE** *Britain*: Furnham, Badmin & Sneade 2002:588		
Not significant					
More among females					

16.3.1.5 Skipping Meals

While there are various reasons for skipping meals, doing so is usually for the purpose of losing (or maintaining low) weight. As shown in Table 16.3.1.5 one study concluded that females skipped meals more than did males.

Table 16.3.1.5 Skipping meals

Nature of difference			*Post-pubertal*		
				Adult	
More among males					
Not significant					
More among females				**ASIA** *South Korea*: MS Lee & Kwak 2006 (undergrad, N = 104M + 229F)	

16.3.1.6 Eating Fatty Foods

A couple of studies sought to assess sex differences in the consumption of fatty foods. Table 16.3.1.6 shows that both studies indicated that males do so more than females.

16.3.1.7 Succeed at Weight Loss

Table 16.3.1.7 shows that findings have not been consistent regarding which sex has been most successful at losing weight. Some of the inconsistencies may be due to the length of follow-up. In other words, while females may have more success at losing weight in the short run, they may not be more successful regarding long-term weight loss.

Table 16.3.1.6 Eating fatty foods

Nature of difference			*Post-pubertal*		
				Adult	
More among males				**NORTH AMERICA** *United States*: Yahia, Brown et al. 2016 (young adult, N = 231) **INTERNATIONAL** *Multiple Countries*: Wardle, Haase et al. 2004:110 (undergrad)	
Not significant					
More among females					

Table 16.3.1.7 Succeed at weight loss

Nature of difference			*Post-pubertal*		*Wide age rangel*
				Adult	
More among males				**NORTH AMERICA** *United States*: Assaf et al. 2003 (among over-weight persons, 8-year follow up)	
Not significant				**NORTH AMERICA** *United States*: Dohm et al. 2001 (among over-weight persons, 8-year follow up)	
More among females				**EUROPE** *Finland*: Keski-Rahkonen et al. 2005 **NORTH AMERICA** *United States*: Meltzer & Everhart 1995; Neumark-Sztainer et al. 1999 (intentionally lose weight)	**NORTH AMERICA** *United States*: Neumark-Sztainer et al. 2000 (intentionally lose weight); AE Field et al. 2003 (intentionally lose weight)

16.3.1.8 Eating Fibrous Foods

One international study compared men and women regarding the amounts of fiber-filled foods they consumed. Table 16.3.1.8 shows that in 20 of these countries, females consumed more fiber in their diets, while in the remaining countries no significant sex differences were found.

16.3.1.9 Eating Fruits or Vegetables

Several studies have compared the sexes regarding their consumption of fruits and vegetables. As shown in Table 16.3.1.9, the vast majority of findings point toward females eating more fruits and vegetables than do males. The only exception was a multi-national study. It revealed that females ate more fruits and vegetables than males did in 17 of the 23 countries, but that there were no significant sex differences in the remaining 6 countries.

Table 16.3.1.8 Eating fibrous foods

Nature of difference			*Post-pubertal*	
				Adult
More among males				
Not significant				**INTERNATIONAL** *Multiple Countries*: Wardle, Haase et al. 2004:110* (undergrad, 3/23 countries)
More among females				**INTERNATIONAL** *Multiple Countries*: Wardle, Haase et al. 2004:110* (undergrad, 20/23 countries)

Table 16.3.1.9 Eating fruits or vegetables

Nature of difference			*Post-pubertal*	
				Adult
More among males				
Not significant				**INTERNATIONAL** *Multiple Countries*: Wardle, Haase et al. 2004:110* (fruits, undergrad, 6/23 countries)
More among females				**ASIA** *Malaysia*: Othman, Ab Karim et al. 2012 **EUROPE** *Austria*: Sahatzer, Rust & Elmadfa 2010; *Britain*: Marmot & Davey Smith 1997:Table 2* (fresh fruits); *Ireland*: Friel, Newell & Kelleher 2005; *Northern Ireland*: KM Appleton, McGill & Woodside 2009 (elderly); *Slovenia*: Petel, Geckova et al. 2012:1124 (N = 3,674) **MIDDLE EAST** *Saudi Arabia*: Elsoadaa et al. 2013 (undergrad, N = 109M + 594F); *Turkey*: Unusan 2004 (undergrad) **NORTH AMERICA** *Canada*: Riediger et al. 2008; *United States*: AM Smith & Smith 1994 (fruit and vegetables); Marmot & Davey Smith 1997:Table 2* (fresh fruits); Blank, Gillespie 2008 (N = 1,227,969); Emanuel, McCully et al. 2012 **INTERNATIONAL** *Multiple Countries*: Wardle, Haase et al. 2004:110* (fruits, undergrad, 17/23 countries)

16.3.1.10 Limiting Salt Intake

Research has indicated that, while salt in small amounts is essential for health, consuming large amounts can lead to high blood pressure as well as other ailments. As shown in Table 16.3.1.10, there appears to be only a few countries in which one finds sex differences in tendencies to limit salt intake. Where differences are found, females appear to be more inclined to restrict their salt intake.

16.3.2 Non-dietary Health-Relevant Behavior

Many studies have sought to determine if males and females behave in ways that either promote or detract from their health that are of a non-dietary nature. Results are summarized in the following tables.

Table 16.3.1.10 Limiting salt intake

Nature of difference				*Post-pubertal*	
				Adult	
More among males					
Not significant				**INTERNATIONAL** *Multiple Countries*: Wardle, Haase et al. 2004:110* (undergrad, 17/23 countries)	
More among females				**INTERNATIONAL** *Multiple Countries*: Wardle, Haase et al. 2004:110* (undergrad, 6/23 countries)	

16.3.2.1 Taking Preventive Health Precautions/Health Maintenance in General

Taking preventive health precautions includes behavior such as regularly brushing one's teeth, fastening one's seat belt in moving vehicles, washing hands after using public restrooms, getting medical checkups periodically, and following the advice given by healthcare professionals. Studies of such behavior are usually based on self-reports, although some studies come from direct observation (e.g., restroom hand washing and seat belt wearing). As shown in Table 16.3.2.1, nearly all the research concerning sex differences have concluded that females do so to a greater extent than males.

Table 16.3.2.1 Taking preventive health precautions/health maintenance in general

Nature of difference			*Post-pubertal*		*Wide age rangel*
			Adolescent	*Adult*	
More among males				**NORTH AMERICA** *United States*: Brawarsky et al. 2003; Slattery et al. 2004	
Not significant			**NORTH AMERICA** *United States*: Roscoe & Kruger 1990 (to avoid STDs) **OCEANIA** *Australia*: Balanda et al. 1999	**NORTH AMERICA** *United States*: Lemon t al. 2001; Jha et al. 2005 (veterans); NB Peterson et al. 2007	**NORTH AMERICA** *United States*: Waldron et al. 2005:432* (in 1979)
More among females			**MIDDLE EAST** *Israel*: Carmel et al. 1992 (among army recruits) **NORTH AMERICA** *United States*: Baldwin & Baldwin 1988; Brener & Collins 1998; Langhinrichsen-Rohling et al. 1998* (young)	**ASIA** *Singapore*: Teoh et al. 2009; *Thailand*: Nanakorn et al. 1999 (undergrad, N = 155M + 384F) **EUROPE** *Britain*: Steptoe et al. 1994; Steptoe et al. 1995 (except exercise) **NORTH AMERICA** *United States*: Kasl &	**EUROPE** *Austria*: Van de Mortel et al. 2000 (restroom hand washing) **NORTH AMERICA** *United States*: Schoenborn et al. 1981; Hing et al. 1983 (going to the dentist, teens

(*Continued*)

Table 16.3.2.1 (Continued)

Nature of difference			*Post-pubertal*		*Wide age rangel*
			Adolescent	*Adult*	
				Cobb 1966; R Andersen & Anderson 1967 (preventive health visitations); Avnet 1967 (preventive health visitations); AF Williams & Wechsler 1972:971 (medical & dental checkups); E Beck et al. 1974 (follow medical advise); Hibbard 1983 (follow medical advise); Carroll 1988 (to avoid STDs); Hickey et al. 1988 (elderly); Kristiansen 1990; Weidner et al. 1996 (undergrad, except regular exercise); DL Weiss et al. 1996 (undergrad, excluding exercise); KA Douglas et al. 1997 (undergrad); Patrick et al. 1997 (undergrad); Kohlmann et al. 1997 (drive safer); Langhinrichsen-Rohling et al. 1998* (young); Courtenay et al. 2002 (undergrad); HD Johnson et al. 2003 (undergrad, restroom hand washing); Cleary, Zaborski & Ayamian 2004:55; Rasberry et al. 2007 (undergrad, read nutrition labels)	through elderly); Quadrel & Lau 1990; Kandrack et al. 1991; Carmel et al. 1992 (follow medical advise); Day et al. 1993 (using soap to wash hands); Cornel et al. 1994* (follow medical advise); Ingledew et al. 1995:18; Meyerowitz & Hart 1995; Guinan et al. 1997 (restroom hand washing); Waldron et al. 2005:432* (in 1985 & 1990)

16.3.2.2 Physical Exercise

To assess people's varying degrees of physical exercise, self-reports are used except in the case of young children where information is usually obtained from parents or teachers. In Table 16.3.2.2a, one can see that nearly all studies have concluded that Pre-pubertal males engage in more physical activity than do their female counterparts.

Regarding adolescents and adults, Table 16.3.2.2b shows that, as with infants and children, the vast majority of studies have found males exercise more than do females. Given the health benefits of exercise, this may be one type of health maintenance behavior that males exhibit to a greater degree than females.

Table 16.3.2.2a Physical exercise before puberty

Nature of difference	*Pre-pubertal*	
	Infant/toddler	*Child*
More among males	**NORTH AMERICA** *United States*: Manwell & Mengert 1934 (toddler); Baranowaki et al. 1993 (preschool, blacks); DW Campbell & Eaton 1999 (infant); Sallis et al. 1999 (toddler)	**ASIA** *Japan*: Takada et al. 1998; *Singapore*: GJ Schmidt et al. 1998; *South Korea*: Oh, Kim et al. 2012:145 (ages 60–80, N = 422M +510F) **EUROPE** *Belgium*: Guillaume et al. 1997; *Sweden*: Sunnegardh et al. 1985 **LATIN/CARIBBEAN AMERICA** *Chile*: Olivares et al. 2004 **NORTH AMERICA** *Canada*: AM Thompson et al. 2003* (younger; controlled for peak height velocity); Sherar et al. 2007; *United States*: Wolfensberger et al. 1962 (ballistograph); Emmerich 1971; Halverson 1971 (actometer); Haladyna & Thomas 1979 (in school); DM Buss et al. 1980; Klesges et al. 1986; Baranowski et al. 1987; Eaton & Yu 1989; R Cohen et al. 1990*; DS Freedman et al. 1990; Sallis et al. 1990*; McKenzie et al. 1992; Baranowski et al. 1993; Sallis et al. 1993; Garcia et al. 1995; Janz et al. 1995; Durant et al. 1996; Hovell et al. 1996; Kemper et al. 1996; Saris et al. 1996; Trost et al. 1996; Weidner et al. 1996; Kohlmann et al. 1997 (undergrad); Pate et al. 1997; Sarkin et al. 1997; Trost et al. 1997 (rural); Corbin & Pangrazi 1998; Garcia et al. 1998; Goran et al. 1998; G Jones & Dwyer 1998; Ernst & Pangrazi 1999; Hovell et al. 1999; M Pratt et al. 1999; Tonyan & Howes 2003:138 (teacher rating)
Not significant		**NORTH AMERICA** *Canada*: WO Eaton & Keats 1982:537; *United States*: JC Schwarz 1972; L Myers et al. 1996
More among females		

16.3.2.3 Reasons Given for Exercising (or for Wanting to Exercise)

In several studies, both sexes were asked to give their primary reasons for exercising. Table 16.3.2.3 reveals substantial differences in this regard. Whereas males usually mention their enjoyment of competing or physical fitness to explain why they exercise, females usually focus on the beneficial effects that exercise has on physical appearance or helping to manage weight.

16.3.2.4 Improvement of Physical Functioning due to Exercise

In a few studies of elderly persons, data have been collected to assess how much physical functioning is promoted through exercise. As shown in Table 16.3.2.4, two of these studies concluded that there was no significant sex difference in improvement, while the third indicated that females gained more than males through exercise.

Table 16.3.2.2b Physical exercise after puberty

Nature of difference	*Post-pubertal*		*Wide age rangel*
	Adolescent	*Adult*	
More among males	**ASIA** *Taiwan*: Wu et al. 2003 **EUROPE** *Britain*: Armstrong et al. 1990; Steptoe & Butler 1996; *Finland*: Raitakari et al. 1994; *Germany*: Fuchs et al. 1988; *Iceland*: Vilhjalmsson & Kristjansdottir 2003; *Northern Ireland*: Riddoch et al. 1991; *Norway*: Tell & Veller 1988; *Slovenia*: Tomori & Zalar 2000a:182 (self-report) **NORTH AMERICA** *Canada*: Rowland et al. 1986 (undergrad, football as exercise); Allison & Adlaf 1997; Mummery et al. 2000; JW Higgins et al. 2003; Galambos et al. 2004:20; *United States*: Tryon 1939; Godin & Shephard 1984; Gottlieb & Chen 1985; Perry et al. 1985; Godin et al. 1986; Godin & Shephard 1986; Sallis et al. 1988 (Hispanics); KJ Ferguson et al. 1989; Perusse et al. 1989; R Cohen et al. 1990*; Sallis et al. 1990*; Sallis et al. 1992; Terre et al. 1992; G Heath et al. 1994; Kelder et al. 1994; Pate et al. 1994; WC Taylor et al. 1994; Zakarian et al. 1994; Epstein et al. 1995; Winnail et al. 1995; S Craig et al. 1996; Lowry et al. 1996; Pate et al. 1996; Centers for Disease Control and Prevention 1997; Biddle et al. 1998; De Bourdeaudhuu 1998; Kann et al. 1998; Caspersen et al. 2000; Guinn et al. 2000 (Hispanic students); Jago et al. 2005; KE Miller et al. 2005:1644 (strength conditioning); Downs et al. 2006:94; Ammouri et al. 2007:117 (N = 195M + 105F)	**ASIA** *Japan*: Chogahara & Yamaguchi 1998 (elderly); *South Korea*: Supartini, Oishi & Yagi 2017:Table 1; *Thailand*: Nanakorn, Osaka et al. 1999 (undergrad, N = 155M + 384F) **EUROPE** *Britain*: Marmot & Davey Smith 1997:Table 2; *Finland*: Tammelin et al. 2004:549 (brisk exercise); *Sweden*: Lindwall & Hassmen 2004:375 (undergrad) **NORTH AMERICA** *Canada*: J Curtis et al. 2000: KA Dawson et al. 2001:39 (undergrad, self-rated); M Denton et al. 2004:2592; Bourque et al. 2005:37 (elderly); *United States*: Kurtz 1971 (self-rated); AF Williams & Wechsler 1972:971; Schoenborn et al. 1981; Verbrugge 1982a; Wingard 1982; Folsom et al. 1985 (leisure time physical activity); Drewnowski & Yee 1987:631 (undergrad); JM Hawkes & Holm 1993; S Burton et al. 1994:71; CE Ross & Bird 1994 (N = 2,031); Astin et al. 1995 (undergrad); Crespo et al. 1996 (leisure time); KA Douglas et al. 1997 (undergrad); M Pratt et al. 1999; Goodman-Gruen & Barrett-Connor 2000:913; Sherwood & Jeffery 2000 (especially among older adults); Anding et al. 2001 (undergrad); Koertge et al. 2003:1320 (CAD patients, hours/week); O'Hea et al. 2003; Buchowski et al. 2004; Cleary, Zaborski & Ayamian 2004:56* (vigorous); Murtagh & Hubert 2004:1409 (elderly); Sondhaus et al. 2004:419 (undergrad, self-rated); Hicks & Miller 2006:25 (undergrad, self-reports); GA Laughlin et al. 2006:508 (elderly); Macone, Baldari et al. 2006:292; GA Laughlin et al. 2007:460 (elderly); Sax & Harper 2007:679 (undergrad, self-report, N = 6,736M + 10,901F); Deaner et al. 2012:Table 4 (American Time Use Survey) **OCEANIA** *Australia*: T Armstrong et al. 2000	**EUROPE** *Italy*: Tenconi et al. 1992:767 **NORTH AMERICA** *United States*: Hobart 1975; U.S. Dept. of Health and Human Services 1996 (children & adolescents); DA Jones et al. 1998; Trost et al. 2002 (children and adolescents); Haskell et al. 2007; Deaner et al. 2012:3 (time spent exercising, especially strenuous exercise) **INTERNATIONAL** *Multiple Countries*: Eccles & Harold 1991; Pfister 1993; Fredricks & Eccles 2002; Hartmann-Tews & Pfister 2003 **OVERVIEW** *Literature Review*: Terman & Tyler 1954; Sallis et al. 2000 (both children and adolescents)
Not significant	**NORTH AMERICA** *Canada*: AM Thompson et al. 2003* (older, controlled for peak height velocity)	**EUROPE** *Britain*: Steptoe et al. 1995 **NORTH AMERICA** *United States*: Weidner et al. 1996 (undergrad); Cleary, Zaborski & Ayamian 2004:56* (moderate)	
More among females			

Table 16.3.2.3 Reasons given for exercising (or for wanting to exercise)

Nature of difference			*Post-pubertal*		
				Adult	
Reasons mentioned more by males			**EUROPE** *Britain*: Furnham, Badmin & Sneade 2002:587* (physical fitness)	**MIDDLE EAST** *Israel*: S Raviv & Netz 2007* (competitiveness, N = 189M + 190F) **NORTH AMERICA** *United States*: DL Gill 1986 (competitiveness); Heitmann 1986 (enjoy being completive); Duda & Tappe 1988 (competition); Duda & Tappe 1989* (competition); Duda 1991 (enjoy competition); DL Gill et al. 1996 (competitiveness); Koivula 1999 (competitive spirit)	
Not significant				**MIDDLE EAST** *Israel*: S Raviv & Netz 2007* (improving one's physical appearance, N = 189M + 190F)	
Reasons mentioned more by females			**EUROPE** *Britain*: Furnham, Badmin & Sneade 2002:587* (to lose weight)	**NORTH AMERICA** *United States*: Duda & Tappe 1989* (improving one's physical appearance); Finkenberg et al. 1994 (improving one's physical appearance)	

Table 16.3.2.4 Improvement of physical functioning due to exercise

Nature of difference				*Post-pubertal*	
				Adult	
More among males					
Not significant				**MIDDLE EAST** *Israel*: Carmeli et al. 2000 (elderly, latency improvement, after 12 weeks) **NORTH AMERICA** *United States*: Strawbidge et al. 1993 (elderly)	
More among females				**NORTH AMERICA** *United States*: Morey & Zhu 2003 (elderly)	

16.3.2.5 Amount of Effort Exerted during Physical Exercise

Three studies of sex differences in the amount of effort exerted during physical exercise. Table 16.3.2.5 shows that one study reported no significant sex difference while the other two concluded that females exert greater effort than do males.

Table 16.3.2.5 Amount of effort exerted during physical exercise

Nature of difference			*Post-pubertal*		
				Adult	
More among males					
Not significant				**NORTH AMERICA** *United States*: Tomporowski 2001 (during strength training self-rated)	
More among females				**NORTH AMERICA** *United States*: Parfitt et al. 1994 (self-rated); PJ O'Connor et al. 1996 (self-rated)	

16.3.2.6 Sunbathing

A few studies have compared the sexes in terms of time spent sunbathing (or suntanning). As one can see in Table 16.3.2.6, the findings have been mixed.

Table 16.3.2.6 Sunbathing

Nature of difference			*Post-pubertal*		*Wide age rangel*
				Adult	
More among males					
Not significant					**EUROPE** Britain: Diffey et al. 1996 (children and adolescents); *Denmark*: Thieden et al. 2004
More among females				**EUROPE** *Denmark*: Thieden et al. 2005 (young)	

16.3.2.7 Sunscreen Use When Sunbathing

Several studies have investigated the likelihood of sun bathers to apply sunscreen in order to prevent skin damage. Table 16.3.2.7 shows that all the available evidence indicates that females are more likely to do so than are males.

16.3.2.8 Seatbelt Usage in a Motor Vehicle

Several studies have been undertaken to assess sex differences in the frequency of seatbelt wearing while driving or riding in a car, most of which have been based on self-reports. As shown in Table 16.3.2.8, most of these studies have concluded that higher proportions of females than males wear seatbelts when driving or riding in a motor vehicle.

Table 16.3.2.7 Sunscreen use when sunbathing

Nature of difference			*Post-pubertal*		*Wide age rangel*
			Adolescent	*Adult*	
More among males					
Not significant					
More among females			**NORTH AMERICA** *United States*: JK Robinson et al. 1997	**NORTH AMERICA** *Canada*: SH Campbell & Birdsell 1994; *United States*: D Hill et al. 1984; Keesling & Friedman 1987; Berwick et al. 1992; Carmel et al. 1994* (skin cancer prevention); HI Hall et al. 1997 (whites); Koh et al. 1997 (whites); Abroms et al. 2003 **OCEANIA** *Hawaii*: PH King et al. 1983	**NORTH AMERICA** *United States*: HI Hall et al. 1997

Table 16.3.2.8 Seatbelt usage in a motor vehicle

Nature of difference			*Post-pubertal*		*Wide age rangel*
			Adolescent	*Adult*	
More among males				**ASIA** *Thailand*: Nanakorn, Osaka et al. 1999 (undergrad, N = 155M + 384F) **NORTH AMERICA** *United States*: AF Williams & Wechsler 1972:971	**MIDDLE EAST** *Iran*: Roudsari et al. 2004 **NORTH AMERICA** *United States*: FM Council 1969; TE Anderson 1971
Not significant			**EUROPE** *Estonia*: Eensoo et al. 2007:313 **NORTH AMERICA** *United States*: Schnichor et al. 1990; Shin et al. 1999:490	**NORTH AMERICA** *United States*: Schoenborn et al. 1981 (self-report)	
More among females			**NORTH AMERICA** *United States*: Jonah & Dawson 1987; Calisir & Lehto 2002 (among new drivers)	**NORTH AMERICA** *United States*: Hersch 1996; Weidner et al. 1996 (undergrad); GB West et al. 1996 (undergrad); Reinfurt et al. 1997	**AFRICA** *Ghana*: Afukaar et al. 2010 (while driving) **NORTH AMERICA** *Canada*: RJ Wilson 1990 (self-report); *United States*: AF Williams 1972; Fhaner & Hane 1973; Helsing & Comstock 1977; EK Lund 1986; Wagenaar et al. 1987; Preusser et al. 1991; Shinar 1993; Reinfurt

(*Continued*)

Table 16.3.2.8 (Continued)

Nature of difference			*Post-pubertal*		*Wide age rangel*
			Adolescent	*Adult*	
					et al. 1994; Baguley et al. 1996; DE Nelson et al. 1998:246; Eby et al. 2000 (seat belt usage by drivers & front seat passengers); EB Lerner et al. 2001 (among accident victims)

16.3.2.9 Brushing and Flossing Teeth

Table 16.3.2.9 summarizes findings on sex differences in maintaining good oral health by brushing and/or flossing one's teeth. It indicates that these activities are more common or frequent among females than among males.

Table 16.3.2.9 Brushing and flossing teeth

Nature of difference			*Post-pubertal*		
			Adolescent	*Adult*	
More among males					
Not significant					
More among females			**EUROPE** *Finland*: Koivusilta et al. 2003 (brushing teeth); *Slovenia*: Petel, Geckova et al. 2012:1124 (N = 3,674)	**NORTH AMERICA** *United States*: AF Williams & Wechsler 1972:971 (brushing after meals); Schoenborn 1981 (brushing teeth regularly); Ronis et al. 2007 (oral hygiene)	

16.4 Work-Related Aspects of Personality and Behavioral

A number of behavioral traits have a substantial bearing on the extent to which individuals perform various types of work. The following section reports on sex differences in these types of behavior.

16.4.1 Task Persistence

Most work involves performing certain fairly specific learned tasks repetitively. The following tables summarize research findings of sex differences in these tendencies.

16.4.1.1 Task Persistence (Tenacity) in General

The tendency to remain at a task, even in the face of discouragement for doing so, is known as *task-oriented tenacity* or *task persistence*. Sometimes the task could be of one's own choosing, while other times, it might be assigned by others. As shown in Table 16.4.1.1, findings regarding task persistence have been inconsistent regarding sex differences, with just a slight leaning toward males being more so than females.

16.4.1.2 Task Persistence at Self-Selected Tasks

In the above table, sex differences in general persistence at tasks were considered, regardless of whether the task was self-selected or assigned by others. In Table 16.4.1.2, the focus is on persistence at tasks of one's own choosing. The table shows that most of these studies have found self-selected task persistence to be greater among males than among females.

16.4.1.3 Task Persistence at Tasks Assigned by Others

A few studies have assessed sex differences in people's tendencies to persist at tasks assigned by others. One can see in Table 16.4.1.3 that the findings all agree that females exhibit this tendency more than do males.

16.4.2 Assertive and Competitive Behavior

Broadly speaking, tendencies to be assertive and competitive are part of how individuals succeed in work. Consequently, studies of sex differences in such behaviors are considered in this sub-section.

16.4.2.1 Assertiveness

Assertiveness has to do with the degree to which individuals are forceful and persistent in their efforts to obtain things that they desire or to persuade others of a particular point of view. Most studies that have measured assertiveness have been based either on self-reports or on ratings given by parents or teachers. As shown in Table 16.4.2.1a, findings have not been entirely consistent, perhaps due in part to the specific circumstances surrounding the testing conditions. Nevertheless, well over half of the studies have concluded that males are more assertive than females, at least among adolescents and adults.

One study of sex differences in assertiveness was located for a non-human species. As shown in Table 16.4.2.1b, the study indicated that among chimpanzees, Pre-pubertal males were more assertive than were female of the same age.

Table 16.4.1.1 Task-persistence (tenacity) in general

Nature of difference	*Pre-pubertal*		*Post-pubertal*		*Wide age rangel*
		Child	*Adolescent*	*Adult*	
More among males			**ASIA** *China*: Y Lee & Chen 1998 (young)	**ASIA** *Japan*: S Kimura et al. 2000; *South Korea*: Sung et al. 2002 **EUROPE** *Germany*: Weyers et al. 1995; Richter et al. 2003; *Finland*: Miettunen et al. 2004; *Netherlands*: Ouijsens et al. 2000; *Sweden*: Schlette et al. 1998; Lundberg et al. 1999 **MIDDLE EAST** *Iran*: Richter et al. 2004 **NORTH AMERICA** *United States*: Spence et al. 1974 (instrumental); HH Kelley et al. 1978 (marital conflict); Falbo & Peplau 1980 (marital conflict); Margolin & Wampold 1981 (married couples, in attempting to solve problems); Deci & Ryan 1985 (goal oriented); L Thompson & Walker 1989 (married couples); Sonnert 1996:55; Lippa 2005 (undergrad, instrumentality)	**NORTH AMERICA** *United States*: Aries 1987:170
Not significant		**NORTH AMERICA** *United States*: Luthar et al. 1996:182 (fail to complete tasks, retrospective childhood recollections by adult opiate addicts)		**ASIA** *Japan*: Itoh et al. 2004; Ando et al. 2004 **EUROPE** *Belgium*: Hansenne et al. 2001; *France*: Le Bon et al. 1998; Pelissolo & Lepine 2000; *Hungary*: Ronai et al. 2001; *Italy*: Manfredonia et al. 1991; *Poland*: Samochowiec et al. 2004 **MIDDLE EAST** *Israel*: Zohar et al. 2001; Kremer et al. 2005; *Turkey*: Arkar et al. 2005 **NORTH AMERICA** *United States*: Cloninger et al. 1991; Brandstrom et al. 2001	**OVERVIEW** *Meta-Analysis*: Miettunen et al. 2007 (M > F, d = .02)
More among females				**ASIA** *Japan*: Takeuchi et al. 1993; *Taiwan*: WJ Chen et al. 2002 **EUROPE** *Britain*: Otter et al. 1995; *France*: Purper-Ouakil et al. 2004; *Poland*: Zakrzewska et al. 2001; *Yugoslavia*: Svrakic et al. 1991 **NORTH AMERICA** *United States*: Harter 1975 (persist longer after mastering a task); Stallings et al. 1996; ME Stewart et al. 2004; Vaidya et al. 2004	

Table 16.4.1.2 Task persistence at self-selected tasks

Nature of difference	*Pre-pubertal*		*Post-pubertal*		*Wide age rangel*
	Infant/toddler	*Child*	*Adolescent*	*Adult*	
More among males	**NORTH AMERICA** *United States*: Andrew 1972 (toddler)	**NORTH AMERICA** *United States*: VJ Crandall & Rabson 1960; McManis 1965 (pursuit-rotor task); B Weiner 1966	**NORTH AMERICA** *United States*: LM Walter & Marzolf 1951 **OCEANIA** *New Zealand*: Moffit et al. 2001:128	**NORTH AMERICA** *United States*: Battle 1965 (undergrad); Deaux et al. 1975 (undergrad); Dweck & Gilliard 1975 (young); Nicholls 1975 (young); Horvath et al. 1992 (undergrad, economic major); JM Craig & Sherif 1986; W Wood & Karten 1986; Piliavin & Martin 1978 (undergrad); Stonewater et al. 1990 (college faculty); JT Spence & Buckner 2000:49 (never give up)	**NORTH AMERICA** *United States*: Carli 1989; Hutson-Comeaux 1996; Lockheed & Hall 1976
Not significant		**NORTH AMERICA** *United States*: H Berkowitz & Zigler 1965		**NORTH AMERICA** *United States*: Eccles 1984:99 (young); Chizmar 2000 (undergrad, economic major)	
More among females				**NORTH AMERICA** *United States*: Sweeney et al. 1982 (undergrad, personal persistence)	

Table 16.4.1.3 Task persistence at tasks assigned by others

Nature of difference	*Pre-pubertal*		*Post-pubertal*		
		Child	*Adolescent*	*Adult*	
More among males					
Not significant					
More among females		**NORTH AMERICA** *United States*: Nakamura & Ellis 1964 (lever-pressing task with small rewards); J Roberts & Baird 1972:6; Burns & Owen 1990 (in school); Warrick & Naglieri 1993 (in school); Achenbach & Edelbrock 1981:14 **OCEANIA** *New Zealand*: DM Fergusson & Horwood 1997:89 (teacher rating)	**EUROPE** *France*: Chau et al. 2007:329 (self-report) **NORTH AMERICA** *United States*: BA Jacob 2002:592 (doing homework)	**INTERNATIONAL** *Multiple Countries*: MW Ross et al. 2003:400 (complete online questionnaire)	

16.4.2.2 Competitiveness

Competitiveness refers to tendencies to engage in activities where there are winners and losers. Such behavior often takes place in business ventures and in games of chance, and in sports. To measure competitiveness, most studies ask individuals to provide self-ratings or to answer questions that seek to determine how oriented individuals are toward competing with others, as opposed to engaging in similar activities in cooperative ways (e.g., Cheng & Chan 1999; Gill 1988). Other research has measured competitiveness in the context of competitive experimental games (e.g., Shears & Behrens 1969; Gneezy et al. 2003).

Results from studies of sex differences in competitiveness are summarized in Tables 16.4.2.2a for sub-adolescents, many of which are based on experimental games in which individuals have opportunities to compete or cooperate to varying degrees. One can see that virtually all studies have concluded that boys are more competitive than girls.

Studies of sex differences in competitiveness following the onset of puberty are summarized in Table 16.4.2.2b. From this table, one can see that nearly all the available research has indicated that males are more prone to be competitive than are females. Literature reviews and meta-analyses have also reached this conclusion.

Table 16.4.2.1a Assertiveness

Nature of difference	*Pre-pubertal*		*Post-pubertal*		*Wide age rangel*
	Infant/toddler	*Child*	*Adolescent*	*Adult*	
More among males		**NORTH AMERICA** *United States*: Tuddenham 1952; A Zander & Van Egmond 1958; Goodwin 1980 (blacks); Sgan & Pickert 1980* (kindergarten and 1st grade); Michelson & Wood 1982; Deluty 1983; AS Cook, Fritz et al. 1985 (preschool, N = 32); BI Fagot & Leinbach 1987; Sachs 1987 (young); JE Wall & Holden 1994 (blacks); MG Jones et al. 2000:768	**AFRICA** *Nigeria*: Onyeizugbo 2003* (in school) **NORTH AMERICA** *Canada*: Aube et al. 2000:304; *United States*: PB Baltes & Nesselroade 1972 (N = 622M = 624F, d = 1.52); NN Markel et al. 1972 (undergrad, N = 36M + 36F, d = .66); Yul et al. 1985; Harter et al. 1997 **INTERNATIONAL** *Multiple Countries*: Arkoff et al. 1962 (N = 116M + 136F, d = .44); Sharma 1969 (N = 165M + 128F, d = .06)	**AFRICA** *Nigeria*: Adejumo 1981 (undergrad); Onyeizugbo 2003* (undergrad, self-report) **ASIA** *India*: Santelli et al. 1990* (undergrad, N = 103M + 100F, d = .35); *Japan*: GD Wilson et al. 1995; *Thailand*: Gardiner 1968 (undergrad, N = 46M + 153F, d = .24); Santelli et al. 1990* (undergrad, N = 45M + 116F, d = .26) **EUROPE** *Britain*: GD Wilson et al. 1990 **NORTH AMERICA** *Canada*: Marcotte et al. 1999:39 (French speaking); Weisberg, DeYoung & Hirsh 2011:Table 2 (ages 17–85, N = 892M + 1,751F, d = .09); *United States*: Schaie & Strother 1968 (elderly, undergrad graduates, N = 25M + 25F, d = .75); Chandler et al. 1978 (undergrad, self-report); RW Rice et al. 1984 (military cadets, N = 1024M + 86F, part of leadership ratings, d = .26); Biaggio et al. 1985 (N = 41M + 50F, d = .90); EA Robinson & Follingstad 1985 (N = 203M + 240F, d = .18); PJ Watson et al. 1987 (undergrad, N = 83M + 120F, d = .23); D Tanner 1990 (verbally); KR Bridges et al. 1991:1239; Lortier-Lussier et al. 1992 (N = 32M + 32F, dominance rating, d = .16); RL Piedmont et al. 1992 (undergrad, dominance rating, N = 107M + 223F, d = .13); Feingold 1994 (self-perception); Kajonius & Johnson 2018:127 (N = 320,128, d = .16)	**ASIA** *Japan*: CA Thompson et al. 1991* **NORTH AMERICA** *United States*: HM Bell 1939 (socially); CA Thompson et al. 1991* **OVERVIEW** *Literature Review*: Maccoby & Jacklin 1974 (slight difference favoring males); *Meta-Analysis*: Feingold 1994:429 (d = .50)

				INTERNATIONAL *Multiple Countries*: Arkoff et al. 1962; Costa et al. 2001:327 (N = 23,031); McCrae & Terracciano 2005:Table 4 (50 countries, self-rated and observer rated); De Bolle et al. 2015:181* (N = 6,128)	
Not significant	**NORTH AMERICA** *United States*: Parten 1933a (toddlers, N = 17M + 17F; d = .00)	**NORTH AMERICA** *United States*: Baumrind & Black 1967 (preschool, N = 52M + 51F); Feshback 1969 (young, N = 65M + 61F); Emmerich 1971 (preschool, N = 506M + 505F); CW Harrison et al. 1971 (child, N = 349M + 345F); Sgan & Pickert 1980* (3rd grade)	**NORTH AMERICA** *United States*: Lorr et al. 1991 (N = 544M + 335F, d = .04)	**EUROPE** *Norway*: Vollmer 1984 (undergrad, N = 55M + 75F, self-rated dominance); *Slovakia*: Kusa 2002:354* (undergrad) **NORTH AMERICA** *Canada*: CL Martin 1987:492 (self-report); *United States*: FL Denmark & Diggory 1966 ("authoritarian behavior", N = 194M + 114F); JT Spence & Buckner 2000:49 (self-report)	
More among females		**NORTH AMERICA** *United States*: HH Anderson 1937 (preschool, in an experimental play situation, N = 47M + 47F, d = .49)	**INTERNATIONAL** *Multiple Countries*: De Bolle et al. 2015:178* (N = 4,850)	**NORTH AMERICA** *Canada*: I Silverman et al. 1970 (undergrad, N = 56M + 42F, d = .11); *United States*: Strongman & Champness 1968 (undergrad, N = 5M + 5F, d = 1.16); Santelli et al. 1990* (undergrad, N = 25M + 36F, d = .18); Sawrie et al. 1991 (undergrad, N = 174M + 195F, d = .06)	

Table 16.4.2.1b Assertiveness among non-humans

Nature of difference	*Pre-pubertal*				
		Child			
More among males		**PRIMATE** *Chimpanzee*: Nadler & Braggio 1974			
Not significant					
More among females					

Table 16.4.2.2a Competitiveness before puberty

Nature of difference	*Pre-pubertal*	
	Infant/toddler	*Child*
More among males	**EUROPE** *Germany*: Sutter & Rutzler 2010 (toddler, experiment)	**ASIA** *China*: ST Cheng & Chan 1999* (Hong Kong); *India*: Banerjee & Pareek 1974 **MIDDLE EAST** *Israel*: Shapira & Madsen 1969* (urban); Shapira & Madsen 1974:143; Gneezy et al. 2003; Gneezy & Rustichini 2004 **NORTH AMERICA** *United States*: JP McKee & Leader 1955 (preschoolers); Sherif et al. 1961 (in groups); Vinacke & Gullickson 1964; McManis 1966; Shears & Behrens 1969 (experimental games); Tedeschi et al. 1969 (N = 48M + 48F, prisoner's dilemma game); Veroff 1969; Kagan & Madsen 1972; Crockenberg et al. 1976; McClintock & Moskowitz 1976 (experimental games); Skarin & Moely 1976; S Kagan et al. 1977 (experimental game); GP Knight & Kagan 1977 (experimental game); Lever 1978 (as part of groups); Ahlgren & Johnson 1979; KA Matthews & Angulo 1980 (young); L Owens & Stratton 1980; Pepitone 1980; GP Knight & Kagan 1981 (experimental game); L Owens & Barnes 1982; GP Knight et al. 1985 (experimental game); Strein 1986 (experimental games); KP Knight & Chao 1989 (experimental game); A Sheldon 1990 (in conversations with peers); Gneezy & Rustichini 2004; Niederle & Vesterlund 2007 **INTERNATIONAL** *Multiple Countries*: Madsen & Shapira 1970 (experimental games)
Not significant		**EUROPE** *Sweden*: Dreber et al. 2010 (various athletic events); Cardenas, Dreber et al. 2012:Figure 7* (ages 9–12) **LATIN/CARIBBEAN AMERICA** *Colombia*: Cardenas, Dreber et al. 2012:Figure 7* (ages 9–12) **MIDDLE EAST** *Israel*: Shapira & Madsen 1969* (Kibbuts children)
More among females		

Table 16.4.2.2b Competitiveness after puberty

Nature of difference	*Post-pubertal*		*Wide age rangel*
	Adolescent	*Adult*	
More among males	**ASIA** *China*: ST Cheng & Chan 1999*; *India*: Carment 1975*; Druckman et al. 1976* **EUROPE** *Sweden*: Koivula 1999 (in sports) **NORTH AMERICA** *United States*: Carment 1975*; Druckman et al. 1976*; DL Gill 1986:Tables 3 & 5 (in physical activity classes); Kirshnit et al. 1989 (in sports); Lucas & Sherry 2004 (games); Hartmann & Klimmt 2006 (games)	**EUROPE** *Britain*: Mellanby et al. 2000:384 (undergrad); ME Price, Kang et al. 2011:638 (undergrad, N = 56M + 62F); *Germany*: Kirkcaldy et al. 1992 (undergrad) **MIDDLE EAST** *Israel*: Gneezy et al. 2003 (undergrad, single-sex competition experiment) **NORTH AMERICA** *Canada*: SD Walter et al. 1989 (runners); *United States*: DC McClelland et al. 1953 (young); Amidjaja & Vinacke 1965; Zander et al. 1972 (winning oriented); GH Miller & Pyke 1973 (in experimental games); TR Kidd & Woodman 1975 (motivated to win at sports); Aries 1976; Veroff 1977 (winning oriented); McCarrick et al. 1981; Kidder et al. 1982; Callen 1983 (long-distance runners); Johnsgard 1985 (long-distance runners); Mabry 1985; DL Gill 1988 (undergrad, in sporting activities); Carli 1989; Thiessen & Ross 1990 (undergrad, self-rated); SA White 1991 (undergrad); Gladue & Bailey 1995b; Tracey & Schneider 1995; Sugihara & Warner 1999:204 (undergrad, self-rated, Mexican Americans); Leedy 2000 (long-distance runners); JT Spence & Buckner 2000:49 (self-report); Ogles & Masters 2003 (marathon runners); Voelck 2003:403 (self-rated, among library administrators); Dufwenberg et al. 2004 (experimental game); Deaner 2006 (distance runners); Niederle & Vesterlund 2007; Sax & Harper 2007:683 (undergrad, self-report, N = 6,736M + 10,901F); Croson & Gneezy 2009; Cason, Masters, Sheremeta 2010 (experiment); Niederle & Vesterlund 2010; Dohmen & Falk 2011; Deaner et al. 2014; RM Martin 2020 (undergrad, N = 236) **INTERNATIONAL** *Multiple Countries*: Lynn 1993 (valuing & saving money, 20 countries university students); Gneezy et al. 2009	**AFRICA** *Tanzania*: Apicella & Dreber 2015 (Hadza hunter-gatherers) **NORTH AMERICA** *United States*: Vinacke & Gullickson 1964 (childhood and adolescence); Ahlgren & Johnson 1979 (grades 2 through 12, N = 2,400, favorable attitudes toward); Chao et al. 1986 (experimental games); Sidanius et al. 1994; Sidanius et al. 2000 **OVERVIEW** *Literature Review*: Lenney 1977; *Meta-Analysis*: Strube 1981; Gayle et al. 1994 (in experimental games); AE Walters et al. 1998 (modest sex differences in experimental face-to-face bargaining)
Not significant	**LATIN/CARIBBEAN AMERICA** *Argentina*: Druckman et al. 1976*	**NORTH AMERICA** *United States*: Bem 1978 (undergrad)	
More among females			

16.4.2.3 Inhibiting Competitiveness with Member of the Opposite Sex

Competitive inhibition refers to the tendency not to try as hard as one possibly can when engaged in some form of competition. Table 16.4.2.3 indicates that, at least among adolescents, females report being more likely than males to inhibit their degree of competition when opposing a member of the opposite sex.

Table 16.4.2.3 Inhibiting competitiveness with member of the opposite sex

Nature of difference			*Post-pubertal*		
			Adolescent		
More among males					
Not significant					
More among females			**NORTH AMERICA** *United States*: SW Morgan & Mausner 1973 (hidden figures test); Peplau 1976		

16.4.2.4 Female Competitiveness Depending on the Sex of the Opponent

A special form of competitive inhibition has focused specifically on females. As shown in Table 16.4.2.4, studies have produced mixed results, with most studies indicating that female competitiveness does not seem to be affected by the sex of her opponent. Inconsistent findings may be at least partially due to age and the type of competition involved (e.g., spelling bee or a physical sport).

Table 16.4.2.4 Female competitiveness depending on the sex of the opponent

Nature of difference	*Pre-pubertal*		*Post-pubertal*		*Wide age rangel*
		Child	*Adolescent*	*Adult*	
More competitive with a male opponent			**NORTH AMERICA** *United States*: Nowicki et al. 1978; Valle et al. 1978		
No significant difference			**NORTH AMERICA** *United States*: Krauss 1977*	**NORTH AMERICA** *United States*: Horner 1968 (undergrad); House 1974; Karabenick	**OVERVIEW** *Literature Review*: CC Weisfeld 1986

(*Continued*)

Table 16.4.2.4 (Continued)

Nature of difference	*Pre-pubertal*		*Post-pubertal*		*Wide age rangel*
		Child	*Adolescent*	*Adult*	
				& Marshall 1974; Mausner & Coles 1978 (undergrad); Stake & Stake 1979; AD Jackson 1982	
More competitive with a female opponent		**NORTH AMERICA** *United States*: Krauss 1977*; Cronin 1980; Weisfeld et al. 1982 (dodgeball); Weisfeld et al. 1983 (spelling bee)		**NORTH AMERICA** *United States*: Carment 1974 (when an opponent is female, in experimental games)	

16.4.3 Other Work-Relevant Personality and Behavioral Traits

A number of additional work-relevant personality and behavioral traits have been investigated with respect to sex differences. Results are summarized below.

16.4.3.1 Achievement Orientation/Intrinsic Motivation/Ambitiousness

Achievement orientation (ambitiousness or intrinsic motivation) refers to tendencies to be self-driven and/or having the ambition and persistence to accomplish difficult feats. These tendencies are usually measured with self-reported questionnaire items. Table 16.4.3.1 reveals mixed results, with just a slight leaning toward males being more achievement-oriented than females.

16.4.3.2 Activity Levels/Locomotor Activity/Physical Activity

An individual's activity level will certainly vary from one day to the next, but some individuals tend to be much more active than others in the course of an average day. Numerous studies have sought evidence of sex differences, both in humans and in a variety of other animals. Due to the large number of studies, the results are summarized separately for humans and non-humans, and the studies for humans are further subdivided so that Pre-pubertal individuals are considered separately from adolescents and adults.

Table 16.4.3.1 Achievement orientation/intrinsic motivation/ambitiousness

Nature of difference	*Pre-pubertal*		*Post-pubertal*		*Wide age rangel*
		Child	*Adolescent*	*Adult*	
More among males		**NORTH AMERICA** *United States*: Veroff 1969:97; Hollander & Marcia 1970; Dweck et al. 1978	**EUROPE** *Finland*: Verkasalo et al. 1996* **NORTH AMERICA** *Canada*: Marcotte et al. 1999:39 (French speaking); United *States*: Walter & Marzolf 1951 (aspirations); DS Wright 1962 (personal goals); Veroff 1969 (young); Feltz 1978 (in athletics); Deci & Ryan 1980; JM Williams & White 1983 (in athletics); Andrade & Boulay 2003:29 (young)	**EUROPE** *Britain*: Warr 1982; *Hungary*: Elizur et al. 1995:68; *Norway*: Nordenmark 1995 (paid work); Halvorsen 1997; *Multiple European Countries*: Harpaz 1989 (non-financial reasons); de Vaus & McAllister 1991; Schwartz & Rubel-Lifschitz 2009:177 (valuing achievement, undergrad, 25 countries) **NORTH AMERICA** *United States*: Horner 1969; LW Hoffman 1972; Wiggins & Holzmuller 1978; Falbo & Richman 1979; Wiggins & Holzmuller 1981; Lorence 1987 (paid work); Tracey & Schneider 1995	**NORTH AMERICA** *United States*: Garai & Scheinfeld 1968 **OVERVIEW** *Meta-Analysis*: JA Hall 1984 (13 studies)
Not significant		**EUROPE** *Switzerland*: Rossier et al. 2007:128 (achievement striving, parent rated) **NORTH AMERICA** *United States*: Buckner & Fivush 1998:417		**EUROPE** *Finland*: Verkasalo et al. 1996* (teachers); Myyry & Helkama 2001:35; *Norway*: Ellingsaeter 1995; *Slovakia*: Kusa 2002:354* (undergrad) **NORTH AMERICA** *Canada*: Weisberg, DeYoung & Hirsh 2011:Table 2 (industriousness, M>F, d = .06); *United States*: Tresemer 1977; Kaufman & Fetters 1980 (professionals); Veroff et al. 1980; AS Kahn & Yoder 1989; W Lacy et al. 1983; Paludi 1984; R Rowe & Snizek 1995; JT Spence & Buckner 2000:49 (self-reported ambition)	**OVERVIEW** *Literature Review*: Maccoby & Jacklin 1974:351
More among females			**EUROPE** *Germany*: F Fischer, Schult & Hell 2003:535 (academic, N = 554, d = .58) **NORTH AMERICA** *United States*: J Block, Denker, & Tittle 1981 (personal achievement more important)	**EUROPE** *Britain*: N Nicholson & West 1988 (managers) **NORTH AMERICA** *United States*: CD Miller et al. 1990; Kajonius & Johnson 2018:127 (d = .24, N = 320,128) **OCEANIA** *Australia*: RM Clarke 1986 (among medical students)	

Findings pertaining to general activity levels are provided in Table 16.4.3.2a, including findings of prenatal (in utero) activity. As one can see, most in utero studies have concluded that males and females are equally active. However, among infants, toddlers, and especially children, nearly all the research indicates that males are more physically active than females.

In the case of adolescents and adults, a large number of studies have been reported. The methodologies used in these studies are quite varied, such as asking research participants how much time they spend engaging in physically active sports to asking them to wear leg or wrist movement monitoring devices.

As shown in Table 16.4.3.2b, the majority of studies conducted among adolescents have indicated that males are more physically active (or otherwise expend more energy) than females. However, in the case of adults, substantial evidence indicates that there are no significant sex differences.

The body of evidence surrounding sex differences in activity levels for species other than humans is substantial, and the methods used in measurement have varied considerably. As one can see by examining Table 16.4.3.2c, the findings are far from consistent.

While the particular species involved is likely to account for many of the inconsistent findings, many of the studies in this table are based on relatively small sample sizes. Additional factors are likely to include the methods by which the animals were tested. For example, one of the common types of animal studies of activity levels involves putting animals in a novel environment, and then watching to see how much they explore the territory within a given period of time. Such a methodology is thought by some researchers to be more of a measure of general timidity or fearfulness rather than one of activity levels. Another common methodology involves providing animals such as mice or rats with a running wheel which allows researchers to assess the number of revolutions an animal runs within a given period of time. Still other studies involve providing hidden food in various locations and watching to see how much time animals of both sexes spend looking for the food. Overall, it may not be appropriate to equate findings from the studies of sex differences in physical activity exhibited by humans with most of those exhibited by non-humans.

16.4.3.3 Being Organized

One study was located that compared males and females regarding tendencies to be organized. Table 16.4.3.3 shows that the study indicated that, at least in terms of self-assessment, males were more organized than females.

Table 16.4.3.2a Activity levels/locomotor activity/physical activity before puberty

Nature of difference	*Pre-pubertal*		
	Prenatal	*Infant/toddler*	*Child*
More among males	**NORTH AMERICA** *United States*: DiPietro et al. 1996; Almli et al. 2001; L Ellis & He 2014:Table 1* (second & third trimester, mother's recollection)	**NORTH AMERICA** *Canada*: JF Benenson et al. 1999:335 (N = 15M + 16F); DW Campbell & Eaton 1999 (infant, d = .20); *United States*: Gatewood & Weiss 1930* (infant); Goodenough 1930 (infant); JM Smith 1936 (infant); JW MacFarlane et al. 1954 (infant); Knop 1956 (infant); RQ Bell 1960 (infant); Schaefer & Bayley 1963 (infant); R Bell & Darling 1965 (neonates); HA Moss 1967 (newborn, N = 29); Goldberg & Lewis 1969:27 (infant, during play); M Elder 1970 (newborn, N = 27); Partington et al. 1971 (newborn, lab instruments, N = 107); Messer & Lewis 1972 (toddler); Richman et al. 1975 (toddler); PK Smith & Daglish 1977 (infant); S Phillips, King & DuBois 1978 (newborns, N = 30); Persson-Blennow & McNeil 1979 (infant, parent rating, N = 160); Fish & Crockenberg 1981 (infant, N = 16); AF Korner et al. 1981 (newborn, N = 67); Fishel 1982 (newborn, crib stabilimeter, N = 36); SL Friedman et al. 1982 (newborn, N = 25); BE Vaughn et al. 1982 (newborns, nurse ratings, N = 162); PS Klein 1984 (infant, N = 20M + 20F); Riese 1984; W Eaton & Yu 1989 (toddler); Baranowski, Thompson et al. 1993 (preschoolers); Fagot & O'Brien 1994 (infant, one year-olds, N = 83); Di Pietro et al. 1996 (infant, parent rating, N = 15M + 15F); Almli et al. 2001 (neonatal); DiPietro et al. 2002:364 (infant); Pellegrini, Long et al. 2007 (nursery school); Ellis & He 2014*	**ASIA** *China*: CCW Yu, Chan et al. 2006:336 (10-year-olds); *Japan*: Takada et al. 1998 **EUROPE** *Britain*: Ridgers, Stratton et al. 2007 (N = 150M + 147F); CG Owen et al. 2009 (in multiple ethnic groups, actigraph monitoring); D Spencer, Pasterski et al. 2017 (ages 4–11, N = 38M + 43F, d = .50); *Greece*: Manios et al. 1999; *Luxembourg*: Guillaume et al. 1997; *Netherlands*: Noordstar et al. 2016 (MVPA); *Sweden*: Sunnegardh et al. 1985* (older); *Switzerland*: Rossier et al. 2007:128 (parent rated, more energetic) **NORTH AMERICA** *Canada*: Eaton & Keats 1982 (young, both alone and when playing with peers); Cossette et al. 1991:175* (young); Kowalski et al. 1997 (self-reports); RE Crocker et al. 2000; *United States*: FL Goodenough 1930; JF Nelson 1931; Hattwick 1937; Koch 1955; Kagan & Moss 1962; Pederson & Bell 1970; CF Halverson & Waldrop 1973* (with others); Melson 1977 (especially when playing with other boys); DM Buss et al. 1980; Greendorfer 1980; Shephard et al. 1980; DiPietro 1981; Eaton & Keats 1982; GW Ladd 1983 (playing games); Pitcher & Schultz 1983 (preschool); Sunnegardh et al. 1985*; Klesges et al. 1986; Baranowski et al. 1987; Ross, Pate et al. 1987; W Eaton 1989; W Eaton & Yu 1989; Poest et al. 1989; Pate, Dowda & Ross 1990 (N = 1150M + 1202F); McKenzie et al. 1992; Moller et al. 1992 (playing games); Baranowski et al. 1993; Sallis 1993; Faucette, Sallis et al. 1995 (4th graders, N = 669M + 595F); Garcia et al. 1995; Janz et al. 1995; Durant et al. 1996 (young); Hovell et al. 1996; HC Kemper et al. 1996; L Myers et al. 1996 (older); Sallis et al. 1996; Saris et al. 1996; Trost, Pate et al. 1996 (5th graders, self-reports); Pate et al. 1997; Sarkin, McKenzie & Sallis 1997* (5th graders, accelerometer, during recess); SG Trost, Pate et al. 1996 (5th graders, N = 334); Trost et al. 1997; Goran et al. 1998; Sallis, Alcaraz et al. 1999 (4-5 graders, N = 362M + 370F); Trost & Pate 1999 (6th graders); Caspersen et al. 2000*; CB

		INTERNATIONAL *Multiple Countries*: Kohnstamm 1989 (toddler) **OVERVIEW** *Meta-Analysis*: DW Campbell & Eaton 1999 (d = .21)	Bradley et al. 2000; Janz et al. 2000*; Ku et al. 2000 (N = 68); Crespo et al. 2001* (ages 8-16); Pate, Freedson et al. 2002; Trost & Pate 2002 (acceterometer readings, N = 3,648); Beighle, Morgan et al. 2006 (N = 270) **INTERNATIONAL** *Multiple Countries*: JR Thomas & Thomas 2012 **OVERVIEW** *Literature Review*: Terman & Tyler 1954; Sallis, Prochaska & Taylor 2000:Table 3 (25/31 studies); *Meta-Analysis*: Eaton & Enns 1986 (d = .49); Basow 1992:103 (d = .49)
Not significant	**EUROPE** *Sweden*: L Valentine et al. 1984 **NORTH AMERICA** *United States*: SS Robertson 1985 (after mid-gestation); de Vries et al. 1988; Pillai & James 1990; Rayburn 1990; DiPietro et al. 1998; Pressman et al. 1998:84 (although males exhibited fewer complete quiescence periods at 36 weeks of gestation); Groome et al. 1999; DiPietro et al. 2009; L Ellis & He 2014:Table 1* (first trimester, mother's recollection)	**NORTH AMERICA** *Canada*: Maziade et al. 1984 (infant, N = 338); Cossette et al. 1991:175* (infant); *United States*: KC Pratt 1932; Birns 1965 (infant); RQ Bell et al. 1971 (infant); SS Robertson 1982 (newborn, N = 11); Dunst & Lingerfelt 1985 (infant, N = 17); Eaton & Dureski 1986 (infant, actometer, N = 50); AR Miller et al. 1993 (6-week olds, actometer, N = 52); Denham et al. 1995 (infant, N = 38); Worobey 1997 (infant, N = 90); RP Martin et al. 1997 (6-month-olds, N = 1,996); Worobey 1998 (infant, N = 80 **OCEANIA** *Australia*: Sanson et al. 1985 (infant, N = 718) **OVERVIEW** *Literature Review*: Maccoby & Jacklin 1974:353	**ASIA** *China*: CCW Yu et al. 2006:336 (age 10) **NORTH AMERICA** *United States*: Halverson & Waldrop 1973* (when playing alone); Janz et al. 1992 (daily heart rate monitoring); Sarkin, McKenzie & Sallis 1997* (5th graders, accelerometer, during physical education classes) **OVERVIEW** *Literature Review*: Sallis, Prochaska & Taylor 2000:Table 3 (6/31 studies)
More among females		**NORTH AMERICA** *United States*: M Lewis 1972 (infant, when interacting with mother); Rothbart 1986 (infant, N = 23M + 23F)	

Table 16.4.3.2b Activity levels/locomotor activity/physical activity after puberty

Nature of difference	*Post-pubertal*		*Wide age rangel*
	Adolescent	*Adult*	
More among males	**ASIA** *China*: Y Lee & Chen 1998 (young); *Russia*: M Hagger et al. 1998* (ages 13-14); *Taiwan*: Wu, Pender & Noureddine 2003:99 **EUROPE** *Britain*: N Armstrong et al. 1990; Biddle & Armstrong 1992 (ages 11-12, N = 72); A Steptoe & Butler 1996; M Hagger et al. 1998* (ages 13-14); Viner & Cole 2006:1370; *Finland*: Raitakari et al. 1994; Raitakari et al. 1997; *France*: Deflandre et al. 2001 (ages 11-18); *Germany*: R Fuchs et al. 1988; *Iceland*: Vilhjalmsson & Thorlindsson 1998; Vilhjalmsson & Kristjansdottir 2003:Table 1 (N = 3,270); *Netherlands*: HC Kemper et al. 1999; HC Kemper et al. 2001*; *Portugal*: Mota & Esculcas 2002; *Spain*: Hernando et al. 2013 (N = 1,068M + 1,332F); *Sweden*: KL Andersen et al. 1984; *Multiple European Countries*: Ruiz et al. 2011 **NORTH AMERICA** *Canada*: PR Crocker et al. 2000 (ages 11, N = 220M + 246F); JW Higgins et al. 2003; Cairney, Veldhuizen et al. 2014:Figure 1* (ages 13-15); *United States*: Kuhlen & Lee 1943 (active & restless); Godin & Shephard 1984; Gottlieb & Chen 1985; Godin & Shephard 1986; Godin et al. 1986; KJ Ferguson et al. 1989; Perusse et al. 1989; R Cohen et al. 1990; Rekers et al. 1990; Anderssen & Wold 1992; Terre et al. 1992; Aaron et al. 1993; Sallis 1993; Kelder at al. 1994; Sandberg & Meyer-Bahlburg 1994 (during play); Pate et al. 1994; Zakarian et al. 1994; AW Garcia et al. 1995 (N = 286); LM Scheier et al. 1995 (young); Winnail et al. 1995; S Craig et al. 1996; Lowry et al. 1996; Pate et al. 1996b; Sallis et al. 1996; PR Crocker et al. 1997; RE Andersen et al. 1998; AW Garcia et al. 1998; Gordon-Larsen et al. 1999; M Pratt et al. 1999	**ASIA** *China*: Feng, Zhang et al. 2014:Table 1 (undergrad, 635M + 471F); *Japan*: Saito, Yonemasu & Inami 2003:Table 1 (exercise more, elderly, N = 398M + 655F, rural) **EUROPE** *Britain*: DT Wade et al. 1985 (stroke victims, in outdoor activities); Wardle & Griffith 2001:Table 3; Cappuccio et al. 2007:698; El Ansari et al. 2011 (undergrad); *Germany*: Bente, Donaghy & Suwelack 1998 (during dyadic social interactions); *Netherlands*: HC Kemper et al. 2001*; *Multiple European Countries*: A Steptoe et al. 2002 (undergrad) **LATIN/CARIBBEAN AMERICA** *Brazil*: Gomes et al. 2001 (physically active leisure activities); Hallal et al. 2003* (in terms of exercise vigor); Monteiro et al. 2003 (physically active leisure activities); Azevedo et al. 2007 (self-report); *St. Kitts Island*: T Abel et al. 2001* (in terms of exercise vigor) **MIDDLE EAST** *Iran*: Koohpayehzadeh et al. 2014; *Saudi Arabia*: Amin, Khoudair et al. 2012:354 (N = 2,176); Alosaimi et al. 2018 (among psychiatric patients); *Turkey*: Asci, Tuzun & Koca 2006 (undergrad) **NORTH AMERICA** *Canada*: M Denton et al. 2004:2592; Inglis et al. 2013 (undergrad, N = 23M + 23F); *United States*: Cody & O'Hair 1983 (leg and foot movement when lying); Ferraro et al. 1992 (energy expended while sedentary); Arciero et al. 1993 (energy expended while at rest); MA Davis et al. 1994 (elderly); Klausen et al. 1997 (energy expended); Cerone & McKeever 1998 (undergrad, spatial activity experiences); Taaffe et al. 2001:Table 1 (elderly); Siegel-Hinson & McKeever 2002 (undergrad, spatial activity experiences); RC Brownson et al. 2005:425; Abdullah,	**EUROPE** *Multiple European Countries*: De Fruyt & Vollrath 2003 (ages 6-14, parent rated, energetic) **NORTH AMERICA** *United States*: PR Crocker, Bailey et al. 1997 (ages 9-15, N = 215); Crespo et al. 1999:1823; Caspersen et al. 2000 (adolescents & adults) **OVERVIEW** *Meta-Analysis*: J Hall 1984 (feeling restless, d = .72); Eaton & Enns 1986 (d = .49)

	(self-report); Caspersen et al. 2000; PL Davies & Rose 2000; Fardy et al. 2000; Janz et al. 2000; Crespo et al. 2001* (ages 8-16); Trost & Pate 2002 (acceterometer readings, N = 3,648); Skim et al. 2003 (young); Jago, Anderson et al. 2005; Ammouri et al. 2007:117 (N = 195M + 105F); Sallis, Zakarian et al. 2012 (N = 1,871); Hoyt, Niu et al. 2020:Table 1* (N = 6,817M + 7,728F) **OCEANIA** *Australia*: Trost, Pate et al. 2002 **OVERVIEW** *Literature Review*: Sallis, Prochaska & Taylor 2000:Table 4 (27/28 studies)	Khera et al. 2007:Table 1; Troiano et al. 2008 (accelerometer readings); Magoc, Tomaka et al. 2016 (N = 298, Hispanics); Olfert, Barr et al. 2019 (undergrad, N = 378M + 744F); Hoyt, Niu et al. 2020:Table 1* (N = 6,817M + 7,728F) **OCEANIA** *Australia*: MJ Bond et al. 1995 (elderly, outdoor activities) **INTERNATIONAL** *Multiple Countries*: Martinez-Gonzalez et al. 2001 (physically active leisure activities); Sallis, Bull et al. 2016 (137/146 countries); Mielke, de Silva et al. 2018	
Not significant	**NORTH AMERICA** *Canada*: Cairney, Veldhuizen et al. 2014:Figure 1* (ages 11-12); *United States*: Windle 1992 (self-rated) **INTERNATIONAL** *Multiple Countries*: De Bolle et al. 2015:178* (N = 4,850) **OVERVIEW** *Literature Review*: Sallis, Prochaska & Taylor 2000:Table 4 (1/28 studies)	**AFRICA** *Cameroon*: Fezeu et al. 2006:108 (regarding leisure time activities) **EUROPE** *Germany*: C Stock et al. 1001 (undergrad, N = 288M + 362F) **LATIN/CARIBBEAN AMERICA** *Brazil*: Hallal et al. 2003* (in terms of time spent exercising); *St. Kitts Island*: T Abel et al. 2001* (in terms of time spent exercising) **NORTH AMERICA** *United States*: de Truck & Miller 1985 (leg and foot movement when reclining); van Hitton et al. 1993 (daytime wrist movement monitor); AC Brown et al. 1995 (daytime movement monitor); Jean-Louis et al. 1997 (daytime wrist movement monitor); NW Burton & Turrell 2000 (physically active leisure activities) **INTERNATIONAL** *Multiple Countries*: De Bolle et al. 2015:181* (N = 6,128)	
More among females		**NORTH AMERICA** *Canada*: Choiniere et al. 2000:S16	

Table 16.4.3.2c Activity levels/locomotor activity/physical activity among non-humans

Nature of difference	*Pre-pubertal*		*Post-pubertal*		*Wide age rangel*
	Infant/toddler	*Child*	*Adolescent*	*Adult*	
More among males	**PRIMATE** *Gorilla*: A Medor 1990* (infant, in captivity); *Rhesus Macaque*: Goy 1968 (infant) **RODENT** *Rat*: Buelke-Sam et al. 1984 (neonates)	**PRIMATE** *Gorilla*: A Medor 1990* (captivity)	**MOLLUSC** *Cuttlefish*: Jozet-Alves et al. 2008:2051* **PRIMATE** *Talapoin Monkeys*: JA Wolfheim 1978 **UNGULATE** *Reindeer*: JH Mathisen et al. 2003	**CARNIVORE** *Giant Panda*: Perdue, Snyder et al. 2011:381 **PRIMATE** *Chimpanzee*: Weiss & King 2015:Table 8; JJ Ramsey et al. 2000:17 (energy expended); *Rhesus Macaque*: Stenenson-Hinde & Zunz 1978 **RODENT** *Rat*: Ough et al. 1972 (reward contingent behavior); PTP Wong & Traupman 1973 (reward contingent behavior); Miller 1975 (instrumental, purposeful activity); van Hest et al. 1987a (reward contingent behavior)	
Not significant		**MOLLUSC** *Cuttlefish*: Jozet-Alves et al. 2008:2051* **RODENT** *Gundi*: J Gouat & Gouat 1987 (captivity)		**PRIMATE** *Rhesus Macaque*: JJ Ramsey et al. 2000:17 **RODENT** *Mouse*: Dixon & DeFries 1968 (open field, C57BL strain); *Rat*: A Krasnoff & LM Weston 1976 (running wheel activity); A Jolley & Dreesman 1973 (open field); DA Blizard 1983* (wheel running)	
More among females	**BIRD** *Chicken*: RB Jones 1977a; RB Jones 1977b; RB Jones & Faure 1981; Jones & Faure 1982; Vallortigara & Zanforlin 1988	**PRIMATE** *Baboon*: NW Owens 1975 (field); *Rhesus Macaque*: HF Harlow 1969 (in captivity) **UNGULATE** *Sheep*: BD Sachs & Harris 1978 (in captivity)	**RODENT** *Mouse*: RJ Wolf 1981 (captivity); *Rat*: Denti & Epstein 1972 (avoidance training)	**PRIMATE** *Orangutan*: TL Maple & Zucker 1978 (in captivity); Weiss & King 2015:Table 8 **RODENT** *Mouse*: TA Maimanee et al. 2003 (open field); Wiedmer et al. 2004:2861; Koteja et al. 1999; Lightfoot et al. 2004; Seburn 2007; Lightfoot et al. 2008; *Rat*: Denenberg & Morton 1962 (open field); Rodier 1971; JA Gray & Lalljee 1974; Bronsetin et al. 1975; A Krasnoff & Weston 1976; DM Camp & Robinson 1988 (after exposure to d-amphetamine); Zimmerberg & Farley 1993 (in maze); Leret et al. 1994 (in elevated-plus maze); DR Wallace et al. 1996; Barros & Ferigolo 1998; Cailhol & Mormede 1999; AJ Wintink et al. 2003 (open field); Craft et al. 2006; Li et al. 2006; Talarovicova et al. 2009	**PRIMATE** *Spider Monkey*: LM Fedigan & Baxter 1984:Table 1 **RODENT** *Rat*: FA Hitchcock 1925; Slob et al. 1986 (open-field) **OVERVIEW** *Literature Review*: JB Becker 2002:776 (among rats)

Table 16.4.3.3 Being organized

Nature of difference			*Post-pubertal*		
				Adult	
More among males				**NORTH AMERICA** *United States*: Goldsmith & Flynn 2000:1215 (undergrad, self-described)	
Not significant					
More among females					

16.4.3.4 Boldness

In social situations, boldness can be considered the opposite of being shy. As shown in Table 16.4.3.4, the available research indicates that males are bolder (less shy) in social settings.

Table 16.4.3.4 Boldness

Nature of difference			*Post-pubertal*		
				Adult	
More among males				**NORTH AMERICA** *United States*: Del Giudice et al. 2012:Table 1 & 2 (representative sample, N = 5,124M + 5,137F)	
Not significant					
More among females					

16.4.3.5 Compulsiveness

Persons who are said to be compulsive are unusually prone to devote time and energy to a particular task, usually of their own choosing. At the extreme, such persons would be considered suffering from what is known as *obsessive-compulsive disorder*, as discussed in Chapter 14. The available research findings on sex differences in compulsiveness is summarized in Table 16.4.3.5, and one can see that they either suggest that there are no significant sex differences or that females are more compulsive than males.

16.4.3.6 Curiosity/Inquisitiveness

Quite a few studies have sought to determine if one sex exceeded the other in terms of inquisitiveness. Table 16.4.3.6 shows that most studies have concluded that this personality trait is more common among males than among females.

Table 16.4.3.5 Compulsiveness

Nature of difference				*Post-pubertal*	*Wide age rangel*
				Adult	
More among males					
Not significant				**EUROPE** *Spain*: G Vall et al. 2015	**NORTH AMERICA** *United States*: C Lloyd & Gartrell 1989:Table 3 (medical students); Ketzenberger & Forrest 1998
More among females				**EUROPE** *Netherlands*: Rassin & Muris 2005 (undergrad) **NORTH AMERICA** *United States*: JF Samuels et al. 2008a (N = 151M + 338F); M Wheaton et al. 2008	

16.4.3.7 Decisiveness

Sex differences in tendencies to be decisive (as opposed to being tentative or undecided) on issues and in decision making have been investigated in three located studies. As shown in Table 16.4.3.7, two studies found decisiveness to be more characteristic of males than of females while one study revealed no significant difference.

16.4.3.8 Domicile Construction

Studies of sex differences in domicile construction, specifically in the form of nest building, among non-humans are summarized in Table 16.4.3.8. The findings point toward no consistent differences. If there are differences, they are probably species-specific.

16.4.3.9 Dutifulness

People who are dutiful tend to be unusually conscientious in terms of honoring their social responsibilities and commitments. As shown in Table 16.4.3.9, all the relevant studies indicate that females are more dutiful than males.

16.4.3.10 Exploratory Behavior in General

Exploratory behavior among pre-adults is typically observed and recorded by researchers. Among adults, the methods used to assess such behavior vary, but often include self-ratings of adventurousness. Also, a number of studies have compared males and females regarding their tendencies to stray from their mothers during infancy through

Table 16.4.3.6 Curiosity/inquisitiveness

Nature of difference	*Pre-pubertal*		*Post-pubertal*		*Wide age rangel*
	Infant/toddler	*Child*	*Adolescent*	*Adult*	
More among males	**NORTH AMERICA** *United States*: Pederson & Bell 1970 (toddler, regarding physical objects); Fagot 1974 (toddler regarding physical objects); Hutt 1978 (toddler)	**EUROPE** *Switzerland*: Rossier et al. 2007:128 (parent rated) **NORTH AMERICA** *United States*: Smock & Holt 1962; Clarke-Stewert 1973 (regarding physical objects); HJ Ginsburg &Miller 1982	**MIDDLE EAST** *Israel*: Hofstein et al. 1981 (scientific curiosity)	**NORTH AMERICA** *United States*: Piechowski & Cunningham 1985 (among artists); Bouchet & Falk 2001 (undergrad)	**EUROPE** *Multiple European Countries*: De Fruyt & Vollrath 2003 (ages 6–14, parent rated) **NORTH AMERICA** *United States*: Piirto 1994
Not significant					
More among females		**OCEANIA** *Australia*: GJ Boyle & Start 1989:Table 1 (academic, N = 179M + 209F)			

Table 16.4.3.7 Decisiveness

Nature of difference			*Post-pubertal*		
				Adult	
More among males				**EUROPE** *Netherlands*: Rassin & Muris 2005 (undergrad) **NORTH AMERICA** *United States*: JT Spence & Buckner 2000:49 (self-report)	
Not significant				**INTERNATIONAL** *Multiple Countries*: Patalano & Wengrovity 2006	
More among females					

Table 16.4.3.8 Nest building among non-humans

Nature of difference			*Post-pubertal*		*Wide age rangel*
				Adult	
More among males				**BIRD** *Jacana*: Jenni & Betts 1978 (mainly for offspring); *Snail Kite*: Beissinger 1987:497	
Not significant				**RODENT** *Rat*: Kinder 1927 (thermo-regulatory)	
More among females				**MARSUPIAL** *Opossum*: Fadem, Kraus & Sheffet 1989 (especially at high temperatures) **RODENT** *Hamsters*: MPHM Richards 1969	**PRIMATE** *Chimpanzee*: FA Stewart & Pruetz 2020 (adolescent & adult)

Table 16.4.3.9 Dutifulness

Nature of difference			*Post-pubertal*		
			Adolescent	*Adult*	
More among males					
Not significant					
More among females			**INTERNATIONAL** *Multiple Countries*: De Bolle et al. 2015:178* (N = 4,850)	**NORTH AMERICA** *United States*: Kajonius & Johnson 2018:127 (dutiful, N = 320,128, d = .19) **INTERNATIONAL** *Multiple Countries*: McCrae & Terracciano 2005:Table 4 (50 countries, self-rated and observer rated); De Bolle et al. 2015:181* (N = 6,128)	

childhood. As one can see in Table 16.4.3.10a, all the research has indicated that, regardless of age, males engage in more wide-ranging exploratory behavior than do females.

Studies of whether males or females make more frequent excursions away from their home territories have involved many different species. Among prepubertal animals, Table 16.4.3.10b shows that the research is limited to primates. All but one of the studies indicated that males explore their surroundings (or stray farther from their mothers) to a greater degree than do females. One can see that the studies of primates following puberty also indicate that males wander away from their social groups more than do females.

In the case of non-primate species, the evidence is quite mixed. This is especially true for rodents, for whom most studies actually suggest that females explore more widely than do males.

16.4.3.11 Time Elapsing between Entry into a Novel Environment and Exploratory Behavior

A few studies of rodents have compared males and females with regard to the amount of time elapsing between when an animal enters a novel enclosure and when they begin to actively explore. As shown in Table 16.4.3.11, the studies are not consistent regarding any sex difference in regard to the time lapse.

16.4.3.12 Multi-Tasking

The ability to multi-task involves being able to engage in more than one task (with at least a modest degree of competence) at the same time. Table 16.4.3.12 shows that most studies have concluded that females are better at multi-tasking than males, although one study indicated that this may not hold true for spatial-reasoning tasks.

16.4.3.13 Neatness/Cleanliness/Tidiness/Orderliness

Neatness, cleanliness, tidiness, and orderliness pertain to the extent to which individuals keep their bodies, clothing, and living quarters clean and tidy. The available research findings, cited in Table 16.4.3.13, indicate that these tendencies are more characteristic of females than of males, at least among children.

16.4.3.14 Object Manipulating Behavior

A few studies were located pertaining to sex differences among toddlers and children in their tendencies to manipulate physical objects in

Table 16.4.3.10a Exploratory behavior in general

Nature of difference	*Pre-pubertal*		*Post-pubertal*		*Wide age rangel*
	Infant/toddler	*Child*	*Adolescent*	*Adult*	
More among males	**AFRICA** *South Africa*: Sluckin 1980:436 (toddler,!Kung Tribe) **NORTH AMERICA** *United States*: Goldberg & Lewis 1969:24 (infant, strayed from mother, during playtime); JW Anderson 1972 (infant); SB Messer & Lewis 1972:31 (infant, straying from parent when playing); M Lewis & Weinraub 1974 (infant, straying from mom when playing); Matthews 1992 (toddler)	**AFRICA** *Ivory Coast*: Dasen et al. 1985 (Baoule Tribe); *Kenya*: Munroe & Munroe 1971 (Logoli tribe); Nerlove et al. 1971 (Logoli tribe); *Mahe Island*: M Benedict & Benedict 1982:261 **NORTH AMERICA** *Canada*: G Coates & Bussard 1974; RJ Payne & Jones 1977; *United States*: Hattwick 1937:351 (venture far from adults); Smock & Holt 1962; S Goldberg & Lewis 1969; RL Munroe & Munroe 1971; J Anderson & Tindall 1972; Coates & Bussard 1974; Harper & Sanders 1975 (during play); C Hutt 1978 (preschool); R Moore & Young 1978; RA Hart 1979; JH Block & Block 1980; Webley 1981; Ley & Koepke 1982; Herman et al. 1987; Benenson et al. 1998 (preschool, straying from mother during play, N = 41) **INTERNATIONAL** *Multiple Countries*: Sebba 1994	**NORTH AMERICA** *Canada*: Payne & Jones 1977; *United*: VanVliet 1983	**AFRICA** *Prehistoric Africa*: Ruff 1987 **LATIN/CARIBBEAN AMERICA** *Colombia*: Chagnon 1977 (Yanomamo); *Paraguay*: K Hill & Kaplan 1988 (Ache Tribe); K Hill & Hurtado 1996 (Ache Tribe) **NORTH AMERICA** Canada: Veevers 1982 (miles driven per year); *United States*: Cerrelli 1992 (miles driven per year); Entwisle et al. 1994 (explore their neighborhoods)	**AFRICA** *Central African Republic*: Hewlett et al. 1986 (Pygmies of Africa) **OVERVIEW** *Literature Review*: Garai & Scheinfeld 1968; Maccoby & Jacklin 1974:144
Not significant					
More among females					

Table 16.4.3.10b Exploratory behavior among non-humans

Nature of difference	*Pre-pubertal*		*Post-pubertal*		*Wide age rangel*
	Infant/toddler	*Child*	*Adolescent*	*Adult*	
More among males	**PRIMATE** *Chimpanzee*: Lonsdorf, Markham, Heintz et al. 2014:Figure 5* (stray from mother, toddler); *Pigtail Macaque*: GD Jensen et al. 1968; *Rhesus Macaque*: GD Jensen & Bobbitt 1968; GD Mitchell 1968a (infants, straying further from mother)	**PRIMATE** *Chimpanzee*: AE Pusey 1983 (stray from mother); Lonsdorf, Markham, Heintz et al. 2014:Figure 5* (stray from mother, young child); *Japanese Macaque*: Eaton, Johnson et al. 1985	**CANINE** *Spotted Hyena*: Arsznov et al. 2010 **PRIMATE** *Japanese Macaque*: Kawanaka 1973; *Long-Tailed Macaque*: Van Noordwijk & Van Schaik 1985 (migrating to neighboring troops); *Rhesus Macaque*: Boelkins & Wilson 1972 (leaving native troop) **RODENT** *Meadow Vole*: Gaulin & FitzGerald 1989*	**BIRD** *Cormorant*: CD Anderson, Roby & Collis 2004 (food-foraging); *Domestic Chicken*: Tommasi & Vallortigara 2004:93 **DELPHINID** *Bottlenose Dolphin*: Mann, Stanton et al. 2012 (food-foraging); Randic, Connor et al. 2012 (food-foraging) **MOLLUSC** *Cuttlefish*: Jozet-Alves et al. 2008 **PRIMATE** *Chimpanzee*: Wrangham 1979; Wrangham 1986; Gilby & Wrangham 2008 (food-foraging) **RODENT** *Meadow Vole*: Gaulin & FitzGerald 1986*; Gaulin & FitzGerald 1988; *Mouse*: Streng 1971 (in open field); J Masur et al. 1980 (in open field); Kvist & Selander 1987; Palanza et al. 2001:416* (when individually housed); Tropp & Markus 2001* (proximal landmark); *Rat*: Sines 1961* (in open field); WW Beatty et al. 1976 (in open field); Palanza et al. 2001* (after crowding)	**FELINE** *Caracal*: Avenant & Nel 1998; *Leopard*: Mizutani & Jewell 1998; *Stoat*: Alterio 1998; Samson & Raymond 1998 **MUSTELID** *Ferret*: Norbury et al. 1998 **PRIMATE** *Orangutan*: Rodman 1984; Galdikas 1988; *Siamang*: Chivers 1974; *Tarsier*: Bearder 1987 **RODENT** *Mouse*: EC Simmel et al. 1976; *Rat*: Behrends et al. 1986; Randall 1991; Ribble & Stanley 1998 **MAMMAL** *Several Species*: LE Brown 1966
Not significant	**PRIMATE** *Rhesus Macaque*: GR Brown & Dixson 2000:Figure 1 (distance from mom, N = 14M + 20F)			**RODENT** *Mouse*: McClearn 1960; ZM Nagy & Forrest 1970* (locomotion in open field); ZM Nagy & Glaser 1970* (locomotion in an open field); D Blizard 1971 (locomotion in open field); *Pine Vole*: Gaulin & FitzGerald 1986*; *Rat*: Sines 1961* (bred for ulcer susceptibility, locomotion in an open field); DW Pfaff & Zigmond 1971; J Archer 1974* (Long-Evans Wistar, Sprague-Dawley strains, locomotion in open field); *Rat*: PA Russell 1977* (number of explorations in novel or familiar areas); PA Russell 1977* (exploring novel object in familiar environment)	**RODENT** *Mouse*: Dixon & DeFries 1968; Manosevitz 1970

(*Continued*)

Table 16.4.3.10b (Continued)

Nature of difference	*Pre-pubertal*		*Post-pubertal*		*Wide age rangel*
	Infant/toddler	*Child*	*Adolescent*	*Adult*	
More among females			**RODENT** *Rat*: WJ Meyers 1962 (considered an indicator of a lack of fear); HH Swanson 1966 (considered an indicator of a lack of fear); WW Beatty 1979; Romero & Chen 2004 (open-field)	**RODENT** *Hamster*: HH Swanson 1966* (emerge from an enclosure sooner & ambulate more in open field); HH Swanson 1969 (young); *Mouse*: JA Gray et al. 1965 (more locomotion & more exploratory responses in an open field); GM Harrington 1972 (more locomotion in open field); Quadagno et al. 1972 (more exploratory responses in an open field); J Archer 1974* (Long-Evans strains, more locomotion in open field); Nagy & Glaser 1970* (more locomotion in open field); A Saylor & Salmon 1971* (more locomotion in open field); Valle 1970 (young); Priestnall 1973* (more exploratory responses & locomotion in open field); DA Blizard et al. 1975 (more exploratory responses & more locomotion in open field); *Rat*: EE Anderson 1940 (in an open field, considered an indicator of a lack of fear); Thompson 1953; Broadhurst 1957; Zimbardo & Montgomery 1957; WJ Richards & Leslie 1962 (explore novel area more with or without food and/or water deprivation); Woods 1962; ND Henderson 1963 (open field); CT Snowden et al. 1964 (open field); JA Gray 1965 (open field); RN Hughes 1968 (open field); KP Satinder 1968 (open field); JA Gray et al. 1969 (open field); Barrett & Ray 1970 (shuttle-box test, open field, Lashley III maze); JA Gray 1971a (young); PA Russell 1971 (open field); GA Harrington 1972; H Imada 1972 (open field); J Masur 1972; K Vale 1972 (open field); DI Williams & Russell 1972 (open field); PA Russell 1973; KP Satinder & Hill 1974; J Archer 1975; PA Russell 1977* (longer time exploring new area after release); Archer 1979 (open field); JF Hyde & Jerussi 1983; Guillamon et al. 1990; Meng & Drugan 1993 (open-field); Farabollini et al. 1999; Brotto et al. 2000 (open-field); Palanza et al. 2001* (after being socially isolated); Tropp & Markus 2001* (distal landmark); Tropp & Markus 2001 (open-field); Romero & Chen 2004 (open-field); Biala, Bogoch et al. 2011:1118	**RODENT** *Mouse*: Oliverio et al. 1972; *Rat*: Simmel et al. 1965; Slob et al. 1986

Table 16.4.3.11 Time elapsing between entry into a novel environment and exploratory behavior among non-humans

Nature of difference				*Post-pubertal*	
				Adult	
More among males				**RODENT** *Mouse*: GM Harrington 1972 (takes longer to emerge); Quadagno et al. 1972 (take longer to emerge)	
Not significant					
More among females				**RODENT** *Mouse*: WJ Meyers 1962 (take longer to emerge from cage in an open field); A Saylor & Salmon 1971 (take longer to emerge into open field)	

Table 16.4.3.12 Multi-tasking

Nature of difference			*Post-pubertal*		
				Adult	
More among males				**EUROPE** *Sweden*: Mäntylä 2013 (multi-tasking at spatial-reasoning tasks)	
Not significant					
More among females				**ASIA** *China*: Ren et al. 2009 (Flanker test) **EUROPE** *Britain*: Stoet, O'Conner et al. 2013 (computer-based, simple arithmetic and map searching tasks) **NORTH AMERICA** *United States*: Sayer 2007; Offer & Schneider 2011	

various ways. As one can see, Table 16.4.3.14 indicates that males seem to be more prone to engage in such manipulations than is the case for females. It may be relevant to mention that time spent manipulating physical objects is considered a characteristic of autism spectrum disorders, and that these disorders are all considerably more common among males than among females (as documented in the chapter on mental health/illness).

16.4.3.15 Perfectionism

Two studies compared the sexes regarding perfectionism. Table 16.4.3.15 shows that one study found males being more perfectionistic than females while the other reported no significant difference.

Table 16.4.3.13 Neatness/cleanliness/tidiness/orderliness

Nature of difference	*Pre-pubertal*				
		Child			
More among males					
Not significant					
More among females		**EUROPE** *Switzerland*: Rossier et al. 2007:128 (orderliness, ratings by parents); *Multiple European Countries*: De Fruyt & Volerath 2003 (ages 6-14, orderliness, ratings by parents) **NORTH AMERICA** *Canada*: Weisberg, DeYoung & Hirsh 2011:Table 2 (orderliness, ages 17-85, N = 892M + 1,751F, d = .18); *United States*: LB Ames et al. 1952 (Rorschach forms); Zelig 1962 (dislike getting dirty); Lever 1976 (in game playing); Lever 1978 (in game playing)			

Table 16.4.3.14 Object manipulating behavior

Nature of difference	*Pre-pubertal*				
	Infant/toddler	*Child*			
More among males	**NORTH AMERICA** *United States*: Fagot 1974 (toddler); Fagot 1978 (toddler); Brehm & Weinraub 1977 (toddler)	**NORTH AMERICA** *United States*: Pederson & Bell 1970; Clarke-Stewart 1973 (preschoolers)			
Not significant					
More among females					

Table 16.4.3.15 Perfectionism

Nature of difference			*Post-pubertal*		
				Adult	
More among males				**NORTH AMERICA** *United States*: Del Giudice et al. 2012:Table 1 & 2 (representative sample, N = 5,124M + 5,137F)	
Not significant				**NORTH AMERICA** *United States*: RJ Burke 1999:343 (among MBA graduates surrounding their jobs)	
More among females					

16.4.3.16 Procrastination

Studies have been somewhat inconsistent regarding a sex difference in people's tendencies to procrastinate. As shown in Table 16.4.3.16, research either suggests there is no significant sex difference or that procrastination is more characteristic of females than of males.

Table 16.4.3.16 Procrastination

Nature of difference				*Post-pubertal*	
				Adult	
More among males					
Not significant				**NORTH AMERICA** *United States*: Solomon & Rothblum 1984 (undergrad); Rothblum et al. 1986 (undergrad); Effert & Ferrari 1989 (undergrad)	
More among females				**NORTH AMERICA** *United States*: Paludi & Frankell-Hauser 1986 (undergrad); Haycock et al. 1998 (undergrad)	

16.4.3.17 Feeling Hurried/Rushed

In one study, medical students were asked how often they felt hurried or rushed. Table 16.4.3.17 shows that female respondents provided higher self-ratings than did males.

Table 16.4.3.17 Feeling hurried/rushed

Nature of difference			*Post-pubertal*		
				Adult	
More among males					
Not significant					
More among females				**NORTH AMERICA** *United States*: Cartwright 1972:215 (medical students, self-report)	

16.4.3.18 Tool Use Behavior

While the use of tools is often considered a hallmark of the human species, studies have found that the use of at least simple types of tools (such as sticks and rocks) exist in many other species (JR Anderson 2002; Sanz, Call & Boesch 2013). Regarding sex differences, several studies have compared male and female chimpanzees and bonobos in the use of tools. Findings, shown in Table 16.4.3.18, all indicate that females were more likely than males to use tools.

Table 16.4.3.18 Tool use behavior among non-humans

Nature of difference	*Pre-pubertal*		*Post-pubertal*		*Wide age rangel*
		Child		*Adult*	
More among males					
Not significant					
More among females		**PRIMATE** *Chimpanzee*: McGrew 1992; Lonsdorf, Pusey & Everly 2004 for termite fishing, females learn 2 years earlier)		**PRIMATE** *Bonobo*: Gruber et al. 2010* (in captivity); *Chimpanzee*: McGrew 1979 (sticks for termite fishing); Boesch & Boesch 1981 (stones to crack nuts); Joulian 1986; Lonsdorf 2005 (sticks for termite fishing); Gruber et al. 2010* (in captivity)	**PRIMATE** *Chimpanzee*: Goodall 1986

16.4.3.19 Type A Behavior/Personality

A person who is said to have a Type A personality or to exhibit Type A behavior usually angers easily, and feels stress and anxiety often, along with unusually strong desires to strive for difficult-to-attain goals (DC Glass 1977; KA Matthews 1982). Type A behavior appears to be associated with an elevated risk of heart disease (Haynes & Matthews 1988). By inspecting Table 16.4.3.19, one can see that research findings have not produced consistent results regarding sex differences in the prevalence of Type A behavior or Type A personality.

Table 16.4.3.19 Type A behavior/personality

Nature of difference			*Post-pubertal*		*Wide age rangel*
				Adult	
More among males				**NORTH AMERICA** *United States*: Waldron et al. 1977	**NORTH AMERICA** *United States*: Mettlin 1976; Shekelle et al. 1976*
Not significant				**ASIA** *Japan*: Sumi 2005 (Bortner scale) **NORTH AMERICA** *United States*: Shekelle et al. 1976* (among employed persons, SES controlled); CD Jenkins et al. 1979 (education and occupation controlled); GE Moss et al. 1986; Sorensen et al. 1987; Barling & Charbonneau 1992	
More among females				**EUROPE** *Sweden*: Lundberg 1980 (undergrad) **NORTH AMERICA** *Canada*: Greenglass 1993 (managers)	**EUROPE** *Finland*: Koskenvuo et al. 1981:334

16.5 Behavior Focused on Specific Parts of the Body

People's behavior directed toward a particular part of their bodies is the focus of some sex differences research. This section summarizes findings in this regard.

16.5.1 Bodily Adornment Behavior

A few studies have investigated sex differences in various behaviors associated with enhancing the appearance of one's body. Findings appear below.

16.5.1.1 Getting Body Piercings

Body piercings are most commonly obtained on the ear lobes but may involve almost any part of the body. One can see in Table 16.5.1.1 that all the located studies concluded that body piercings were more often obtained by females.

Table 16.5.1.1 Getting body piercing

Nature of difference			*Post-pubertal*		*Wide age rangel*
			Adolescent	*Adult*	
More among males					
Not significant					
More among females			**NORTH AMERICA** *Canada*: Deschesnes, Fines & Demers 2006:384 (ages 12-18, N = 1,046 + 1,134F); *United States*: TL Brooks et al. 2003	**NORTH AMERICA** *United States*: BM Hill, Ogletree & McCarty 2016 (undergrad)	**OCEANIA** *Australia*: Makkai & McAllister 2001:Table 2 (ages 14 and older, N = 10,030, ears as well as other body parts, self-reports)

16.5.1.2 Getting Tattoos

Several studies have investigated sex differences in obtaining tattoos. As one can see in Table 16.5.1.2, the findings have not been consistent.

16.5.1.3 Enhancing One's Physical Attractiveness

Some research has compared males and females regarding the time spent enhancing one's physical attractiveness (or physical appearance). Table 16.5.1.3 shows that greater time is devoted by females than by males.

Table 16.5.1.2 Getting tattoos

Nature of difference			*Post-pubertal*		*Wide age rangel*
			Adolescent	*Adult*	
More among males					**OCEANIA** *Australia*: Makkai & McAllister 2001:Table 2 (ages 14 and older, N = 10,030, self-reports)
Not significant				**EUROPE** *Britain*: Swami et al. 2015 (self-report)	**NORTH AMERICA** *United States*: TA Roberts & Ryan 2002:1060 (ages 11–21, N = 2,776M + 3061F, M>F)
More among females			**NORTH AMERICA** *Canada*: Deschesnes, Fines & Demers 2006:384 (ages 12-18, N = 1,046 + 1,134F)	**NORTH AMERICA** *United States*: KA King & Vidourek 2013 (undergrad, N = 998); BM Hill, Ogletree & McCarty 2016 (undergrad) **OCEANIA** *Australia*: Putnins 2002 (among young adult offenders, 17%M vs. 30%F)	

Table 16.5.1.3 Enhancing one's physical attractiveness

Nature of difference			*Post-pubertal*		
				Adult	
More among males					
Not significant					
More among females				**NORTH AMERICA** *United States*: Daly, Hogg et al. 1983 (investing time); Hayhoe, Leach et al. 2000 (investing money, undergrad); GF Miller 2009 (investing money) **INTERNATIONAL** *Multiple Countries*: Aune & Aune 1994 (investing time)	

16.5.2 Carrying Behavior

As upright-walking animals, humans often carry objects with their upper limbs. Studies have assessed sex differences in the carrying styles and types of objects being carried. Results are summarized in the following tables. It is worth noting that research on *sidedness* in carrying objects (including books) is summarized in Chapter 9.

16.5.2.1 Using a Cradling-Like Book-Carrying Style

Sex differences in book-carrying styles were first conducted in the 1970s. The data for these studies have involved observers rating subjects as they walk or stand in hallways of buildings or on college campuses. Table 16.5.2.1 shows that these studies have all reached the same conclusion with respect to sex differences: Females are more likely to "cradle" their books with one or both arms or to rest their books on the waist, whereas males are more likely to carry the books to the side with their arms extended.

Table 16.5.2.1 Using a cradling-like book-carrying style

Nature of difference	*Pre-pubertal*		*Post-pubertal*		
		Child	*Adolescent*	*Adult*	
More among males					
Not significant					
More among females		**NORTH AMERICA** *United States*: Hanaway & Burghardt 1976*; Jenni & Jenni 1976*	**NORTH AMERICA** *United States*: Hanaway & Burghardt 1976*	**ASIA** *Malaysia*: Ellis, Awang & Larkin 2013:236* (N = 811M + 2,120) **NORTH AMERICA** *United States*: Jenni 1976 (undergrad); Jenni & Jenni 1976* (undergrad); Hanaway & Burghardt 1976 (undergrad); Spottswood & Burghardt 1976 (undergrad); Jenni & Jenni 1978 (undergrad); Rekers & Mead 1979 (undergrad); TR Alley & Kolker 1988 (undergrad); McKelvei 1993 (undergrad); Thommen et al. 1993 (undergrad); Ellis, Awang & Larkin 2013:236* (N = 1,220M + 1,385F)	

16.5.2.2 Carrying Books with Books Resting on the Hip

A couple of studies were conducted on sex differences in carrying books (including magazines and other papers) slanted inward at the bottom so that they rested on the hip (or between the hips in the front of one's torso). As shown in Table 16.5.2.2, these studies (one conducted in two countries) concluded that this carrying style was more common among females than males. It can be considered similar to the cradling-like book-carrying style with one arm (discussed directly above).

16.5.2.3 Carrying Books Next to the Thigh

Carrying books with the arm extended downward so that the books are next to one's outer thigh has been investigated in a few studies regarding sex differences. As one can see in Table 16.5.2.3, all the studies have concluded that males use this carrying style on average more than do females.

Table 16.5.2.2 Carrying books with books resting on the hip

Nature of difference				*Post-pubertal*	
				Adult	
More among males					
Not significant					
More among females				**ASIA** *Malaysia*: Ellis, Awang & Larkin 2013:236* (N = 811M + 2,120) **NORTH AMERICA** *United States*: Scheman et al. 1977; Ellis, Awang & Larkin 2013:236* (N = 1,220M + 1,385F)	

Table 16.5.2.3 Carrying books next to the thigh

Nature of difference				*Post-pubertal*	
				Adult	
More among males				**ASIA** *Malaysia*: Ellis, Awang & Larkin 2013:236* (N = 811M + 2,120) **NORTH AMERICA** *United States*: Spottswood & Burghardt 1976 (undergrad); Rekers & Mead 1979 (undergrad); Alley & Kolker 1988 (undergrad, arm extended downward); Ellis, Awang & Larkin 2013:236* (N = 1,220M + 1,385F)	
Not significant					
More among females					

16.5.2.4 Carrying/Using Backpacks

Two studies have reported sex differences with regard to the carrying of backpacks. As shown in Table 16.5.2.4, they report that males do so more than females.

Table 16.5.2.4 Carrying/using backpacks

Nature of difference			*Post-pubertal*	
			Adult	
More among males			**ASIA** *Malaysia*: Ellis, Awang & Larkin 2013:236* (N = 811M + 2,120) **NORTH AMERICA** *United States*: Rekers & Mead 1979 (undergrad); Ellis, Awang & Larkin 2013:236* (N = 1,220M + 1,385F)	
Not significant				
More among females				

16.5.2.5 Cuddling and Cradling

Studies pertaining to sex differences in cuddling and cradling were limited to samples of infants. Table 16.5.2.5a shows that all these studies have found that compared to males, females were more prone to cuddle with their adult caregivers or to continue doing so for longer durations. (Incidentally, there is additional evidence pertaining to cradling in Chapter 9 pertaining to sidedness in cradling.)

Table 16.5.2.5a Cuddling and cradling

Nature of difference	*Pre-pubertal*				
	Infant/toddler				
More among males					
Not significant					
More among females	**MIDDLE EAST** *Israel*: FD Horowitz 1977 (neonate) **NORTH AMERICA** *Canada*: JF Benenson et al. 1999 (neonate; N = 15M + 16F, circumcised boys excluded); *United States*: DF Freedman 1974:68 (neonate); Mahler et al. 1975 (newborn, mother-rated); Osofsky & O'Connell 1977 (neonate, N = 328)				

In one study of child-aged chimpanzees, sex differences in the tendency to carry sticks in a cradling-like fashion were assessed. Table 16.5.2.5b shows that the study indicated that females were more likely than males to exhibit such behavior. The researchers speculated that this carrying behavior seemed to resemble human children when they carry dolls.

Table 16.5.2.5b Cuddling and cradling among non-humans

Nature of difference	*Pre-pubertal*				
		Child			
More among males					
Not significant					
More among females		**PRIMATE** *Chimpanzee*: Kahlenberg & Wrangham 2010:Figure 1 (carrying sticks in a cradling position)			

16.5.2.6 Carrying Weapons

Numerous studies regarding the carrying of weapons (usually in the form of knives or guns) have been reported. Table 16.5.2.6 shows that all studies agree that males are more likely than females to carry weapons.

Table 16.5.2.6 Carrying weapons

Nature of difference			*Post-pubertal*		*Wide age rangel*
			Adolescent	*Adult*	
More among males			**EUROPE** *Britain*: Cairns & Cairns 1994; *Norway*: Rossow et al. 1999 (in school); *Scotland*: McKeganey & Norrie 2000 (in school, self-reported); *Switzerland*: Klingemann 2001 (in school); Kuntsche & Klingemann 2004 (in school) **NORTH AMERICA** *United States*: American Medical Association 1990 (adolescents, 23%M vs. 5%F carry knives to school, 3%M vs. 1%F carry guns to school); Callahan & Rivara 1992 (adolescents, 25%M vs. 11% F); DuRant et al. 1995a; DuRant et al. 1995b; Orpinas et al. 1995 (adolescents, self-reports); Valois et al. 1995 (in school); Vaughn et al. 1996; SL Bailey et al. 1997 (in school, self-report); DuRant et al. 1997 (self-report); DeJong 1997; Simon, Dent & Sussman 1997; Grunbaum et al. 1998 (in school); Kulig et al. 1998 (in school, self-report); Valois et al. 1998 (in school); DuRant et al. 1999; Simon, Crosby & Dahlberg et al. 1999; RW Blum et al. 2000 (self-report of brandishing a weapon); Kodjo, Auinger & Ryan et al. 2003 (self-report); Steinman & Zimmerman 2003 (urban blacks); T Lewis et al. 2007; Farrington et al. 2009; Ferguson & Meehan 2010:297; JW Swanson et al. 2015:Table 2 (gun carrying); MG Vaughn, Oh et al. 2019 (5:1 ratio)	**NORTH AMERICA** *United States*: Presley et al. 1997 (undergrad, in college)	**NORTH AMERICA** *United States*: Arria et al. 1995 (urban, lethal weapons, knife or gun)
Not significant					
More among females					

16.5.3 Excretory Behavior

The elimination of urine or feces by an animal is collectively known as *excretion*. Studies of sex differences in excretory behavior are summarized below.

16.5.3.1 Defecation

Numerous studies of defecating behavior by rodents have been conducted, mainly because such behavior is considered an indicator of anxiety and fearfulness in these animals. As shown in Table 16.5.3.1, research findings have been far from unanimous, but most of them suggest that defecation is more frequent among males than females, especially when they enter an expansive unfamiliar environment.

16.5.3.2 Urination

The extent to which animals urinate under various conditions has been investigated by one team of researchers. Whether such behavior constitutes a form of marking behavior or one of fearfulness (or possibly both) is uncertain. Table 16.5.3.2 shows reveals mixed findings, depending on age.

16.5.3.3 Body Posture during Urination

Three studies of sex differences in body posture while urinating have been reported among domestic dogs. As shown in Table 16.5.3.3, all these studies agree that males are more likely to raise one of their hind legs when urinating (while females are more inclined to squat).

16.5.4 Gesturing

Humans, as well as other animals, are able to communicate without the use of language. Most non-linguistic forms of communication come in the form of various types of gestures. Research on sex differences in communication gestures is summarized in the tables below.

16.5.4.1 Body Gestures

The tendency to exhibit a variety of body gestures was assessed in one study. Table 16.5.4.1 shows that in this study gesturing by males surpassed that by females.

16.5.4.2 Hand Gesturing during Speech

Most people gesture with their hands when engaged in speech, at least to some extent. Regarding any sex differences in this regard, Table 16.5.4.2 suggests that males may do so more than females.

Table 16.5.3.1 Defecation among non-humans

Nature of difference	*Pre-pubertal*		*Post-pubertal*		
		Child		*Adult*	
More among males				**RODENT** *Mouse*: ND Henderson 1967b (open field); P McReynolds et al. 1967 (open field); JH Bruell 1969 (due to fear of being in an open field); J Streng 1971 (in open filed); DA Blizard et al. 1975 (in open field); WW Beatty et al. 1976 (in open field); J Masur et al. 1980 (in open field); *Rat*: EE Anderson 1940 (open fields); Broadhurst 1957 (open fields); Broadhurst 1958 (open fields); Denenberg & Morton 1962 (open fields); CT Snowdon et al. 1964 (open field); JA Gray et al. 1965* (open fields); ND Henderson 1967a* (more in open field); D Lester 1968 (open field); Satinder 1968 (open field); Bruell 1969 (outbreed stains); JA Gray et al. 1969 (open fields); PA Russell 1971 (open field); GM Harrington 1972 (open field); H Imada 1972 (open field); J Masur 1972; K Vale 1972 (open field); DI Williams & Russell 1972 (open field); PA Russell 1973 (open field); JA Gray & Lalljee 1974 (open field)	
Not significant		**RODENT** *Rat*: Quadagnoet al. 1972 (open field)		**RODENT** *Hamster*: HH Swanson 1966 (open field); *Mouse*: A Saylor & Salmon 1971*; *Rat*: S Levine & Broadhurst 1963 (open field); JA Gray et al. 1965* (inbreed strains); Manosevitz & Montemayor 1972* (open field); A Jolley & Dreesman 1973 (open field); Priestnall 1973 (open field); J Archer 1974* (Long-Evans Wistar strains, open field)	
More among females				**RODENT** *Mouse*: ZM Nagy &Forrest 1970* (in open field); D Blizard 1971 (in open field); *Rat*: ND Henderson 1967a* (subjected to stress early in life, in open field); J Archer 1974* (Sprague-Dawley strain, open field)	

Table 16.5.3.2 Urination among non-humans

Nature of difference			*Post-pubertal*		
				Adult	
More among males			**CANINE** *Dog*: CT Siwak et al. 2002* (in open field, ages 1-3)		
Not significant				**CANINE** *Dog*: CT Siwak et al. 2002* (in open field, ages 9 & older)	
More among females					

Table 16.5.3.3 Body posture during urination among non-humans

Nature of difference			*Post-pubertal*		*Wide age rangel*
				Adult	
Males raise a hind leg more				**CANINE** *Dog*: FA Beach 1974; E Ranson & Beach 1985	**CANINE** *Dog*: Beach 1975:12
Not significant					
Females raise a high leg more					

Table 16.5.4.1 Body gestures

Nature of difference	*Pre-pubertal*				
		Child			
More among males		**NORTH AMERICA** *United States*: Underwood et al. 1999 (during competition, lab experiment)			
Not significant					
More among females					

16.5.4.3 Handshake Firmness

In one study, researchers assessed sex differences in the firmness of one's handshake. As shown in Table 16.5.4.3, it is found that male handshakes were firmer than were those of females.

Table 16.5.4.2 Hand gesturing

Nature of difference			*Post-pubertal*		
				Adult	
More among males				**NORTH AMERICA** *Canada*: Saucier & Elias 2001 (N = 50M + 50F, right hand during speech, and left hand while listening)	
Not significant					
More among females					

Table 16.5.4.3 Handshake firmness

Nature of difference			*Post-pubertal*		
				Adult	
More among males				**NORTH AMERICA** *United States*: Chaplin et al. 2000 (undergrad)	
Not significant					
More among females					

16.5.4.4 Jaw-Thrusting Behavior

In pigtail monkeys, jaw thrusting seems to be used as a type of threat gesture. Table 16.5.4.4 shows that the one available study of sex differences in this type of behavior concluded that it was more commonly used by males than by females.

Table 16.5.4.4 Jaw-thrusting behavior

Nature of difference			*Post-pubertal*		
				Adult	
More among males				**PRIMATE** *Pigtail Macaque*: SB Christopher & Gelini 1977	
Not significant					
More among females					

16.5.5 Habitual Behavior

For lack of a better term, *habitual behavior* is used here to refer to a few types of repetitive forms of behavior that appear to have no basic outcome motivation. Studies of sex differences in such behavior are presented below.

16.5.5.1 Hair Twirling

Table 16.5.5.1 summarizes findings regarding sex differences in the tendency to twirl (or twist) one's hair, usually while engaging in other tasks such as reading or watching television. The table shows that this behavior appears to be more prevalent among females.

Table 16.5.5.1 Hair twirling

Nature of difference	*Pre-pubertal*				
		Child			
More among males					
Not significant					
More among females		**NORTH AMERICA** *United States*: Olson 1929; Koch 1935; Hattwick 1937:351			

16.5.5.2 Nail Biting

Two studies of sex differences in the tendency to bite one's finger nails were located. Readers can see in Table 16.5.5.2 that the studies have reached inconsistent conclusions.

Table 16.5.5.2 Nail biting

Nature of difference	*Pre-pubertal*		*Post-pubertal*		
		Child	*Adolescent*		
More among males			**NORTH AMERICA** *United States*: Wechsler 1931*		
Not significant			**ASIA** *Japan*: Oaki 2005 (age 12, N = 1,057M + 1,203F)		
More among females		**NORTH AMERICA** *United States*: Wechsler 1931*			

16.5.5.3 Self-Grooming

One study assessed the amount of self-grooming by both sexes during adolescence. As shown in Table 16.5.5.3, it reported females doing so more than males.

16.5.5.4 Thumb-Sucking

Thumb-sucking is common, especially among infants. As shown in Table 16.5.5.4, the available studies all indicate that females do so more than males.

Table 16.5.5.3 Self-grooming

Nature of difference			*Post-pubertal*		
			Adolescent		
More among males					
Not significant					
More among females			**NORTH AMERICA** *United States*: Timmer et al. 1985		

Table 16.5.5.4 Thumb-sucking

Nature of difference	*Pre-pubertal*				
	Infant/toddler				
More among males					
Not significant					
More among females	**ASIA** *Japan*: Oaki 2005 (ages 0-2, N = 1,057M + 1203F, 40%M vs. 43%F) **NORTH AMERICA** *United States*: Hattwick 1937 (toddler); Honzik 1948 (infant); Honzik 1962 (toddler)				

16.5.5.5 Yawning

Yawning is a somewhat involuntary behavior that is usually associated with sleepiness or boredom. It is also sometimes provoked by seeing someone else yawn, called *contagious yawning*. One study of contagious yawning was located which sought to determine if this behavior was more common in one sex than in the other. Table 16.5.5.5 shows that it appears to be more common in females.

Table 16.5.5.5 Yawning

Nature of difference			*Post-pubertal*		
				Adult	
More among males					
Not significant					
More among females				**EUROPE** *Italy*: Norscia, Demuru & Palagi 2016:Figure 1 (contagious yawning, naturalistic observation, N = 48%M vs. 56%F)	

16.6 Organization-Related Behavior

This section deals with sex differences in how people affiliate with various organization. The most prominent organization to be considered is that of religions.

16.6.1 Involvement in Religious Organizations

Religious behavior refers to behavior that is involved in expressing one's religious beliefs and rituals. Note that, while religious behavior and religious beliefs are closely related phenomena, various religious beliefs are covered in Chapter 15 rather than here. Considerable research has compared the sexes regarding such behavior.

16.6.1.1 Involvement in Religious Activities in General

Religious behavior takes many forms. Studies of sex differences in religious activities in general, not including attending religious services, are summarized in Table 16.6.1.1. One can see that all studies agree that females appear to be more religiously active than males. (Findings of sex differences in attending religious services are presented four tables down from the present one.)

Table 16.6.1.1 Involvement in religious activities in general

Nature of difference			*Post-pubertal*		*Wide age rangel*
			Adolescent	*Adult*	
More among males					
Not significant					
More among females			**MIDDLE EAST** *Kuwait*: Abdel-Khalek 2002:1034; C Smith et al. 2002:605 **NORTH AMERICA** *United States*: Hollingshead 1949:474; Cornwall 1988	**ASIA** *Japan*: AS Miller 1992 (urban); Krause et al. 1999:413 (elderly) **EUROPE** *Britain*: Batson et al. 1993; Tarakashwar et al. 2005 (among HIV+ people coping during bereavement) **NORTH AMERICA** *Canada*: Marks 2001:258 (19th c.); *United States*: Koenenn 1987 (in seminary at Harvard Divinity School); Koenig et al. 1990:129 (elderly, use religious coping): Stolzenberg et al. 1995:90 (young); V King et al. 1997:434; Pargament 1997 (elderly); JS Levin & Chatters 1998:520 (elderly); Cubbins & Tanfer 2000:242; Herek 2002:59	**NORTH AMERICA** *United States*: Blazer & Palmore 1976; Hoge & Toozen 1979; Caplow et al. 1983; Hout & Greeley 1987; de Vaus & McAlister 1987; RJ Taylor 1988 (blacks); Cornwall 1989; Ellison et al. 1989; JS Levin et al. 1995:167 (blacks)

16.6.1.2 Leading Religious Activities and Ceremonies

One study was located having to do with sex differences in the leading of religious ceremonies. Table 16.6.1.2 shows that the study indicated that males did so more than females.

Table 16.6.1.2 Leading religious activities and ceremonies

Nature of difference			*Post-pubertal*		
				Adult	
More among males				**NORTH AMERICA** *United States*: CC Weisfeld et al. 1983:697 (Hopi, control over religious ceremonies)	
Not significant					
More among females					

16.6.1.3 Reading Sacred Scriptures

Table 16.6.1.3 summarizes findings of sex differences in time spent reading of various sacred scriptures such as the Bible or Koran. With the exception of one study of adolescents, the studies have concluded that females do so more than males.

Table 16.6.1.3 Reading sacred scriptures

Nature of difference			*Post-pubertal*		
			Adolescent	*Adult*	
More among males			**NORTH AMERICA** *United States*: PL Benson et al. 1987		
Not significant					
More among females				**EUROPE** *Britain*: J Harrison 1983 **NORTH AMERICA** *United States*: JA Davis & Smith 1991; Wasserman & Richmond-Abbott 2005:263 (use internet to access religious websites) **INTERNATIONAL** *Multiple Countries*: Roth & Kroll 2007:211 (Bible)	

16.6.1.4 Praying

The available research on sex differences in time spent praying (or frequency of prayer) is shown in Table 16.6.1.4. One can see that all but one of the studies have concluded that females spend more time praying than do males.

Table 16.6.1.4 Praying

Nature of difference				*Post-pubertal*	*Wide age rangel*
				Adult	
More among males				**EUROPE** *Britain*: Loewenthal et al. 2002:Table 1* (among Jews & Muslims)	
Not significant					
More among females				**AFRICA** *Tanzania*: Manongi & Balint 2014:771 (times per day, N = 190M + 158F) **ASIA** *Multiple Asian Countries*: Inoguchi et al. 2006:468 **EUROPE** *Britain*: Poloma & Gallup 1991 (young); Loewenthal et al. 2002:Table 1* (among Christians); LJ Francis, Robbins et al. 2004:Table 1 (undergrad); *Sweden*: Grossi et al. 2000:314 (to deal with chronic pain) **NORTH AMERICA** *United States*: Markides 1983 (elderly); Albrecht & Heaton 1984:52; Cornwall 1986 (among Mormons); National Catholic Educational Association 1986 (among Catholics); JA Davis & Smith 1991; Poloma & Gallup 1991; JS Levin & Taylor 1993 (blacks); JS Levin & Taylor 1997:77; RW Simon & Nath 2004 (undergrad, to deal with emotional issues); LM Roth & Kroll 2007:211; Sok 2007 (to deal with insomnia, Korean Americans); Gallup 2009 (49%M vs. 66%F); J Chase 2016:Table 3; Handal & Lace 2017:Table 1 **INTERNATIONAL** *Multiple Countries*: Sullins 2006:Table 6; Roth & Kroll 2007:211	**NORTH AMERICA** *United States*: Hoge et al. 1982:573

16.6.1.5 Attending Religious Services

Many studies have sought to determine if there is a sex difference in attending religious services, be the services held in a church, a mosque, a synagogue, or a temple. As one can see by inspecting Table 16.6.1.5, findings are somewhat inconsistent, although the majority of studies have indicated that females attend religious services more frequently than do males, at least in predominantly Christian countries. Studies of religious service attendance among samples of non-Christians, however, generally indicate that men attend more often than women. Specifically, attendance by male Jews and Muslims appear to be higher than by their female counterparts. At least among Muslims, this is likely to be partially explainable by noting that in Islamic tradition, women are forbidden to enter mosques whenever they are menstruating (Loewenthal et al. 2002:134).

16.6.1.6 Religious Membership

Religious membership is usually assessed on the basis of self-reports. As shown in Table 16.6.1.6, most of the available research indicates that females are more likely than males to consider themselves members of a religion, although in a minority of cases, no significant sex differences were found.

Table 16.6.1.5 Attending religious services

Nature of difference	*Pre-pubertal*		*Post-pubertal*		*Wide age rangel*
		Child	*Adolescent*	*Adult*	
More among males				**EUROPE** *Britain*: Loewenthal et al. 2002* (among non-Christians); *Netherlands*: Maliepaard et al. 2012:365 (among first and second generation Muslim immigrants) **MIDDLE EAST** *Turkey*: Roth & Kroll 2007:215* **NORTH AMERICA** *United States*: Lazerwitz 1961:303* (among Jews) **INTERNATIONAL** *Multiple Countries*: Sullins 2006:852 (4/70 countries)	
Not significant			**NORTH AMERICA** *United States*: PL Benson et al. 1986 (Catholics)	**EUROPE** *Britain*: LJ Francis, Robbins et al. 2004:Table 1 (undergrad) **MIDDLE EAST** *Turkey*: Ellis, Wahab & Ratnasingan 2013:186* (undergrad, N = 201M + 64F) **NORTH AMERICA** *United States*: V King et al. 1997:434; DB Simpson, Cloud et al. 2008 (N = 190, among committed Christians) **INTERNATIONAL** *Multiple Countries*: DP Sullins 2006:852 (16/70 countries)	
More among females		**EUROPE** *Britain*: LJ Francis & Brown 1990; LJ Francis & Brown 1991:116	**AFRICA** *South Africa*: Swart et al. 2002:392 **EUROPE** *Britain*: DL Smith 1996:1063; *Finland*: Tamminen 1996; *Ireland*: Greer 1971:101; Kelleher et al. 1999:176; *Slovenia*: Petel, Geckova et al. 2012:1124 (N = 3,674, at least weekly: 41.3% M vs. 48.9%F) **NORTH AMERICA** *United States*: GE	**ASIA** *India*: Roth & Kroll 2007:215*; Kumar, Jain & Saini 2020:Table 3 (undergrad, N = 663); *Japan*: Roth & Kroll 2007*; *Malaysia*: Ellis, Wahab & Ratnasingan 2013:186* (undergrad, N = 826M + 1,568F); *Russia*: J Anderson 1993; S White et al. 1994 **EUROPE** *Britain*: D Martin 1967:128; Field 1993 (young); Francis & Wilcox 1996 (undergrad); Studlar et al. 1998:794*; Loewenthal et al. 2002* (among Christians); *Ireland*: Kelleher et al. 1999:176; *Italy*: Roth & Kroll 2007:215*; *Spain*: Branas-Garza 2004; *Multiple European Countries*: Minarik 2014:311 **NORTH AMERICA** *United States*: Cavan et al. 1949 (elderly); Hollingshead 1949:460; Lenski 1953; Lazerwitz 1961:303* (among Christians); Glock et al. 1967;	**EUROPE** *Britain*: Argyle & Beit-Hallahmi 1975; Field 1993; *Finland*: Hintikka et al. 1998 (mental health patients); Hintikka et al. 2001 **NORTH AMERICA** *Canada*: Bibby 1987:100; *United States*: Lynd & Lynd 1956:529; Shiels 1981; Ulbrich & Wallace 1983:48; RJ Taylor 1988:118 (blacks); M Cornwall 1989 **OCEANIA** *Australia*: de Vaus 1982; McAllister 1986:202

			Dickinson 1976; HM Nelsen & Potvin 1981:280; GE Dickinson 1982; G Gallup 1983; Willits & Crider 1989*; Wright, Frost & Wisecarver 1993:564 (N = 208M + 243F); JM Wallace et al. 2003:114; Chapple et al. 2005:366 (self-report); Balsa, Giuliano & French 2011:Table 1 (N = 2,049M + 2,243F) **OCEANIA** *Australia*: Rigby & Densley 1985:726 **INTERNATIONAL** *Multiple Countries*: Poloma & Gallup 1991	Luckmann 1967:30; Azzi & Ehrenberg 1975; Nelsen & Nelsen 1975 (blacks); Blazer & Palmore 1976 (elderly); Bengtson et al. 1977 (elderly); MR Welch 1978 (blacks); Albrecht & Heaton 1984:52; de Vaus 1984; Hout & Greeley 1993:115; Koenig et al. 1988 (elderly); RJ Taylor 1988:117; Cornwall 1989; Willits & Crider 1989* (young); Iannaccone 1990; Thornton et al. 1992; Batson et al. 1993; L Ellis & Wagemann 1993:229 (undergrad); JS Levin & Taylor 1993 (elderly, blacks); JS Levin, Taylor & Chatters 1994:S142 (elderly); Stolzenberg et al. 1995 (young); Iannaccone 1998:1474; Ploch & Hastings 1998; Studlar et al. 1998:794*; Edlund & Pande 2002; Dupre et al. 2006:151; DP Sullins 2006:844 (among Christians); LM Roth & Kroll 2007:215*; Zhang 2008:242; Corsentino et al. 2009:Table 1 (elderly); Ellis, Wahab & Ratnasingan 2013:186* (undergrad, N = 416M + 714F); J Chase 2016:Table 3; Handal & Lace 2017:Table 1 **OCEANIA** *Australia*: de Vaus & McAllister 1987:476; Studlar et al. 1998:794* **INTERNATIONAL** *Multiple Countries*: Sullins 2006:852 (50/70 countries)	

Table 16.6.1.6 Religious membership

Nature of difference			*Post-pubertal*		*Wide age rangel*
			Adolescent	*Adult*	
More among males					
Not significant				**EUROPE** *Britain*: Argyle & Beit-Hallahmi 1975:72* **NORTH AMERICA** *United States*: Argyle & Beit-Hallahmi 1975:72*; JS Levin, Taylor & Chatters 1994:S141 (elderly) **INTERNATIONAL** *Multiple Countries*: Sullins 2006:Tables 1 & 2* (among Hindus, Jews & Muslims)	
More among females			**NORTH AMERICA** *United States*: JM Wallace et al. 2003:114	**EUROPE** *Britain*: Arber 2004:100 (ages 65 and over) **LATIN/CARIBBEAN AMERICA** *Brazil*: de Carvalho et al. 2017:Table 1 (69.1%M vs. 81.1%F affiliate with a specific religion, N = 41,873) **NORTH AMERICA** *United States*: Argyle & Beit-Hallahmi 1975:72*; Schoenborn 1981; Wingard 1982 (among white); Stark & Bainbridge 1985; Greeley & Hout 1988 (young); Iannaccone 1998:1473 (financially contribute to religious organizations); Cubbins & Tanfer 2000:242; Gallup 2009 (affiliate with a specific religion) **INTERNATIONAL** *Multiple Countries*: Sullins 2006:Tables 1 & 2* (among Catholics, Protestants, Orthodox Christians & Buddhists)	**EUROPE** *Britain*: Gerard 1985 **NORTH AMERICA** *Canada*: Bibby 1987:100; *United States*: Roozen 1980; Bock & Radelet 1988; McCutcheon 1988; Sandomirsky & Wilson 1990

16.6.1.7 Changing One's Religion

The two available studies have not reached consensus concerning any sex difference in the tendency to change one's religion (usually relative to the religion within which one was raised). As shown in Table 16.6.1.7, one study concluded that males were more likely to change their religion, while the other study found no significant sex difference in this regard.

Table 16.6.1.7 Changing one's religion

Nature of difference				*Post-pubertal*	
				Adult	
More among males				**EUROPE** *Britain*: BC Hayes 1996	
Not significant				**NORTH AMERICA** *United States*: Sherkat 1991	
More among females					

16.6.1.8 Spirituality

Spirituality usually refers to a tendency to be at least somewhat religious, although without affiliating with any specific religion or religious denomination. As shown in Table 16.6.1.8, the one located study of sex differences in spirituality concluded that females were more so than males.

Table 16.6.1.8 Spirituality

Nature of difference			*Post-pubertal*	
			Adult	
More among males				
Not significant				
More among females				**EUROPE** *Finland*: Myyry & Helkama 2001:35

16.6.2 Involvement in Non-religious Organizations

Findings concerning sex differences in becoming members of, or involved in, voluntary organizations (other than religious ones) have been reported. These findings are summarized in the following section.

16.6.2.1 Involvement in Voluntary Organizations in General

In a couple of studies, both sexes were asked if they belonged to any voluntary organizations. As shown in Table 16.6.2.1, one study reported no sex difference while the other indicated more females than males were members of a voluntary organization.

Table 16.6.2.1 Involvement in voluntary organizations in general

Nature of difference				*Post-pubertal*	
				Adult	
More among males					
Not significant				**EUROPE** *Britain*: Arber 2004:100 (membership in voluntary organizations, elderly)	
More among females				**NORTH AMERICA** *United States*: Popielarz 1999 (gender-segregated organizations)	

16.6.2.2 Labor Union Membership

Two studies have sought to assess sex differences in union membership (one study was carried out in three different countries). Table 16.6.2.2 shows that the studies have indicated that males are more likely to be union members than are females.

Table 16.6.2.2 Labor union membership

Nature of difference					*Wide age rangel*
More among males					**EUROPE** *Britain*: Studlar et al. 1998:794* **NORTH AMERICA** *United States*: MA Adler 1993:455 (full-time workers); Studlar et al. 1998:794* **OCEANIA** *Australia*: Studlar et al. 1998:794*
Not significant					
More among females					

16.6.2.3 Political or Environmental Activism

In a few studies, both sexes were asked the extent to which they were active in political affairs. One can see in Table 16.6.2.3 that they reported more activism among males than among females.

16.7 Leisure Activities

Nearly everyone has leisure activities to which they devote time. Sex differences in this regard are summarized in the following section.

16.7.1 Aesthetically Oriented Leisure Activities

Artistically oriented (as opposed to competitively oriented) leisure time activities are those in which individuals focus on expressing oneself in

Table 16.6.2.3 Political or environmental activism

Nature of difference					*Wide age rangel*
More among males					**NORTH AMERICA** *United States*: MB Smith et al. 1970 (political activism); Mohai 1992 (environmental activism); Mohai 1985 (environmentalist organization); Blocker & Eckberg 1997 (environmental activism); Ozanne et al. 1999:617 (environmentalist organization)
Not significant					
More among females					

graceful and aesthetically pleasing ways (as opposed to winning in a contest). Findings from studies of sex differences are summarized below.

16.7.1.1 Artistic Orientation in General

Some research has sought to evaluate sex differences in tendencies to gravitate toward artistic activities in general. Table 16.7.1.1 shows that all these studies have concluded that females do so more than males.

Table 16.7.1.1 Artistic-orientation in general

Nature of difference	*Pre-pubertal*		*Post-pubertal*		
		Child	*Adolescent*	*Adult*	
More among males					
Not significant					
More among females		**EUROPE** *Britain*: Brooke et al. 2013 (age 10, N = 1,600, aerobics & gymnastics in formal classes) **NORTH AMERICA** *United States*: Krenzke 1981	**NORTH AMERICA** *United States*: Burks et al. 1930 (among gifted); Wijting et al. 1978; B Mannheim 1988	**EUROPE** *France*: CA Chun & Hype 2016:406 **NORTH AMERICA** *United States*: Kajonius & Johnson 2018:127 (N = 127,695M + 192,433F)	

16.7.1.2 Dancing

To the extent that dancing is an activity engaged in simultaneously by both sexes, one would not expect to find sex differences in this activity, perhaps explaining why little research on sex differences in dancing has been published. As shown in Table 16.7.1.2a, studies of humans indicated that, at least among children, females were observed dancing more often than were males.

Table 16.7.1.2a Dancing

Nature of difference	*Pre-pubertal*				
	Infant/toddler	*Child*			
More among males					
Not significant					
More among females	**NORTH AMERICA** *United States*: Fagot 1974:55	**EUROPE** *Britain*: Brooke et al. 2013 (age 10, N = 1,600, in formal classes) **NORTH AMERICA** *United States*: Centers for Disease Control 1996 (dancing)			

Regarding non-humans, just one study of sex difference in dancing was located, this one limited to a single species of birds. Table 16.7.1.2b shows that this study concluded that male zebra finches dance more than do their female counterparts.

Table 16.7.1.2b Dancing among non-humans

Nature of difference			*Post-pubertal*		
				Adult	
More among males				**BIRD** *Zebra Finch*: E Adkins-Regan et al. 1996	
Not significant					
More among females					

16.7.1.3 Sewing, Crochet, and Knitting

According to three studies, sex differences exist in people being involved in sewing, crocheting, and knitting. Table 16.7.1.3 shows that females involve themselves in these types of activities more than males do.

Table 16.7.1.3 Sewing, crochet, and knitting

Nature of difference			*Post-pubertal*		
				Adult	
More among males					
Not significant					
More among females				**NORTH AMERICA** *United States*: J Simpson & Tarrant 1991; KS Greene & Gynther 1995:30 (undergrad); *United States & Canada Combined*: Ellis, Robb & Burke 2005:579 (sewing)	

16.7.1.4 Singing

Two studies were located that compared the singing quality (assessed in terms of maintaining pitch and or maintaining an appropriate cadence) of males and females. Table 16.7.1.4a shows that both studies concluded that females exhibited better singing quality than did males, at least during childhood.

Table 16.7.1.4a Singing quality

Nature of difference	*Pre-pubertal*				
		Child			
More among males					
Not significant					
More among females		**ASIA** *China*: Mang 2006 (ages 7-9, N = 120) **EUROPE** *Britain*: GF Welch, Saunders et al. 2012:36 (ages 4-12)			

In the case of non-humans, considerable research has compared males and females of varying species of birds regarding their tendencies to sing or the number of different songs they sing (or the breadth of their singing repertoires). As one can see in Table 16.7.1.4b, nearly all the located studies have concluded that, at least among adults, males sing more (or with more varied songs) than do females.

Table 16.7.1.4b Singing (or singing repertoires) among non-humans

Nature of difference			*Post-pubertal*		
				Adult	
More (or more varied) among males				**BIRD** *Black-Bellied Wren*: Logue & Gammon 2004:728 (higher rate of singing); *Canary*: Nottebohm & Arnold 1976; Nottebohm et al. 1976; *European Starling*: Bernard, Casto & Ball 1993; *Marsh Wren*: Canady et al. 1984 (singing repertoire); *Orange Bishop Bird*: Arai et al. 1989; *Redwing Blackbird*: Beletsky 1983; Kirn, Clower et al. 1989; *Sparrow*: Baplista & Petrinovich 1986 (conspecific singing); *Wren*: Mennill & Vehrencamp 2005 (longer & louder); *Zebra Finch*: Gurney & Konishi 1980; Burek et al. 1991 (frequency of singing); Adkins-Regan et al. 1996	
Not significant				**BIRD** *Starling*: Pavlova, Pinxten, & Eens 2005:Table 3 (sing the same amount but male songs more varied)	
More (or more varied) among females					

16.7.1.5 Skating

One study was located having to do with sex difference in skating. As shown in Table 16.7.1.5, this study indicated that, at least among children, more females than males were involved in roller skating.

Table 16.7.1.5 Skating

Nature of difference	*Pre-pubertal*				
		Child			
More among males					
Not significant					
More among females		**EUROPE** *Britain*: Brooke et al. 2013 (age 10, N = 1,600, roller skating)			

16.7.2 Collecting Hobbies

Hobbies are usually solitary activities involving considerable investments of time, often with little expectation of any monetary compensation. Most hobbies entail making or collecting objects of some type. Research findings on sex differences in being involved in various types of hobbies are summarized below.

16.7.2.1 Collecting Hobbies in General

Research findings regarding sex differences in various hobbies in which objects of a specific type are collected and organized appear in Table 16.7.2.1. One can see that sex differences in these activities seem to vary depending on the types of objects being collected.

Table 16.7.2.1 Collecting hobbies in general

Nature of difference	*Pre-pubertal*				
		Child			
More among males		**NORTH AMERICA** *United States*: Whitley 1929* (stamps); Witty & Lehman 1930* (stamps); Mauldin & Meeks 1990 (various hobbies); *United States & Canada Combined*: Ellis, Robb & Burke 2005:579-580* (stamps or coins)			
Not significant					
More among females		**NORTH AMERICA** *United States*: Whitley 1929* (dolls); Witty & Lehman 1930* (dolls); *United States & Canada Combined*: Ellis, Robb & Burke 2005:579-580* (dolls)			

16.7.2.2 Car Collecting

In one study, sex differences in tendencies to collect model cars was investigated. Table 16.7.2.2 shows that this type of hobby was more common among males than females.

Table 16.7.2.2 Car collecting

Nature of difference			*Post-pubertal*		
			Adolescent		
More among males			**EUROPE** *Netherlands*: de Bruyn & Cillessen 2008 (model cars, age 13, N = 860)		
Not significant					
More among females					

16.7.2.3 Music Collecting

One study compared males and females regarding their having collections of musical recordings. Table 16.7.2.3 indicates that males were more likely than females to have this type of hobby.

Table 16.7.2.3 Music collecting

Nature of difference			*Post-pubertal*		
				Adult	
More among males				**OCEANIA** *Australia*: Maalsen & McLean 2018 (record collection)	
Not significant					
More among females					

16.7.2.4 Stamp Collecting

A research study undertaken to assess sex differences in collecting postage stamps is cited in Table 16.7.2.4. It indicated that more males than females amassed such a collection.

16.8 Masculinity/Femininity

The degree to which males and females exhibit masculine-typical and feminine-typical traits in general has been the focus of considerable research. Findings in this regard are summarized in the following section.

Table 16.7.2.4 Stamp collecting

Nature of difference	*Post-pubertal*	
	Adult	
More among males	**NORTH AMERICA** *United States*: MT Whitley 1929 (60%M vs. 40%F, N = 4,446)	
Not significant		
More among females		

16.8.1 Sex Role Orientation

Sex role orientation refers to the various aspects of being or feeling masculine, feminine, or sometimes in between, termed *androgynous*. A summary of research findings on how males and females appear to vary with respect to different aspects of sex role orientation appears below.

16.8.1.1 Adherence to Sex Roles

The extent to which males and females adhere to their respective sex roles has been investigated by a few studies. As shown in Table 16.8.1.1, two of these studies indicate that males seem to adhere to their sex role more than did girls, while one study concluded the opposite.

Table 16.8.1.1 Adherence to sex roles

Nature of difference	*Pre-pubertal*	*Post-pubertal*	
	Child	*Adult*	
More among males	**NORTH AMERICA** *United States*: Rabban 1950; Baruch & Barnett 1986; Weisner & Wilson-Mitchel 1990 (young)	**NORTH AMERICA** *United States*: DG Brown 1958 **OCEANIA** *Australia*: McAllister 1990; D Reilly, Newmann & Andrelv 2016* (masculine sex roles, N = 105M + 204F)	
Not significant			
More among females	**EUROPE** *Finland*: N Sandnabba et al. 2003	**OCEANIA** *Australia*: D Reilly, Newmann & Andrelv 2016* (feminine sex roles, N = 105M + 204F)	

16.8.1.2 Androgyny

Persons who do not think of themselves as being inherently either masculine or feminine are said to be *androgynous*. Most studies of androgyny have relied on a scale developed by Bem (1975). As shown in Table 16.8.1.2, research findings have been quite mixed regarding any significant sex differences in androgyny.

Table 16.8.1.2 Androgyny

Nature of difference	*Pre-pubertal*			*Post-pubertal*	
	Infant/toddler	*Child*		*Adult*	
More among males	**NORTH AMERICA** *United States*: Lansky & McKay 1963 (toddler)			**ASIA** *Malaysia*: Noor et al. 2003:240 (undergrad, Bem scale) **NORTH AMERICA** *United States*: Bem 1975 (young); Alley & Kolker 1988 (undergrad); Guastello & Guastello 2003:670* (young adulthood); PA Oswald 2004:1334	
Not significant		**EUROPE** *Sweden*: Sorbring & Palmerus 2004 (young, sex roles)			
More among females		**NORTH AMERICA** *United States*: Baruch & Barnett 1986 (sex roles); Weisner & Wilson-Mitchel 1990 (young, sex roles)		**EUROPE** *Sweden*: Wirsen Muerling et al. 2000:85 (undergrad, Bem scale) **NORTH AMERICA** *United States*: Guastello & Guastello 2003:670* (middle-age)	

16.8.1.3 Femininity

Femininity (or female-like) is usually assessed by asking research participants to address various questions concerning their behavior and preferences that are more typical of females than of males. Since the 1970s, the most widely used set of questions for measuring femininity (and its counterpart, masculinity) comprised a scale developed in the 1970s by Bem (1974). Adding complexity to research using this and similar scales of femininity (along with masculinity) is evidence that some of what is culturally considered feminine and masculine have changed. In particular, a study by Auster and Ohm (2000:522) found that only 18 of the 20 feminine traits in the original Bem scale still qualified as feminine traits by the end of the 20th century. What were considered masculine traits had changed even more. Specifically, only 8 of 20 *masculine traits* identified in the 1970s qualified as *masculine traits* a quarter of a century later.

Despite the above indications that some feminine traits may no longer be such, the overall pattern of feminine traits appears to be rather stable. Research summarizing findings on sex differences in the degree to which individuals are considered feminine is summarized in Table 16.8.1.3. One can see that nearly all the findings have converged on the less-than-surprising conclusion that females are more feminine than males.

16.8.1.4 Masculinity

Sex differences in the tendency to think of oneself as possessing predominantly masculine characteristics has been investigated in a number of ways over the years. As shown in Table 16.8.1.4, nearly all the relevant studies have concluded that males consider themselves to be significantly more masculine than do females.

16.8.2 Trends Regarding Masculinity/Femininity

As the amount of research on sex differences in the display of masculine and feminine traits has increased, some studies have investigated the possibility of either increases or decreases in these sex differences. Results from this research appear below.

16.8.2.1 Trends in Male-Female Differences in Masculinity/Femininity

Based on the social learning theory of sex differences in overall masculine-feminine behavior and personality traits, some social scientists have predicted that over time the differences between males and females will gradually diminish, at least in Western societies (LW Hoffman 1977:649;

Table 16.8.1.3 Femininity

Nature of difference	*Pre-pubertal*		*Post-pubertal*		*Wide age rangel*
		Child	*Adolescent*	*Adult*	
More among males					
Not significant				**EUROPE** *Sweden*: Wirsen Muerling et al. 2000:85 (undergrad, Bem scale)	
More among females		**ASIA** *China*: Ma 2005 **NORTH AMERICA** *United States*: D Lynn 1959 (self-assessed); Lansky & McKay 1963; Rosenberg & Sutton-Smith 1964; Elizabeth & Green 1984 (play among twins); Galambos et al. 1990; Boldizar 1991; Bussey & Bandura 1992:1243; Meyer-Bahlburg et al. 1994; Berenbaum & Snyder 1995; CS Rogers et al. 1998 (play among twins)	**EUROPE** *Britain*: Bannerjee & Lintern 2000; Breakwell et al. 2003:442; Kung 2021:Table 1 (in occupational interests, N = 203M + 197F) **NORTH AMERICA** *Canada*: Aube et al. 2000:304; *United States*: Allgood-Merten et al. 1990 (self-assessed); Galambos et al. 1990 (self-rated, N = 200, average age 11.6 years); Berenbaum 1999	**ASIA** *China*: Zheng et al. 2010 (self-rating) **EUROPE** *Britain*: Eysenck 1971; Francis & Wilcox 1996 (undergrad, self-assessed); *Croatia*: Hudek-Knezevic et al. 1995 (undergrad, Bem scale); *Slovakia*: Kusa 2002:355 (undergrad, self-rated) **LATIN/CARIBBEAN AMERICA** *Chile*: Almagia 2004 (undergrad) **NORTH AMERICA** *United States*: Franck & Rosen 1949 (projective tests); VC Crandall 1969:28 (undergrad); Bem 1974 (self-assessed); Hyde et al. 1975:296 (undergrad); Bem & Lenny 1976; JT Spence & Helmreich 1978 (undergrad); Helmreich et al. 1979; Flaherty & Dusek 1980; DE Olds & Shaver 1980 (undergrad); LC Bernard 1981 (young); Orlofsky et al. 1982; Alley & Kolker 1988 (undergrad); Annandale & Hunt 1990:36; Bussey & Bandura 1992:1243*; KS Greene & Gynther 1994; AC Harris 1994; CL Holt & Ellis 1998; W Johnson & McCoy 2000:754 (undergrad, Bem self-rating scale); JT Spence & Buckner 2000:50 (BSRI scale); Walker, Richardson & Green 2000:151 (elderly, Personal Attributes Questionnaire); Steiner-Pappalardo & Gurung 2002:318 (undergrad, Bem scale); PA Oswald 2004:1334; BL Russel & Trigg 2004 (undergrad); Udry & Chantala 2006; L Ellis, Eisenman & Hoskin 2018:1205 (self-rated feminine mannerisms & physical appearance); Yarnell, Neff et al. 2018 (undergrad, Bem scale) **OCEANIA** *Australia*: Farnill & Ball 1985 (undergrad); Kaslunger et al. 2010:Table 1 **INTERNATIONAL** *Multiple Countries*: Reed-Sanders et al. 1984; Lippa 2008:181 (in occupational preferences)	**NORTH AMERICA** *United States*: Auster & Ohm 2000; Powlishta 2000:275 (rated by others) **OCEANIA** *Australia*: M Tucker & Bond 1997:136 **OVERVIEW** *Meta-Analysis*: JA Hall 1984

Table 16.8.1.4 Masculinity

Nature of difference	*Pre-pubertal*		*Post-pubertal*		*Wide age rangel*
		Child	*Adolescent*	*Adult*	
More among males		**ASIA** *China*: Ma 2005 **EUROPE** *Britain*: Young & Sweeting 2004* (self-assessed); **NORTH AMERICA** *United States*: D Lynn 1959 (self-assessed); Rosenberg & Sutton-Smith 1964; Elizabeth & Green 1984 (among twins); Galambos et al. 1990; Boldizar 1991; Bussey & Bandura 1992:1243; Meyer-Bahlburg et al. 1994; Berenbaum & Snyder 1995; CS Rogers et al. 1998 (play among twins)	**EUROPE** *Britain*: Bannerjee & Lintern 2000; Breakwell et al. 2003:442; Young & Sweeting 2004* (self-assessed); Kung 2021:Table 1 (in occupational interests, N = 203M + 197F) **NORTH AMERICA** *United* States: Trumbull 1953 (in interests); Galambos et al. 1990 (self-rated, N = 200, average age 11.6 years); Berenbaum 1999; JM Bailey et al. 2002 **OCEANIA** *Australia*: SM Moore & Rosenthal 1993	**ASIA** *China*: Zheng et al. 2010 (self-rating); *Malaysia*: Noor et al. 2003:240 (undergrad, Bem scale) **EUROPE** *Britain*: Eysenck 1971; *Germany*: Runge et al. 1981; Collinson & Hearn 1994; *Ireland*: G Ryan et al. 1987 (undergrad, BEM scale); *Slovakia*: Kusa 2002:354 (undergrad, self-rated); *Sweden*: Wirsen Muerling et al. 2000:85 (undergrad, Bem scale) **LATIN/CARIBBEAN AMERICA** *Chile*: Almagia 2004 (undergrad) **NORTH AMERICA** *United States*: Franck & Rosen 1949 (projective tests); BFA Shepler 1951 (undergrad); Cartwright 1972:216 (self-assessed, medical students); Bem 1974 (self-assessed); Deaux & Emswiller 1974 (self-assessment, skilled at masculine tasks); Bem & Lenny 1976; Bem 1978 (undergrad); JT Spence & Helmreich 1978 (young); Helmriech et al. 1979; Flaherty & Dusek 1980; DE Olds & Shaver 1980 (young); LC Bernard 1981; Orlofsky et al. 1982; Baruch & Barnett 1986 (ridged masculine sex roles); DL Chambless & Mason 1986 (anxiety patients); Alley & Kolker 1988 (undergrad); Annandale & Hunt 1990:36; Weisner & Wilson-Mitchel 1990 (young, rigidity of masculine sex roles); McCann et al. 1991 (undergrad, self-rated); EH Thompson et al. 1992; M Price 1993 (self-assessed, skilled at masculine tasks, financial matters); KS Greene & Gynther	**EUROPE** *Britain*: Gervai et al. 1995:121*; *Hungary*: Gervai et al. 1995:121* **NORTH AMERICA** *United States*: Auster & Ohm 2000; Powlishta 2000:275 (rated by others) **OVERVIEW** *Meta-Analysis*: JA Hall 1984

				1994; AC Harris 1994; Beyer & Bowden 1997 (self-assessed, skilled at masculine tasks); CL Holt & Ellis 1998; Sugihara & Warner 1999:204 (undergrad, self-rated, Mexican Americans); W Johnson & McCoy 2000:754 (undergrad, Bem self-rating scale); JT Spence & Buckner 2000:49 (BSRI scale); Steiner-Pappalardo & Gurung 2002:318 (undergrad); Klonsky et al. 2002 (undergrad, self-assessed); Guastello & Guastello 2003:670; PA Oswald 2004:1334; BL Russel & Trigg 2004 (undergrad); Udry & Chantala 2006; Wupperman & Neumann 2006:195 (young, self-assessed, N = 589); L Ellis, Eisenman & Hoskin 2018:1205 (self-rated, in mannerisms & physical appearance); Yarnell, Neff et al. 2018 (undergrad, Bem scale); Hoskin & Ellis 2021:Table 1 (N = 324) **OCEANIA** *Australia*: Farnill & Ball 1985 (undergrad); Kaslunger et al. 2010:Table 1 **INTERNATIONAL** *Multiple Countries*: Reed-Sanders et al. 1984; Lippa 2008:181 (in occupational preferences)	
Not significant				**NORTH AMERICA** *United States*: Jenkin & Vroegh 1969 (young); Walker, Richardson & Green 2000:151 (elderly, Personal Attributes Questionnaire) **OCEANIA** *Australia*: Heaven 1993:70 (young)	
More among females					

Cross & Madson 1997:27). To the contrary, biosocial theorists envision sex differences in these traits as largely reflecting evolved neurohormonal factors that are unlikely to change substantially over time, or to differ greatly from one society to another, at least to the extent that masculine/feminine traits have a bearing on reproduction rates (Lueptow et al. 1995; Ellis & Hoskin 2015).

A few studies have provided empirical evidence pertaining to these competing predictions. As shown in Table 16.8.2.1, the evidence is limited to research conducted in the United States. One can see that these studies have provided mixed results.

Table 16.8.2.1 Trends in male-female differences in masculinity/femininity

Nature of difference				*Post-pubertal*	
				Adult	
Differences increasing				**NORTH AMERICA** *United States*: Lueptow, Garovich & Lueptow 1995 (between 1974 & 1991); Spence & Buckner 2000 (d = .24 in 1978 vs. d = .40 in 1996)	
No significant change				**NORTH AMERICA** *United States*: Heilbrun & Schwartz 1982:Table 2 (undergrad, between 1958 & 1978); Bergen & Williams 1991 (undergrad, between 1972 & 1988)	
Differences decreasing				**NORTH AMERICA** *United States*: Pedersen & Bond 1985 (undergrad, between 1974 & 1984, Bem scale); Holt & Ellis 1998 (between 1970 & 1995, Bem scale) **OVERVIEW** *Meta-Analysis*: Tweng 1997 (birth cohorts, between 1950 & 1970)	

16.8.2.2 Trends in Femininity among Females

Are females becoming more or less feminine over time? Two studies were located that assessed evidence bearing on this question. As shown in Table 16.8.2.2, one indicated there were no significant changes, while the other study suggested that females were becoming less feminine.

16.8.2.3 Trends in Masculinity among Males

Three studies were located that provided estimates of the degree to which males exhibited masculine traits at two points in time. One can see in Table 16.8.2.3 that two studies found no significant change, while the other suggested that males had become less masculine between the early 1970s and the end of the 1990s.

Table 16.8.2.2 Trends in femininity among females

Nature of difference			*Post-pubertal*	
				Adult
Femininity increasing				
No significant change				**NORTH AMERICA** *United States*: Lueptow, Garovich & Lueptow 1995 (N = 3,600, 1974-1991, femininity among females)
Femininity decreasing				**NORTH AMERICA** *United States*: Auster & Ohm 2000 (Bem Sex Role Inventory, among females, between 1972 & 1999)

Table 16.8.2.3 Trends in masculinity among males

Nature of difference			*Post-pubertal*	
		Child		*Adult*
Masculinity increasing				
No significant change		**EUROPE** *Norway*: Bjerke, Williams & Wathne 1989:270 (masculinity among males, between 1977 & 1987, age 5)		**NORTH AMERICA** *United States*: Lueptow, Garovich & Lueptow 1995 (N = 3,600, 1974-1991, masculinity among males)
Masculinity decreasing				**NORTH AMERICA** *United States*: Auster & Ohm 2000* (Bem Sex Role Inventory, masculinity among males, between 1972 & 1999)

16.9 Residual Aspects of Personality and Behavior

The final section of this chapter presents two categories of personality and behavior that did not easily fit into any other broader category. One involves sex role orientation and the other is a catch-all category.

16.9.1 Residual Types of General Behavioral Traits

Several general behavioral traits are difficult to categorize into any of the groupings presented so far. Therefore, these traits are listed below.

16.9.1.1 Acting Older than One's Age

One study was located on sex differences in "acting older than one's age." As shown in Table 16.9.1.1, the study indicated that adolescent females were more likely to behave in ways that surpassed their chronological age than were adolescent males.

Table 16.9.1.1 Acting older than one's age

Nature of difference			*Post-pubertal*		
			Adolescent		
More among males					
Not significant					
More among females			**NORTH AMERICA** *United States*: Kuhlen & Lee 1943		

16.9.1.2 Avoidance and Escape Behavior

Two studies of sex differences in avoidance behavior among rats were located. As shown in Table 16.9.1.2, both studies indicated that females were more likely on average to take measures to avoid being shocked than were males.

Table 16.9.1.2 Avoidance and escape behavior among non-humans

Nature of difference			*Post-pubertal*	
			Adult	
More among males				
Not significant				
More among females			**RODENT** *Rat*: Beatty 1979 (shock avoidance); van Haaren et al. 1990 (shock avoidance)	

16.9.1.3 Fancifulness

Fancifulness refers to a tendency to be light-hearted and imaginative in thought and actions. Table 16.9.1.3 shows that just one study was located having to do with sex differences in fancifulness; it indicated that such tendencies are more pronounced in females.

Table 16.9.1.3 Fancifulness

Nature of difference	*Pre-pubertal*			
	Child			
More among males				
Not significant				
More among females	**NORTH AMERICA** *United States*: Sheehy 1938			

16.9.1.4 Fussiness/Irritability

Fussiness is the tendency to be unusually active and easily irritated. Table 16.9.1.4 shows that most of the studies have concluded that males exhibit these behavioral tendencies to a greater degree than females.

16.9.1.5 Harm Avoidance

Sex differences in the tendency to seek to avoid harm, usually of a physical injurious nature, have been investigated in numerous studies. Table 16.9.1.5 shows that nearly all the findings from these studies have indicated that females go out of their way to avoid physical harm to a greater degree than is the case for males.

16.9.1.6 Hoarding Behavior

Among humans, hoarding refers to the tendency to keep all types of physical objects, often regardless of their usefulness, in one's home or yard, until they constitute what most people consider clutters of trash that might cause fire or ill health. One can see in Table 16.9.1.6a that findings of sex differences in hoarding tendencies are not consistent.

Among non-humans, hoarding behavior involves accumulating food or nesting material for later use, sometimes well beyond the amounts needed. The evidence regarding sex differences in hoarding among non-humans, summarized in Table 16.9.1.6b, is also inconsistent.

16.9.1.7 Ruggedness

In one study, college students were asked to rate themselves regarding tendencies to be rugged. Table 16.9.1.7 shows that males gave themselves higher ratings than did females.

16.9.1.8 Sensitivity to Punishment

A couple of studies of sex differences in sensitivity to punishment were located. One can see in Table 16.9.1.8 that the findings were mixed, with one study indicating that females were more sensitive to punishment while the other study reported no significant difference.

16.9.1.9 Sensitivity to Reward

Considerable research on sensitivity to reward has been undertaken regarding possible sex differences. Table 16.9.1.9 shows that the findings have been quite mixed, with roughly half of the findings pointing toward females being more sensitive to reward than males being more so or there being no significant difference.

Table 16.9.1.4 Fussiness/irritability

Nature of difference	*Pre-pubertal*		*Post-pubertal*		*Wide age rangel*
	Infant/toddler	*Child*	*Adolescent*	*Adult*	
More among males	**NORTH AMERICA** *United States*: Moss 1967; Moss 1974 (neonate); Osofsky & O'Connell 1977 (newborn, irritability); Prior 1992 (toddler) **OVERVIEW** *Generalization*: Kohnstamm 1989 (cross-cultural); *Meta-Analysis*: Osofsky & O'Connell 1977 (infancy)	**EUROPE** *Switzerland*: Rossier et al. 2007:128 (parent rated)	**NORTH AMERICA** *United States*: Skim et al. 2003 (young)	**EUROPE** *Italy*: Preti et al. 2009	**EUROPE** *Multiple European Countries*: De Fruyt & Vollrath 2003 (ages 6-14, parent rated)
Not significant	**NORTH AMERICA** *United States*: Else-Quest et al. 2006 (infant)			**NORTH AMERICA** *United States*: Cartwright 1972:216 (medical students, self-assessed)	
More among females	**NORTH AMERICA** *United States*: Riese 1984 (infant)				

Table 16.9.1.5 Harm avoidance

Nature of difference			*Post-pubertal*		*Wide age rangel*
			Adolescent	*Adult*	
More among males					
Not significant				**ASIA** *Japan*: Itoh et al. 2004 **EUROPE** *Hungary*: Ronai et al. 2001 **MIDDLE EAST** *Turkey*: Arkar et al. 2005	
More among females			**OCEANIA** *New Zealand*: Moffit et al. 2001:128	**ASIA** *Japan*: S Kimura et al. 2000; Ando et al. 2004; *Korea*: Sung et al. 2002; *Taiwan*: WJ Chen et al. 2002 **EUROPE** *Belgium*: Hansenne et al. 2001; *Britain*: Otter et al. 1995; ME Stewart et al. 2004; *Czech Republic*: Kozeny 1989; *Finland*: Miettunen et al. 2004; *France*: Le Bon et al. 1998; Pelissolo & Lepine 2000; Purper-Ouakil et al. 2004; *Germany*: Weyers et al. 1995; H Krebs et al. 1998; Richter et al. 2003; *Italy*: Manfredonia et al. 1991; *Netherlands*: Duijsens et al. 2000; *Poland*: Svrakic et al. 1991; Zakrzewska et al. 2001; Samochowiec et al. 2004; *Sweden*: Schette et al. 1998; Lundberg et al. 1999; Brandstrom et al. 2001* **MIDDLE EAST** *Iran*: Richter et al. 2004; *Israel*: Zohar et al. 2001; Kremer et al. 2005 **NORTH AMERICA** *United States*: SJ Nixon & Parsons 1989 (undergrad); Cloninger et al. 1991; Gianola et al. 1994; Stallings et al. 1996; Brandstrom et al. 2001*; Vaidya et al. 2004; Cloninger et al. 2006; Goudriaan et al. 2007	**OVERVIEW** *Meta-Analysis*: Miettunen et al. 2007 (d = .33); CP Cross et al. 2011:111 (harm avoidance, d = .78)

Table 16.9.1.6a Hoarding behavior

Nature of difference				*Post-pubertal*	
				Adult	
More among males				**NORTH AMERICA** *United States*: Iervolino et al. 2009 (among twins, 4.1%M vs. 2.1%F)	
Not significant				**ASIA** *Taiwan*: Hwang et al. 1998 (elderly, among dementia sufferers) **EUROPE** *Germany*: A Mueller et al. 2009 **NORTH AMERICA** *United States*: E Sherman & Newman 1977-78 (elderly)	
More among females				**NORTH AMERICA** *United States*: HJ Kim et al. 2001 (elderly); Steketee & Frost 2003 (clinical sample); JF Samuels, Bienvenu, Pinto, et al. 2008; Wheaton et al. 2008; Back et al. 2009	

Table 16.9.1.6b Hoarding behavior among non-humans

Nature of difference			*Post-pubertal*		*Wide age rangel*
				Adult	
More among males					
Not significant				**RODENT** *Rat*: CT Morgan et al. 1943 (food hoarding)	**RODENT** *Gerbil*: Agren et al. 1989b
More among females				**RODENT** *Rat*: Herberg et al. 1972 (food hoarding)	

Table 16.9.1.7 Ruggedness

Nature of difference			*Post-pubertal*	
				Adult
More among males				**NORTH AMERICA** *United States*: Goldsmith & Flynn 2000:1215 (self-defined, undergrad)
Not significant				
More among females				

16.9.1.10 Stubbornness

One study asked medical students to self-rate their tendencies to be stubborn. As shown in Table 16.9.1.10, the study indicated that females were more so than males.

Table 16.9.1.8 Sensitivity to punishment

Nature of difference			*Post-pubertal*		
				Adult	
More among males					
Not significant				**ASIA** *Taiwan*: Li, Huang et al. 2007:478 (undergrad, N = 243M + 324F)	
More among females				**EUROPE** *Spain*: Castella & Perez 2004	

Table 16.9.1.9 Sensitivity to reward

Nature of difference			*Post-pubertal*		
				Adult	
More among males				**ASIA** *Taiwan*: Li, Huang et al. 2007:478 (undergrad, N = 243M + 324F) **EUROPE** *Spain*: Castella & Perez 2004	
Not significant				**EUROPE** *Spain*: Torrubia et al. 2001 (undergrad)	
More among females				**EUROPE** *Britain*: Otter et al. 1995; *Czech Republic*: Kozeny et al. 1989; *Germany*: Weyers et al. 1995; H Kreb et al. 1998; *Finland*: Miettunen et al. 2004 **MIDDLE EAST** *Israel*: Zohar et al. 2001 **NORTH AMERICA** *United States*: SJ Nixon & Parsons 1989; Cloninger et al. 1991; Giancola et al. 1994	

Table 16.9.1.10 Stubbornness

Nature of difference			*Post-pubertal*		
				Adult	
More among males					
Not significant					
More among females				**NORTH AMERICA** *United States*: Cartwright 1972:215 (medical students, self-assessed)	

16.9.2 Residual Specific Behavior Patterns

Behavior of a minor and specific nature includes a variety of actions that have been reported regarding possible sex differences. Findings are summarized below.

16.9.2.1 Volunteering to Be a Research Participant

Participating in a research project is a voluntary activity (except for young children, when parents are usually allowed to make decisions about whether or not their child will participate). Several studies were located in which both sexes were asked to be research participation and the proportion of males and females who actually did so was reported. One can see in Table 16.9.2.1 that the evidence is about equally divided regarding any sex differences in this regard.

Table 16.9.2.1 Volunteering to be a research participant

Nature of difference				*Post-pubertal*	*Wide age rangel*
				Adult	
More among males				**EUROPE** *Denmark*: K Christensen et al. 1999 (elderly); Nybo et al. 2001 (elderly) **NORTH AMERICA** *United States*: Kenrick et al. 1980 (undergrad, experiments involving erotica); Lauber & Knuth 1998 (mail survey respondents); Dougherty et al. 2003 (mail survey respondents, wildlife management); CA Jacobson et al. 2007 (mail survey respondents, wildlife issues)	
Not significant				**EUROPE** *Denmark*: Osler & Schroll 1992 (elderly); Drivsholm et al. 2006; *Sweden*: von Strauss et al. 1998	
More among females				**EUROPE** *Finland*: Pietila et al. 1995; Koivusilta et al. 1998; Korkeila et al. 2001; *Netherlands*: Van Loon et al. 2003 **NORTH AMERICA** *United States*: Bradburn 1992; Brehm 1993 (telephone survey respondents); Mosher & MacIan 1994:108 (undergrad); Asher 2001 (telephone survey respondents); McCabe 2004:64 (undergrad, both mail & web-based surveys)	**EUROPE** *Sweden*: Herlitz & Ramstedt 2005:221 (ages 16-44, mail questionnaire)

16.9.2.2 Neutering of Animals

Table 16.9.2.2 summarizes evidence on sex differences in people seeking to neuter pets. It shows that females were more likely to seek veterinary assistance in neutering a dog or a cat pet in one study, while another study found no sex difference.

Table 16.9.2.2 Neutering of animals

Nature of difference				*Post-pubertal*	
				Adult	
More among males					
Not significant				**LATIN/CARIBBEAN AMERICA** *Bahamas*: Fielding et al. 2002	
More among females				**OCEANIA** *Australia*: Blackshaw & Day 1994	

16.9.2.3 Seating Arrangement in Taxi

A few studies have sought to determine if a sex difference exists in people's tendencies to occupy the front or back seats of taxi cabs. Table 16.9.2.3 indicates that male taxi passengers are more likely to ride in the front of a taxi, while females are more likely to ride in the backseat.

Table 16.9.2.3 Seating arrangement in taxi

Nature of difference					*Wide age rangel*
More often in the front among males					**OCEANIA** *Australia*: JS Watson & Kearins 1988; Kenner & Katsimaglis 1993
Not significant					
More often in the front among females					

16.9.2.4 Spending Time in the Sun

Findings have been mixed regarding sex differences in spending time in the sun. As shown in Table 16.9.2.4, females appear to sunbathe more, but otherwise males seem to spend more time outdoors exposed to the sunlight.

Table 16.9.2.4 Spending time in the sun

Nature of difference			*Post-pubertal*		*Wide age rangel*
				Adult	
More among males				**NORTH AMERICA** *Canada*: SH Campbell & Birdsell 1994; *United States*: HI Hall et al. 1997 (whites)	**NORTH AMERICA** *United States*: HI Hall et al. 1997 (without sunscreen); EM McCarthy et al. 1999
Not significant					
More among females				**EUROPE** *Spain*: Galan et al. 2011 (sunbathing) **NORTH AMERICA** *United States*: Koh et al 1997 (sunbathing, whites); S Burton et al. 1994:71 (sunbathing)	

17 Social Behavior

Social behavior is behavior in which one individual's actions are influencing another individual's actions. Social behavior is normally thought of as occurring when two or more individuals are in close proximity to one another. However, with developments in modern communications, a substantial proportion of social interactions occur over vast distances. This chapter reviews a wide array of social behavior patterns for which sex differences have been assessed.

17.1 Broad Aspects of Social Behavior

In its most general sense, social behavior pertains to the time individuals spend in the company of others. Below are summaries of findings having to do with sex differences in socially interacting.

17.1.1 Socializing Behavior

Socializing behavior refers to tendencies to associate with and exchange conversations with others. Research findings regarding sex differences in such behavior are presented in the following section.

17.1.1.1 Socializing Abilities

Several studies have sought to determine if a sex difference exists in the degree to which individuals have confidence in their abilities to socially interact with others. Table 17.1.1.1 indicates that few significant differences exist, at least among children. In the case of one study among adolescents, females considered themselves to be better at socializing with the opposite sex than was true for males.

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Table 17.1.1.1 Socializing abilities

Nature of difference	*Pre-pubertal*		*Post-pubertal*		
		Child	*Adolescent*		
Higher among males		**NORTH AMERICA** *United States*: CJ Patterson et al. 1990 (self-rated)			
Not significant		**ASIA** *China*: Stigler et al. 1985 (self-rated) **NORTH AMERICA** *United States*: GC Roberts et al. 1981 (self-rated); Harter 1982 (self-rated); Kurdek & Krile 1982 (self-rated); HW Marsh et al. 1983 (self-rated); Blechman et al. 198 (self-rated); Nottelmann & Welsh 1986 (self-rated); LK Chan 1988 (self-rated); Boivin & Begin 1989; Vondra et al. 1989 (self-rated); DA Cole 1991a (self-rated); HW Marsh et al. 1991 (self-rated)			
Higher among females		**EUROPE** *Finland*: Suonpaa et al. 1989 (self-rated)	**NORTH AMERICA** *United States*: Giordano et al. 2006:269 (self-rated confidence in dating, among adolescents who had begun dating, N = 957)		

17.1.1.2 Socializing Tendencies

The research pertaining to how the sexes rate their social connectedness to others appears in Table 17.1.1.2. One can see that all the available research has concluded that females are more prone to socialize than are males.

Table 17.1.1.2 Socializing tendencies

Nature of difference	*Pre-pubertal*		*Post-pubertal*		*Wide age range*
		Child		*Adult*	
Higher among males					
Not significant					
Higher among females		**NORTH AMERICA** *United States*: Meeks & Mauldin 1990		**NORTH AMERICA** *Canada*: CA Salmon 1999:192 (with relatives); CA Salmon & Daly 1996 (with relatives); *United States*: DM Schneider & Cottrell 1975 (with	**NORTH AMERICA** *United States*: MW Pratt et al. 1990 (self-rated); Ogilvie & Clark 1992 (self-rated); Clancy & Dollinger 1993 (self-rated)

(*Continued*)

Table 17.1.1.2 (Continued)

Nature of difference	*Pre-pubertal*		*Post-pubertal*		*Wide age range*
		Child		*Adult*	
				relatives); Mackie 1983; Troll 1987 (with relatives); Bleich 1988 (self-rated, more connected when reading stories); Bybee et al. 1990 (self-rated, undergrad); Boggiano & Barrett 1991 (self-rated, undergrad); DP Hogan & Eggebeen 1995 (with relatives)	

17.1.1.3 Social/Interpersonal Skills

Studies of sex differences in self-rated social skills appear in Table 17.1.1.3. It indicates that findings have been inconsistent, although age may be a relevant factor, whereas studies of children and adolescents indicate that males perceive themselves as more skilled, among adults, than females do.

Table 17.1.1.3 Social/interpersonal skills

Nature of difference	*Pre-pubertal*		*Post-pubertal*		
		Child	*Adolescent*	*Adult*	
Higher among males		**NORTH AMERICA** *United States*: Cooper & Farran 1988 (teacher-rated, kindergartners, N = 650)	**NORTH AMERICA** *United States*: Sarason et al. 1985 (self-rated social skills)		
Not significant					
Higher among females				**EUROPE** *Britain*: Petrides & Furnham 2000 (self-rated); Petrides & Furnham 2003 (self-rated); Furnham & Petrides 2004 (self-rated); *Germany*: Rammstedt & Rammsayer 2000 (self-rated, undergrad, interpersonal skills); *Netherlands*: Van der Zee et al. 2002 (self-rated); Van der Zee & Wabeke 2004 (self-rated, managers & executives)	

17.1.1.4 Overall Social Competence

Assessing so-called *social competence* is obviously not an entirely objective task. Nevertheless, few would assert that humans do not exhibit considerable variability in this regard. Studies that have involved rating males and females of various ages in terms of their overall social competency or "social intelligence" are summarized in Table 17.1.1.4. One can see that most studies have concluded that females surpass males in the ratings they received.

Table 17.1.1.4 Overall social competence

Nature of difference	*Pre-pubertal*		*Post-pubertal*		*Wide age range*
		Child		*Adult*	
More among males					
Not significant		**NORTH AMERICA** *United States*: HW Marsh et al. 2002 (with peers, self-report); Mantzicopoulos 2004 (with peers, self-report)			**OVERVIEW** *Meta-Analysis*: Wastlund et al. 2001:291 (cross-cultural)
More among females		**NORTH AMERICA** *Canada:* LaFreniere & Dumas 1996* (preschool & school age children); *United States*: LaFreniere & Dumas 1996* (preschool & school age children); Eisenberg et al. 1999; Arsenio et al. 2001		**EUROPE** *Britain*: Petrides & Furnham 2000:455 (self-rated)	

17.1.1.5 Time Spent in the Company of Others (Except Family Members)

The studies that have examined sex differences in time spent with others (or seeking to do so) are summarized in Table 17.1.1.5a. One can see that most studies have concluded that females spend a greater proportion of their time in the company of others than is the case for males. The one study that qualified this conclusion found no significant sex difference among school-age children but did find a difference among adolescents (R Carlson 1965).

Several studies of non-humans have compared the sexes regarding the time spent in the company of others. Table 17.1.1.5b shows that the findings have been mixed, possibly depending in part on species and age.

Table 17.1.1.5a Time spent in the company of others (except family members)

Nature of difference	*Pre-pubertal*		*Post-pubertal*		
	Infant/toddler	*Child*	*Adolescent*	*Adult*	
More among males			**EUROPE** *Spain*: Hernando et al. 2013 (with friends, N = 1,068 + 1,332)		
Not significant		**NORTH AMERICA** *United States*: R Carlson 1965*		**AMERICA** *United States*: L Wheeler & Nezlak 1977 (talking with friends)l Reis et al. 1993 (talking with friends)	
More among females	**EUROPE** *Spain*: Christov-Moore et al. 1014 (infant) **NORTH AMERICA** *United States*: S Goldberg & Lewis 1969 (infant, with an adult); McCall et al. 1977 (infant, being sociable); Hittelman & Dickes 1979 (neonate)	**NORTH AMERICA** *United States*: Bonney 1942; Bonney 1944; Ladd 1983	**EUROPE** *Netherlands*: de Bruyn & Cillessen 2008 (age 13, N = 860) **NORTH AMERICA** *United States*: Lund 1944; R Carlson 1965*; Kashani et al. 1987; MH Richards & Larson 1989; Koestner & Aube 1995; S Gabriel & Gardner 1999*; SE Cross et al. 2000*	**EUROPE** *Britain*: Gershuny 2000 **AMERICA** *United States*: EM Bennett & Cohen 1959:112; R Carlson 1971; Mehrabian 1971; Greever et al. 1973; Chodorow 1974; Vinacke et al. 1974; L Weller et al. 1976; L Wheeler & Nezlek 1977; Cohler & Lieberman 1980 (elderly); MA Caldwell & Peplau 1982 (prefer talking to friends more); Meeuwesen et al. 1991 (physicians with patients); Bensing et al. 1993 (during physical with patients); JA Hall et al. 1994a (physicians with patients); Bertakis et al. 1995 (physicians with patients); S Gabriel & Gardner 1999*; Swaminathan et al. 1999 (while engaging in shopping activities); Troisi & Moles 1999 (among depressed persons); SE Cross et al. 2000*; Costa et al. 2001; CD Marcum, Higgins et al. 2014:544 (undergrad) **INTERNATIONAL** *Multiple Countries*: PB Smith, Easterbrook et al. 2020 (connected to others)	

Table 17.1.1.5b Time spent in the company of others among non-humans

Nature of difference	*Pre-pubertal*		*Post-pubertal*		*Wide age range*
	Infant/toddler	*Child*		*Adult*	
More among males				**CETACEA** *Bottlenose Dolphin*: Mann, Stanton et al. 2012 (strength of same-sex social networks) **PRIMATE** *Chimpanzee*: Wrangham et al. 1992; Boesch & Boesch-Achermann 2000; Wrangham 2000	
Not significant					**CANINE** *Domestic Dog*: Konno, Inoue-Murayama & Hasegawa 2011:Table 3
More among females	**PRIMATE** *Rhesus Macaque*: EA Simpson, Nicolini et al. 2016:Figure 3 (3-week olds, affiliative social behavior)	**PRIMATE** *Hanuman Langur*: Nikolei & Borries 1997 (time spent with same-sex)		**PRIMATE** *Rhesus Macaque*: Stenenson-Hinde & Zunz 1978; Kulik, Anici et al. 2015 (especially same-sex interactions) **PROBOSID** *African Elephant*: Yasui et al. 2013:75; *Asian Elephant*: Seltmann, Helle et al. 2019 (N = 107M + 150F) **RODENT** *Prairie Vole*: Bales & Carter 2003:Figure 1 (N = 20M + 20F)	

17.1.1.6 Self-Assessment of One's Ability to Form Close Interpersonal Relationships

Studies of sex differences in tendencies to form close interpersonal relationships with peers are summarized in Table 17.1.1.6. It indicates that females report doing so, or having the ability to do so, more than is the case for males.

17.1.2 Types of Social Networks

A number of studies have compared the sexes regarding a variety of types of social networks. Findings are reviewed in the following section.

Table 17.1.1.6 Assessment of one's ability to form close interpersonal relationships

Nature of difference			*Post-pubertal*		
				Adult	
Higher among males					
Not significant					
Higher among females				**ASIA** *Singapore*: Yeo et al. 2007 **NORTH AMERICA** *United States*: Savin-Williams & Berndt 1990 (young); Hagborg 1993 (young)	

17.1.2.1 Having Close Friendships and Social Relationships

Research findings having to do with sex differences in having close personal friendships with others are numerous. As shown in Table 17.1.2.1, most studies indicate that females have more such friendships than do males. The main exception has to do with opposite sex friendships, where males sometimes surpass females.

17.1.2.2 Having Activity-Based Friendship Networks

Some research has sought to assess the primary basis upon which people form friendships, especially same-sex friendships. As shown in Table 17.1.2.2, all the available studies have found males have more activity-based same-sex friendships (e.g., sports activities, hobbies, or work) than do females.

17.1.2.3 Involvement in Kinship Activities and Relationships

One study investigated sex differences in forming activities and friendship networks with genetic relatives (as opposed to non-relatives). Table 17.1.2.3a indicates that females do so more than males.

A few studies of non-human primates have also investigated sex differences in being involved in kinship-based social relationships. One can see in Table 17.1.2.3b that, as with humans, these studies indicate that females remain socially active with individuals to whom they are genetically related to a greater degree than do males.

17.1.2.4 Considering Kin to Be One's Closest Friends

When asked to name their closest friend(s), are males or females more likely to identify individuals who are close relatives (such as parents or siblings)? Table 17.1.2.4 shows that females are more likely to do so.

Table 17.1.2.1 Having intimate friendships/social relationships/confidants

Nature of difference	*Pre-pubertal*		*Post-pubertal*		*Wide age range*
		Child	*Adolescent*	*Adult*	
More among males				**NORTH AMERICA** *United States*: J Fischer & Narus 1981* (with members of the opposite sex); SM Rose 1985* (with members of the opposite sex); DG Williams 1985* (with members of the opposite sex)	
Not significant		**NORTH AMERICA** *United States*: Berndt & Perry 1986	**NORTH AMERICA** *United States*: Hussong 2000:230		
More among females		**EUROPE** *Sweden*: Tietjen 1982 (same-sex) **NORTH AMERICA** *United States*: Waldrop & Halverson 1975 (same sex); Bigelow 1977 (young); Berndt 1981 (same sex); Pitcher & Schultz 1983; Furman & Buhrmester 1985; Buhrmester & Furman 1987 (same sex); Belle 1989; Lansford & Parker 1999; JE Burr et al. 2005	**NORTH AMERICA** *United States*: Ickes & Barnes 1978; Ickes et al. 1979; Sharabany et al. 1981 (self-reports); Berndt 1982; FT Hunter & Youniss 1982 (same-sex); L Wheeler et al. 1983; Bryant 1985; Furman & Buhrmester 1985; Bukowski & Kramer 1986 (opposite sex); J McPherson & Smith-Lovin 1986; Feiring & Coates 1987; Camarena et al. 1990 (early); Clark-Lempers et al. 1991; Claes 1992 (same-sex); Hartup 1993; Lempers & Clark-Lempers 1993; Golombok & Fivush 1994; O'Koon 1997; DeBacker & Nelson 2000 (self-rated); HD Johnson 2004:250; Kapinus & Corman 2004:701 (especially with their mothers)	**ASIA** *China*: Cheng & Chan 2006 (elderly) **EUROPE** *Britain*: Fuhrer et al. 1999 (among civil servants) **NORTH AMERICA** *Canada*: Schiedel & Marcia 1985; *United States*: Jourard & Richman 1963 (young); Aries 1976; E Powers & Bultena 1976 (elderly); L Wheeler & Nezlek 1977 (undergrad); Derlega et al. 1981 (same sex); J Fischer & Narus 1981* (with members of the same sex); Caldwell & Peplau 1982 (intimate verbal interactions); BF Turner 1982 (young); PH Wright 1982 (same-sex); RB Hays 1984; Kessler & McLeod 1984; RB Hays 1985; HT Reis et al. 1985 (same sex); SM Rose 1985* (with members of the same sex); DG Williams 1985* (with members of the same sex); HT Reis 1986; Buhrmester & Furman 1987; Helgeson et al. 1987 (same-sex); Barth & Kinder 1988; Lagerspetz et al. 1988 (older adults); HT Reis 1988 (same sex); Sapadin 1988 (same sex); RJ Turner & Avison 1989; Maccoby 1990 (same sex); Reisman 1990 (same-sex); JV Jordan et al. 1991; Josselson 1992; JT Wood & Inman 1993; Moskowitz et al. 1994 (same sex); JT Wood 1994; BJ Bank & Hansford 2000 (same sex); Gurung et al. 2003 (elderly, married persons) **OCEANIA** *Australia*: Leung & Moore 2003; Coventry et al. 2004; *New Zealand*: Aukett, Ritchie & Mill 1988 (friendly verbal interactions)	**MIDDLE EAST** *Israel*: Sharabany et al. 1981 **NORTH AMERICA** *United States*: Lowenthal & Haven 1968; Sharabany et al. 1981 (same sex); Flaherty & Richman 1989; GP Jones & Dembo 1989; Berkman et al. 1993:112; Buhrmester & Prager 1995 (childhood & adolescence) **OVERVIEW** *Literature Review*: Blieszner & Adams 1992; O'Connor 1992; *Meta-Analysis*: Dindia-Allen 1992

Table 17.1.2.2 Having activity-based/goal-oriented friendships

Nature of difference			*Post-pubertal*		
			Adolescent	*Adult*	
More among males			**NORTH AMERICA** *United States*: Camarena et al. 1990 (young, same-sex)	**NORTH AMERICA** *United States*: M Caldwell & Peplau 1982 (same-sex); PH Wright 1982 (among same-sex friendships); Helgeson et al. 1987 (same-sex); Ibarra 1993 (young managers who have mentors)	
Not significant					
More among females					

Table 17.1.2.3a Involvement in extended kinship activities and social relationships

Nature of difference					*Wide age range*
More among males					
Not significant					
More among females					**NORTH AMERICA** *United States*: B Adams 1968:169

Table 17.1.2.3b Involvement in extended kinship activities and social relationships among non-humans

Nature of difference					*Wide age range*
More among males					
Not significant					
More among females					**PRIMATE** *Bonobo*: Eriksson et al. 2006; *Chimpanzee*: JH Manson & Wrangham 1991; Rodseth et al. 1991; *Gorilla*: Lawson Handley & Perrin 2007; *Hamadryas & Hybrid Baboon*: Colmenares 1992

17.1.2.5 Having Co-workers as Close Friends

Table 17.1.2.5 cites two studies that have compared males and females regarding the extent to which their closest friends happen also to be co-workers. One can see that this appears to be truer for males than for females.

Table 17.1.2.4 Considering kin to be one's closest friends

Nature of difference					*Wide age range*
More among males					
Not significant					
More among females					**NORTH AMERICA** *United States*: Fischer & Oliker 1983; PV Marsden 1987; KE Campbell 1988

Table 17.1.2.5 Having co-workers as close friends

Nature of difference			*Post-pubertal*	
			Adult	
More among males			**NORTH AMERICA** *United States*: CS Fischer & Oliker 1983; KE Campbell 1988	
Not significant				
More among females				

17.1.2.6 Associating with Delinquent Peers

A few studies have compared the sexes regarding the extent to which they associate with peers that are known to engage in delinquent acts. As shown in Table 17.1.2.6, all findings agree that males do so more than females.

Table 17.1.2.6 Associating with delinquent peers

Nature of difference			*Post-pubertal*		
			Adolescent		
More among males			**EUROPE** *Iceland*: JE James & Kristjansson 2015:Table 1 (self-report) **NORTH AMERICA** *United States*: Mears et al. 1998 (self-report); WG Jennings et al. 2010 (self-report); J Newsome et al. 2016:736		
Not significant					
More among females					

17.1.2.7 Gang Membership/Affiliation

Sex differences in gang membership or gang affiliation have been extensively documented. As shown in Table 17.1.2.7, all available evidence has shown that males are more likely than females to be actively involved in gangs.

Table 17.1.2.7 Gang membership/affiliation

Nature of difference			*Post-pubertal*		*Wide age range*
			Adolescent		
More among males			**ASIA** *Japan*: Azuma 1974 **EUROPE** *Britain*: Bennett & Holloway 2004a:313 (95%M); Bradshaw 2005; DJ Smith & Bradshaw 2005; Sharp, Aldridge & Medina 2006; Alleyne & Wood 2010:Table 1; *Germany*: Huizinga & Schumann 2001*; *Netherlands*: Weerman 2005; Weerman 2012:278 (66%M); *Scotland*: Smith & Bradshaw 2005; *Multiple European Countries*: MW Klein et al. 2006:421 **NORTH AMERICA** *Canada*: Gatti et al. 2005; *United States*: WB Miller 1975:23; Esbensen & Huizinga 1993 (75%M, self-reported); Curry et al. 1994; AP Goldstein & Glick 1994; MI Cohen et al. 1995; MW Klein & Crawford 1995; Esbensen & Deschenes 1998; Battin et al. 1998; Esbensen & Winfree 1998 (62%M); Esbensen et al. 1999:46; KG Hill et al. 1999; Curry 2001 (96% vs. 4%, police identified); Huizinga & Schumann 2001*; Hope & Damphousse 2002; Thornberry et al. 2003; RD Gordon et al. 2004; Aryan et al. 2005; KE Bell 2009; Esbensen et al. 2009:825 (self-report); Melde & Esbensen 2011; Howell 2012; McDaniel 2012; Melde et al. 2012 (especially long term members); Peterson & Carson 2012; Pyrooz et al. 2013:254 (long term members); Gilman et al. 2014:Table 1; D Peterson & Morgan 2014:140 (64%M, self-reported); Pyrooz 2014		**NORTH AMERICA** *United States*: Bjerregaard & Smith 1993; GD Curry, Ball & Fox 1994 (96%M); AP Goldstein & Glick 1994; Battin et al. 1998; Curry 1998; Eshensen & Winfrue 1998; Office of Juvenile Justice and Delinquency Prevention 1999:21 (88%M); K Williams et al. 2002; St. Cyr & Decker 2003
Not significant					
More among females					

17.1.3 Congenial Social Relationships

Considerable research has been undertaken to assess sex differences in friendly social relationships between people. The results of these studies are summarized below.

17.1.3.1 Time Spent with Family Members in General

Being family oriented or spending time with one's family members has been investigated with regard to sex differences in a few studies. Table 17.1.3.1a shows that all of these studies concluded that one's family seems to be more important to females than to males.

Table 17.1.3.1a Time spent with family members in general

Nature of difference			*Post-pubertal*		
			Adolescent	*Adult*	
More among males					
Not significant					
More among females			**ASIA** *Russia*: Kon & Losenkov 1978 (former Soviet Union) **NORTH AMERICA** *United States*: Troll 1987; Benenson et al. 1998	**NORTH AMERICA** *United States*: JB Ellis & Larnis 2007 (undergrad, being family oriented)	

Two studies were found regarding time spent with family members among chimpanzees, humankind's closest living relative. As shown in Table 17.1.3.1b, both of these studies found females spending more time with family members than was true for males.

Table 17.1.3.1b Time spent with family members in general among non-humans.

Nature of difference					*Wide age range*
More among males					
Not significant					
More among females					**PRIMATE** *Chimpanzee*: Wrangham et al. 1992; Boesch & Boesch-Arhermann 2000 **PROBOSID** *Elephant*: Yasui et al. 2013:75

17.1.3.2 Time Spent Close to Mother

As shown in Table 17.1.3.2a, several studies have compared male and female infants and toddlers regarding the amount of time they spend close to their mothers. All these studies have concluded that young females spend more time in close proximity to their mothers than do males of the same age.

Table 17.1.3.2a Time spent close to mother

Nature of difference	*Pre-pubertal*			
	Infant/toddler			
More among males				
Not significant				
More among females	**AFRICA** *South Africa*: Sluckin 1980:436 (toddler,!Kung tribe) **NORTH AMERICA** *United States*: JW Anderson 1972 (infant); SB Messer & Lewis 1972:31 (infant, during play); M Lewis & Weinraub 1974 (infant, during play); Matthews 1992 (toddler)			

One study was located pertaining to sex differences in time spent close to mother among baby elephants. As with humans, Table 17.1.3.2b shows that this study found female babies spending more time close to their mother than did male babies.

Table 17.1.3.2b Time spent close to mother among non-humans

Nature of difference	*Pre-pubertal*			
	Infant/toddler			
More among males				
Not significant				
More among females	**PROBOSID** *African Elephant*: PC Lee & Moss 1999:113 (toddler)			

17.1.3.3 Number of Friends in General

Studies of sex differences in the number of friends and/or social support networks are summarized in Table 17.1.3.3a. One can see that most studies have revealed more friends or social support networks among females than among males.

One study was located that assessed sex differences in the number of playmates among chimpanzee children. Table 17.1.3.3b shows that the study indicated that males had more friends than did females of the same age.

17.1.3.4 Same-Sex Social Interactions

Studies have shown that, aside from spousal relationships, males and females both tend to socialize more with members of their own sex than with members of the opposite sex (Rogers & Kincail 1981; Brass

Table 17.1.3.3a Number of friends in general

Nature of difference	*Pre-pubertal*		*Post-pubertal*		
		Child	*Adolescent*	*Adult*	
More among males		**NORTH AMERICA** *United States*: Belle 1989 (social network size)	**NORTH AMERICA** *United States*: Seiffge-Krenke 1995	**EUROPE** *Britain*: Fuhrer et al. 1999 (among civil servants, broader social network range) **NORTH AMERICA** *United States*: A Booth 1972* (number of friends); Lagerspetz et al. 1988 (older adults)	
Not significant				**EUROPE** *Germany*: J Smith & Baltes 1998 **NORTH AMERICA** *United States*: A Booth 1972:185	
More among females		**NORTH AMERICA** *United States*: Waldrop & Halmerson 1975 (intimate)	**EUROPE** *Germany*: Kirkcaldy et al. 2003:54 (close friendships) **NORTH AMERICA** *United States*: Burks et al. 1930 (intimate friendships); Benenson & Christakos 2003:1126 (ex-intimate) **OCEANIA** *Australia*: O'Dea Abraham 1999 (N = 462, self-report)	**ASIA** *Japan*: Igarashi et al. 2005 **NORTH AMERICA** *United States*: A Booth 1972* (number of deeply intimate friends); Reis et al. 1985; Antonucci & Akiyama 1987:Table 1 (ages 50-95, N = 214M + 166F); Wright 1989 (elderly); G Moore 1990; Shumaker & Hill 1991 (intimate interpersonal relationships); PH Wright & Scanlon 1991 (best-friend friendships); Ashton & Fuehrer 1993 (larger network of social support); Duck & Wright 1993 (best-friend friendships); Frydenberg & Lewis 1993 (larger network of social support); K Walker 1994; Barker, Morrows & Mittenes 1998 (elderly, urban blacks); D Dandervoort 2000 (less socially isolated) **OCEANIA** *Australia*: D McLaughlin, Vagenas & Pachana 2010 (social support networks, ages 70-78, N = 2,589M + 3,152F)	

Table 17.1.3.3b Number of friends in general among non-humans

Nature of difference	*Pre-pubertal*				
		Child			
More among males		**PRIMATE** *Chimpanzee*: Lonsdorf, Anderson, Stanton et al. 2014:Figure 1 (number of playmates)			
Not significant					
More among females					

1985; McPherson & Smith-Lovin 1987). Some research has sought to determine if this is truer for one sex than for the other. Results are summarized in Table 17.1.3.4a. One can see that most studies have reported that males have more social interactions within their own sex than do females, with the remaining studies reporting no significant differences.

In the case of non-humans, two studies reported on sex differences in in time spent socially interacting with one's own sex. One can see in Table 17.1.3.4b that they agreed that males did so more than females.

17.1.3.5 Number of Friends of the Same Sex

Several studies have sought to determine how many same-sex friends males and females have. One can see in Table 17.1.3.5 that findings are mixed for children, but following puberty, all research suggests that females have more same-sex friends than do males.

17.1.3.6 Number of Friends of the Opposite Sex

Men and women have been asked to report how many friends of the opposite sex they have. As shown in Table 17.1.3.6, the findings are inconsistent regarding any sex difference in this regard.

17.1.3.7 Stress or Conflict between Friends

Substantial evidence has sought to determine if males or females experience more stress or conflict with friends. Table 17.1.3.7 indicates that the evidence is quite mixed.

17.1.3.8 Complexity of Same-Sex Friendships in General

Using self-reports, several studies have sought to determine if there are sex differences in same-sex friendships. Table 17.1.3.8 indicates that females have more complex and multifaceted friendships than is true for males. In other words, the friendships among males tend to be more narrowly focused on one or a few activities than is true for friendships among females.

Table 17.1.3.4a Same-sex social interactions

Nature of difference	*Pre-pubertal*		*Post-pubertal*		*Wide age range*
		Child	*Adolescent*	*Adult*	
More among males		**AFRICA** *South Africa*: Blurton et al. 1973 (!Kung) **NORTH AMERICA** *United States*: Whiting & Edwards 1973; Draper 1975; Aries 1976; S Ellis et al. 1981; LaFreniere et al. 1984; Roopnarine 1984; Maccoby & Jacklin 1987; Carli 1989; Bukowski et al. 1993; Kovacs et al. 1996; CL Martin & Fabes 2001	**NORTH AMERICA** *United States*: FN Willis & Reeves 1976; FN Willis et al. 1976; ML Clark & Ayers 1992; Bukowski et al. 1993; Beneson & Christakos 2003:1126	**NORTH AMERICA** *United States*: Sommer 1967; Batchelor & Goethals 1972; FN Willis et al. 1978	**NORTH AMERICA** *United States*: FN Willis & Hofmann 1975; Cowan et al. 1984
Not significant		**NORTH AMERICA** *United States*: DB Carter 1987; Feiring & Lewis 1987; Benenson 1993; Benenson et al. 1997; CL Martin & Fabes 2001 **INTERNATIONAL** *Multiple Countries*: Whiting & Edwards 1988			
More among females					

Table 17.1.3.4b Same-sex social interactions among non-humans

Nature of difference	*Pre-pubertal*		*Post-pubertal*		
		Adolescent		*Adult*	
More among males		**CETACEA** *Bottlenose Dolphin*: Smolker et al. 1992* **PRIMATE** *Rhesus Macaque*: IS Bernstein et al. 1993		**CETACEA** *Bottlenose Dolphin*: Smolker et al. 1992*	
Not significant					
More among females					

Table 17.1.3.5 Number of friends of the same sex

Nature of difference	*Pre-pubertal*		*Post-pubertal*		*Wide age range*
		Child	*Adolescent*	*Adult*	
More among males		**NORTH AMERICA** *United States*: Challman 1933 (playmates); LK Koch 1933 (playmates); Parten 1933b (playmates)			
Not significant		**NORTH AMERICA** *United States*: Montemayer & Van Komen 1985; Benenson 1990; Urberg et al. 1995			
More among females		**NORTH AMERICA** *United States*: Sharabany et al. 1981*; Pitcher & Schultz 1983:21	**NORTH AMERICA** *United States*: Sharabany et al. 1981*; Blyth & Foster-Clark 1987 (intimate)	**NORTH AMERICA** *United States*: Lowenthal & Haven 1968 (intimate confidants); Booth 1972 (intimate confidants); Booth & Hess 1974 (intimate confidants); Aukett et al. 1988 (intimate); Sapodin 1988 (intimate)	**NORTH AMERICA** *United States*: Reisman 1990 (intimate)

17.1.3.9 Interacting with Infants

A few studies have investigated sex differences in people's tendencies to interact with infants. One can see in Table 17.1.3.9 that, among children and adolescents, females interacted with infants more, but, among adults, no significant sex differences were found.

Table 17.1.3.6 Number of friends of the opposite sex

Nature of difference				*Post-pubertal*	
				Adult	
More among males				**NORTH AMERICA** *United States*: A Booth 1972:186; Reis et al. 1985 (undergrad, involved in intimate social opposite-sex interactions); Reis et al. 1986 (undergrad, involved in intimate social opposite-sex interactions); L Rubin 1985; R Buhrke & Fuqua 1987 HM Reeder 2003 (undergrad)	
Not significant				**NORTH AMERICA** *United States*: A Boothe & Hess 1974	
More among females				**NORTH AMERICA** *United States*: Wheeler & Nezlik 1977 (undergrad, more involved in intimate social opposite-sex interactions); S Parker & deVries 1993 (self-report)	

Table 17.1.3.7 Stress or conflict between friends

Nature of difference	*Pre-pubertal*		*Post-pubertal*		*Wide age range*
		Child	*Adolescent*		
More among males		**NORTH AMERICA** *United States*: CJ Patterson et al. 1990	**EUROPE** *Norway*: Van Roy et al. 2006 (with peer relationships)		
Not significant		**NORTH AMERICA** *United States*: Furman & Buhrmester 1985 (self-report); JG Parker & Asher 1993; AJ Rose & Asher 1999; AJ Rose & Asher 2004 (self-report)	**LATIN/CARIBBEAN AMERICA** *Mexico*: Forteza et al. 1996 **NORTH AMERICA** *United States*: BM Wagner 1990* (older); Lempers & Clark-Lempers 1993 (self-report); Bukowski et al. 1994 (young, self-report); Rudolph & Hammen 1999		**NORTH AMERICA** *United States*: Bukowski et al. 1994 (self-report)
More among females			**NORTH AMERICA** *United States*: Siddique & D'Arcy 1984; BM Wagner 1990* (young); Forteza et al. 1996 (self-report)		

17.1.3.10 Forming Hierarchical Relationships

Hierarchical relationships are ones in which one individual is clearly higher in status or rank than the other individual in a relationship. Table 17.1.3.10 suggests that males seem to gravitate more than females do to these types of relationships.

Table 17.1.3.8 Complexity of same-sex friendships in general

Nature of difference	*Pre-pubertal*		*Post-pubertal*		
		Child	*Adolescent*	*Adult*	
More among males					
Not significant					
More among females		**NORTH AMERICA** *United States*: Waldrop & Halverson 1975	**NORTH AMERICA** *United States*: A Booth 1972	**NORTH AMERICA** *United States*: L Weiss & Lowenthal 1975 (undergrad); JD Block 1980; Barth & Kinder 1988; Sapadin 1988 (college professors)	

Table 17.1.3.9 Interacting with infants

Nature of difference	*Pre-pubertal*		*Post-pubertal*		
		Child	*Adolescent*	*Adult*	
More among males					
Not significant				**NORTH AMERICA** *United States*: Bem et al. 1976; Feldman & Nash 1978 (young)	
More among females		**NORTH AMERICA** *United States*: Feldman et al. 1977	**NORTH AMERICA** *United States*: Frodi & Lamb 1978; Feldman & Nash 1979a		

17.1.3.11 Quality of Relationships with Supervisors

One study asked males and females to assess the quality of relationships they had with a supervisor (or supervisors). In Table 17.1.3.11, one can see that females rated these relationships as being better than did males.

17.1.3.12 Paying Attention to Others

Being attentive to others is a characteristic that can obviously have many consequences, such as when one is expected to learn new information. Table 17.1.3.12 shows that females are more prone to attend to others, or to do so for longer intervals of time, than is the case for males.

Table 17.1.3.10 Forming hierarchical relationships

Nature of difference	*Pre-pubertal*		*Post-pubertal*		
		Child	*Adolescent*	*Adult*	
More among males		**NORTH AMERICA** *United States*: Omark et al. 1975 (peer reports)	**NORTH AMERICA** *United States*: Savin-Williams 1979 (young, peer and counselor reports)	**EUROPE** *Sweden*: Sidanius et al. 1991* (undergrad, being hierarchically oriented) **NORTH AMERICA** *United States*: Sidanius et al. 1991* (undergrad, being hierarchically oriented)	
Not significant					
More among females					

Table 17.1.3.11 Quality of relationships with supervisors

Nature of difference			*Post-pubertal*		
				Adult	
More among males					
Not significant					
More among females				**INTERNATIONAL** *Multiple Countries*: Sousa-Poza & Sousa-Poza 2000:142 (self-perceived, among employed persons)	

17.1.4 Influencing and Conforming or Imitating Behavior

A great deal of research has been directed toward determining if males or females are more likely to alter their opinions or behavior in accordance with the opinions or behavior of others. Much of the research has been of an experimental nature in which research confederates will express a view that is contrary to reality in order to determine if subjects of one sex are more likely to alter their opinions of the confederates.

17.1.4.1 Conformity in General

Are there sex differences in the tendency to yield to social pressure? Table 17.1.4.1 shows that the research has provided inconsistent answers. Many of the inconsistencies may be explainable in terms a number of

Table 17.1.3.12 Paying attention to others

Nature of difference	*Pre-pubertal*		*Post-pubertal*		*Wide age range*
		Child	*Adolescent*	*Adult*	
More among males					
Not significant					
More among females		**NORTH AMERICA** *United States*: Eisenberg et al. 2001 (maintaining attention)	**EUROPE** *France*: Chau et al. 2007:329 (self-report)	**EUROPE** *Germany*: Bente, Donaghy & Suwelack 1998 (visual attention during dyadic social interactions) **NORTH AMERICA** *United States*: Whittenburg et al. 1956 (sustained attention); Waag et al. 1973 (undergrad, sustained attention detecting signals)	**NORTH AMERICA** *United States*: Ramtekkar et al. 2010:Table 1 (N = 9,380)

factors, such as the nature of what it is that someone wants another individual to do, and in whether or not the individual believes that he or she is being surveilled.

17.1.4.2 Conformity to Empirical Judgments in the Presence of Others

Numerous experiments pertaining to conformity have been conducted. In these experiments, research participants are asked to make empirical judgments (such as how tall a particular building is or what color a specific dress might be). In these experiments, a confederate (i.e., someone just pretending to also be a research participant) first provides a false statement about the object in question. In this way, researchers are able to estimate the degree to with the actual research participant will modify his/her own judgment to conform with that of the confederate.

Many of the experiments on conformity to empirical judgments require that the research participant express his/her judgment in the presence of the confederate, thus making it obvious to the confederate that the research participant has agreed (conformed) or not. In other experiments, the research participant is allowed to express his/her own judgment without the confederate knowing what the participant

Table 17.1.4.1 Conformity in general

Nature of difference			*Post-pubertal*		
			Adolescent	*Adult*	
More among males				**EUROPE** *Germany*: Bischop et al. 2000 (regarding social pressure to drink)	
Not significant				**EUROPE** Britain: LM Osman 1982 (pedestrian traffic rules); *Multiple European Countries*: SH Schwartz & Rubel-Lifschitz 2009:178 (25 countries) **NORTH AMERICA** *United States*: Eagly, Wood & Fishbaugh 1981* (when they believed they were not being watched, undergrad, N = 75M +71F); Eagly & Chrvala 1986 (to social pressure); Torelli 2006 (to social pressure)	
More among females			**MIDDLE EAST** *Israel*: Hirschberger et al. 2002:131 (willingness to use drugs offered by a friend)	**NORTH AMERICA** *United States*: VL Allen & Cruthfield 1963; Eagly, Wood & Fishbaugh 1981* (when they knew they were being watched, undergrad, N = 75M +71F); Eagly & Chrvala 1986 (especially if they are knowingly being surveilled); Torelli 2006 (undergrad)	

reported. We will present the findings from these two types of research designs separately.

As shown in Table 17.1.4.2, the evidence has been mixed regarding any sex differences, although most studies that have reported a significant difference have indicated that females are more prone to conform their judgments to match that of the confederate, especially if they are required to express their judgment in the presence of the confederate.

17.1.4.3 Conformity to Empirical Judgments in the Absence of Others

As mentioned above, experiments in which research participants are asked to make judgments after someone else has make a false judgment are of two main forms, one in which they must state their judgment to others, and the other when they can express their judgment in private. As shown in Table 17.1.4.3, most studies of sex differences in the latter circumstances have failed to be statistically significant.

Table 17.1.4.2 Conformity in empirical judgments in the presence of others

Nature of difference	*Pre-pubertal*		*Post-pubertal*		
		Child	*Adolescent*	*Adult*	
More among males			**NORTH AMERICA** *United States*: Iscoe et al. 1964* (blacks, to erroneous perceptions reported by others)	**NORTH AMERICA** *United States*: Crutchfield 1955*; Kanareff & Lanzetta 1961 (young); Kilham & Mann 1974 (undergrad)	
Not significant		**NORTH AMERICA** *United States*: McConnell 1963* (erroneous suggestions); Costanzo & Shaw 1966	**NORTH AMERICA** *United States*: Iscoe et al. 1963* (whites, to erroneous perceptions reported by others); McConnell 1963* (erroneous suggestions); Costanzo & Shaw 1966; FW Schneider 1970* (young, erroneous judgments, blacks); Jovick 1972; Landsbaum & Willis 1971; Wiesenthal et al. 1976	**ASIA** *Japan*: Frager 1970 **EUROPE** *Germany*: Timaeus 1968 **NORTH AMERICA** *United States*: Beloff 1958; Coleman et al. 1958; Tuddenham 1958b; Ex 1960; Kanareff & Lanzetta 1960b; Milgram 1963; Steiner & Rogers 1963; McDavid & Sistrunk 1964; Endler 1965; Sistrunk & McDavid 1965; Vidulich & Stabene 1965; Phelps & Meyer 1966; Vidulich & Bayley 1966; Endler & Hoy 1967; Myers & Arenson 1968; Allen & Levine 1969; Crano 1970; Glinskiet al 1970; Johnson & MacDonnell 1974; KH Smith 1970; Strickler et al. 1970; Willis & Willis 1970; Sistrunk 1971; Landsbaum & Willis 1971; Klein 1972 (elderly); Sistrunk et al. 1972; Milgram 1973; Stone 1973; Wiesenthal et al. 1973; Buby & Penner 1974; Bem & Lewis 1975; Breger & Ruiz 1966; Endler, Coward et al. 1975; Ross et al. 1976; Riess & Schlenker 1977 **OCEANIA** *Australia*: Delin & Poo-Kong 1974	
More among females		**NORTH AMERICA** *United States*: Tuddenham 1961 (erroneous judgments); Iscoe et al. 1963* (whites, to others' erroneous reported perceptions)	**NORTH AMERICA** *Canada*: Endler et al. 1972 *United States*: Iscoe et al. 1964* (whites); Carrigan & Julian 1966 (erroneous judgments); HI Walberg 1969	**NORTH AMERICA** *United States*: Crutchfield 1955* (undergrad, whites, opinions about perceptions); Strodtbeck & Mann 1956 (jury); Nakamura 1958; Tuddenham 1958a; Tuddenham et al. 1958; DiVesta & Cox 1960; Kanareff & Lanzetta 1960a; Tuddenham 1961; VL Allen & Crutchfield 1963 (undergrad, experimental tasks); Crowne & Liverant 1963; Reitan & Shaw 1964 (undergrad, whites); E Hollander et al. 1965; MacBride & Tuddenham 1965; Whittaker 1965b; Endler 1966; Rotter 1967; Julian et al. 1968; Julian et al. 1969; FW Schneider 1970* (young, erroneous judgments, whites); Sheridan & King 1972; Geller et al. 1973; Larsen 1974; Endler et al. 1975; Rosenthal & Rosnow 1975; Meyers-Levy 1988 **OCEANIA** *Fiji*: Chandra 1973*; *New Zealand*: Vaughan & Taylor 1966; Chandra 1973* **OVERVIEW** *Meta-Analysis*: HM Cooper 1979; Eagly & Carli 1981 (46 studies, especially when research participants express their judgments in the presence of others, d = .28); BJ Becker 1986 (experimental designs, d = .32)	

Table 17.1.4.3 Conformity to empirical judgments absence of others

Nature of difference	*Pre-pubertal*		*Post-pubertal*		
		Child	*Adolescent*	*Adult*	
More among males				**NORTH AMERICA** *United States*: Sampson & Hancock 1967	
Not significant		**LATIN/ CARIBBEAN AMERICA** *Brazil*: Sistrunk et al. 1971* **NORTH AMERICA** *United States*: Sistrunk et al. 1971*	**LATIN/CARIBBEAN AMERICA** *Brazil*: Sistrunk et al. 1971* **NORTH AMERICA** *United States*: Sistrunk et al. 1971*; Sistrunk & McDavid 1971*	**LATIN/CARIBBEAN AMERICA** *Brazil*: Sistrunk & Clement 1970 **NORTH AMERICA** *United States*: Wiener 1959; Madden 1960; Wyer 1966; Wyer 1967; Eagly 1969; Sistrunk 1969; Sistrunk & Clement 1970; Sistrunk et al. 1971; Sistrunk & McDavid 1971*; Adair 1972; Sistrunk 1972; Sistrunk 1973; Goldberg 1974; Goldberg 1975 **OVERVIEW** *Literature Review*: Maccoby & Jacklin 1974:265-269	
More among females			**NORTH AMERICA** *United States*: Patel & Gordon 1960	**NORTH AMERICA** *United States*: King 1959	

17.1.4.4 Contra Sex-Role Conformity Resistance

Table 17.1.4.4 shows that three studies have investigated sex differences in the tendency to resist behaving contrary to one's own sex. All three studies indicated that males are more prone to resist imitating behavior that is contrary to their sex than are females.

Table 17.1.4.4 Contra sex-role conformity resistance

Nature of difference	*Pre-pubertal*		*Post-pubertal*		
		Child	*Adolescent*		
More resistance among males		**NORTH AMERICA** *United States*: Ashton 1983 (contra sex-role modeling resistance); PA Katz & Walsh 1991 (contra sex-role modeling resistance)	**NORTH AMERICA** *United States*: Durkin & Hutchins 1984 (contra sex-role modeling resistance)		
Not significant					
More resistance among females					

17.1.4.5 Compromising Behavior

Various studies have sought to determine if sex differences exist in people's tendencies to compromise when an individual's desires conflict with the desires of others. Table 17.1.4.5 shows that these studies have not reached consistent conclusions.

Table 17.1.4.5 Compromising behavior

Nature of difference	*Pre-pubertal*		*Post-pubertal*		
		Child	*Adolescent*	*Adult*	
More among males			**NORTH AMERICA** *United States*: KA Black 2000:507; Lindman et al. 1997		
Not significant		**NORTH AMERICA** *United States*: Ballif-Spanvill et al. 2003* (among children not exposed to domestic violence)		**EUROPE** *Sweden*: Klinteberg et al. 1987:92 (young)	
More among females		**NORTH AMERICA** *United States*: M Miller et al. 1986; MH Goodwin 1988; Ballif-Spanvill et al. 2003* (among children exposed to domestic violence); Holmes-Lonergan 2003		**NORTH AMERICA** *United States*: Reinisch & Sanders 1986 (undergrad); Gladue 1991a (undergrad); Gladue 1991b (undergrad)	

17.1.4.6 Using Competitive Strategies When Mediating Conflict

When attempting to mediate conflict between people or groups, researchers have sometimes compared the methods used by men and women. As shown in Table 17.1.4.6, most studies have found that males are more likely to encourage competitive strategies as opposed to compromising strategies, although some studies also reported no significant sex difference in this regard.

17.1.4.7 Influencing the Behavior of Others

In a few studies, researchers have sought to determine if there is a sex difference in the tendency to influence others. As one can see in Table 17.1.4.7, all of these studies have indicated that males are more likely to have an influence on the actions of others, whether the individuals are of the same or the opposite sex, than were females.

Table 17.1.4.6 Using competitive strategies when mediating conflict

Nature of difference	*Post-pubertal*	
	Adult	
More among males	**NORTH AMERICA** *United States*: LA Baxter & Shepherd 1978; Zammuto et al. 1979 (interpersonal conflict); DC Bell et al. 1982 (marital conflict); Putnam & Wilson 1982 (organizational conflict); Rahim 1983 (interpersonal conflict); Yelsma & Brown 1985 (interpersonal conflict); Ting-Toomey 1986 (inter-racial conflict); Rossi & Todd-Mancillas 1987 (interpersonal conflict)	
Not significant	**NORTH AMERICA** *United States*: Kilmann & Thomas 1977; Renwick 1977 (interpersonal conflict); Sternberg & Soriano 1984 (interpersonal conflict); Temkin & Cummings 1986 (organizational conflict); Chusmir & Mills 1989 (interpersonal conflict); BM Gayle 1991 (work setting)	
More among females		

Table 17.1.4.7 Influencing the behavior of others

Nature of difference	*Pre-pubertal*	*Post-pubertal*	
	Child	*Adult*	
More among males	**NORTH AMERICA** *Canada*: Abramovitch & Grusec 1978 (ages 4-11, being imitated during free-play); Serbin et al. 1984 (school age)	**NORTH AMERICA** *United States*: Pugh & Wahrman 1983 (in mixed sex groups); DA Ward et al. 1985 (in mixed sex groups); DG Wagner et al. 1986 (in mixed sex groups); Propp 1995 (in mixed sex groups); Carli 2001 (social influence)	
Not significant			
More among females			

17.1.4.8 Influencing the Topics of Conversations

Which sex tends to have the greatest influence on the topics of conversation? According to a couple of studies, cited in Table 17.1.4.8, males have more of an influence than do females.

17.1.4.9 Imitating Others

Substantial research has sought to determine if there are sex differences in tendencies to imitate others. By examining Table 17.1.4.9a, one can see that the evidence is mixed. At least some of the differences may be explainable in terms of the specific nature of the behavior being imitated.

Table 17.1.4.8 Influences on the topics of conversation

Nature of difference	*Post-pubertal*	
	Adult	
More among males	**NORTH AMERICA** *United States*: Fishman 1983; Spencer & Drass 1989	
Not significant		
More among females		

Specifically, among infants and toddlers, males seem to be more likely to imitate aggressive and propulsive movements that they observe others performing, while females seem to imitate facial expressions and social gestures more.

Table 17.1.4.9a Imitating others

Nature of difference	*Pre-pubertal*		*Post-pubertal*	*Wide age range*
	Infant/toddler	*Child*	*Adult*	
More among males	**NORTH AMERICA** *United States*: Bandura, Ross & Ross 1961 (toddler, aggressive movements); JF Benenson et al. 2011: Table 1 (infant, propulsive movements)	**NORTH AMERICA** *Canada*: Abramovitch & Grusec 1978 (ages 4-11, during free-play)		
Not significant		**NORTH AMERICA** *Canada*: Grusec & Brramovitch 1982 (preschool, N = 64, imitating peers)		**OVERVIEW** *Literature Review*: Maccoby & Jacklin 1974:349
More among females	**EUROPE** *Hungary*: Nagy et al. 2007 (infant, adult facial expressions) **NORTH AMERICA** *United States*: Nagy et al. 2007 (imitating adult expressions)	**NORTH AMERICA** *United States*: R Buck 1975 (making facial expressions similar to those observed); Chipman & Hampson 2007 (preschoolers, imitating adult gestures)	**NORTH AMERICA** *United States*: Bernal & Berger 1976 (eye blinking)	**OVERVIEW** *Meta-Analysis*: ML Hoffman 1977

A couple of studies of imitative movements by males and females were located among non-humans. As shown in Table 17.1.4.9b, the findings have not been consistent.

17.1.5 Proximity and Touching

Table 17.1.4.9b Imitating others among non-humans

Nature of difference	*Pre-pubertal*		*Post-pubertal*		
		Child	*Adolescent*		
More among males			**BIRD** *Sparrow*: Baplista & Petrinovich 1986 (conspecific singing)		
Not significant					
More among females		**PRIMATE** *Chimpanzee*: Lonsdorf 2005 (imitating mother in termite-fishing activities)			

Much social interaction occurs in close proximity and even involves touching. Research findings on sex differences in these phenomena are summarized in the following tables.

17.1.5.1 Touching Others in General

Touching others has been studied under a variety of social circumstances. As shown in Table 17.1.5.1, the findings of sex differences have not been consistent, partly due to the nature of the social interactions and types of touching involved.

17.1.5.2 Same-Sex Touching

Some research on sex differences in touching has focused on the sex of the person being touched as well as the sex of the person doing the touching. As shown in Table 17.1.5.2, most of the research suggests that females engage in more same-sex touching than do males.

17.1.5.3 Opposite-Sex Touching

Several studies have sought to determine which sex touches the opposite sex the most. As shown in Table 17.1.5.3, the evidence has been mixed, although most research suggests that males do so more than do females.

Table 17.1.5.1 Touching others in general

Nature of difference	*Pre-pubertal*		*Post-Pubertal*		*Wide age range*
	Infant/toddler	*Child*	*Adolescent*	*Adult*	
More among males			**MIDDLE EAST** *Israel*: Lomranz & Shapira 1974	**NORTH AMERICA** *United States*: Riggio et al. 1981 (shaking hands with someone of the same-sex)	**NORTH AMERICA** *United States*: Henley 1973 (in public)
Not significant		**NORTH AMERICA** *United States*: Langlois et al. 1973 (during dyad play); Gottfried & Seay 1974 (indoor play)			
More among females	**NORTH AMERICA** *United States*: Clay 1968 (8-10 month-olds, mainly parents); S Goldberg & Lewis 1969 (13 month-old, mothers)			**EUROPE** *Britain*: Jourard & Rubin 1968 **NORTH AMERICA** *United States*: Henley 1977; Heslin & Boss 1980 (at an airport terminal)	**INTERNATIONAL** *Multiple Countries*: Berkowitz 1971 (in public places)

Table 17.1.5.2 Same-sex touching

Nature of difference	*Pre-pubertal*		*Post-pubertal*		*Wide age range*
	Infant/toddler	*Child*	*Adolescent*		
More among males			**NORTH AMERICA** *United States*: Willis et al. 1976 (in lunch lines)		
Not significant					
More among females	**NORTH AMERICA** *United States*: Goldberg & Lewis 1969:25 (infant, touching their mothers when engaged in play)	**NORTH AMERICA** *United States*: VS Clay 1968; Langlois et al. 1973; SJ Williams & Willis 1978			**NORTH AMERICA** *United States*: SE Jones & Yarbrough 1985 **OVERVIEW** *Literature Review*: Stier & Hall 1984

Table 17.1.5.3 Opposite-sex touching

Nature of difference			*Post-pubertal*		*Wide age range*
			Adolescent	*Adult*	
More among males			**NORTH AMERICA** *United States*: Henley 1973*; FN Willis et al. 1976 (indoor)	**NORTH AMERICA** *United States*: Berkowitz 1971; Henley 1973 (young, outdoor)	**NORTH AMERICA** *United States*: Henley 1973* (in public); FN Willis et al. 1978 (indoor); B Major et al. 1990* (in public); Guerrera & Andersen 1994 (individuals in a romantic relationship) **INTERNATIONAL** *Multiple Western Countries*: Di Biase & Gunnoe 2004
Not significant					**OVERVIEW** *Literature Review*: Stier & Hall 1984
More among females					**NORTH AMERICA** *United States*: Stier & Hall 1984 (when together in private); JA Hall & Veccia 1990; B Major et al. 1990* (in intimate settings)

17.1.5.4 Grooming Others

A few studies of sex differences in grooming others have been reported. As shown in Table 17.1.5.4a, all the available research suggests that, among humans, females engage in more grooming of others than do males.

Table 17.1.5.4a Grooming others

Nature of difference					*Wide age range*
More among males					
Not significant					
More among females					**AFRICA** *South Africa*: Sugawara 1984 (!Kung tribe); Sugawara 1990 **EUROPE** *France*: Le Roy Ladurie 1978

Sex differences in grooming behavior has been studied in several non-human species, especially primates. Such behavior is often associated with removing debris and small parasites from the skin (delousing). Grooming is nearly always among individuals who are familiar with, and friendly toward, one another. Table 17.1.5.4b shows that most of the available research indicates females engage in more grooming of others than do males.

17.1.5.5 Holding Hands

Studies of sex differences in holding hands are summarized in Table 17.1.5.5. One can see that most studies indicate that females are more likely than males to hold hands.

17.1.5.6 Physical Proximity When Interacting with Others

In a couple of studies, the sexes were compared regarding how close they positioned themselves to others while socially interacting with them. Table 17.1.5.6 shows that both studies indicated that females were usually closer to others than were males.

17.1.6 Social Relationships within the Family

Sex differences in social contacts within the family have been widely studied. The results of these studies are summarized below.

Table 17.1.5.4b Grooming others among non-humans

Nature of difference	*Pre-pubertal*		*Post-pubertal*		*Wide age range*
		Child	*Adolescent*	*Adult*	
More among males				**PRIMATE** *White-Handed Gibbon*: Palombit 1996* (groom females in heterosexual pairs)	
Not significant		**PRIMATE** *Chimpanzee*: Lonsdorf, Markham, Heintz et al. 2014:Figure 5 (self & others); **RODENT** *Rat*: DM Quadagno et al. 1972 (open field grooming bouts)	**PRIMATE** *Rhesus Macaque*: Hinde & Spencer-Booth 1967	**PRIMATE** *Siamang*: Palombit 1996* (heterosexual pairs) **RODENT** *Rat*: JA Gray et al 1965	**PRIMATE** *Lemur*: SL Meredith 2018:Table 2
More among females	**PRIMATE** *Chimpanzee*: Nishida 1988 (toddler); *Japanese Macaque*: Hinde & Spencer-Booth 1967 (toddler); Eaton, Johnson et al. 1985 (toddler)	**PRIMATE** *Gorilla*: A Meder 1990* (earlier onset, captivity); *Hanuman Langur*: Nikolei & Borries 1997; *Rhesus Macaque*: J D Mitchell 1968 (holding and grooming infants)	**PRIMATE** *Chimpanzee*: Pusey 1990; *Gorilla*: A Meder 1990* (earlier onset, captivity); *Blue Monkeys*: M Cords 2000 (field); *Bonnet Macaque*: Simonds 1974; *Japanese Macaque*: Eaton, Johnson et al. 1986 (grooming mom); Nakamichi 1989 (N = 14M + 6F); *Rhesus Macaque*: HF Harlow 1962; *Vervets*: Raleigh et al. 1979 **RODENT** *Rat*: Meaney & Stewart 1981a	**PRIMATE** *Assamese Macaque*: MA Cooper & Bernstein 2000 (captivity) **UNGULATE** *Impala*: MS Mooring & Hart 1995 (breeding season, field)	**PRIMATE** *Baboon*: Rowell 1972:43; *Nigra Macaques*: Hadidian 1979; *Rhesus Macaque*: Drickamer 1976 (mainly same-sex); Nieuwenhuijsen et al. 1988:362

Table 17.1.5.5 Holding hands

Nature of difference	*Pre-pubertal*		*Post-pubertal*		*Wide age range*
		Child		*Adult*	
More among males					
Not significant				**NORTH AMERICA** *United States*: Greenbaum & Rosenfeld 1980	
More among females		**EUROPE** *France*: Granié 2007 (with adults, in road crossings) **NORTH AMERICA** *United States*: Willis & Hofmann 1975 (hand-to-hand contact); Zeedyk & Kelly 2003 (with adults, in road crossings)			**LATIN/CARIBBEAN AMERICA** *Multiple Latin American Countries*: Shuter 1976 (same-sex)

Table 17.1.5.6 Physical proximity when interacting with others

Nature of difference	*Pre-pubertal*		*Post-pubertal*	
	Infant/toddler			*Adult*
More among males				
Not significant				
More among females	**NORTH AMERICA** *United States*: KA Buss et al. 2008 (to mothers, when frightened)			**NORTH AMERICA** *United States*: JC Baxter 1970

17.1.6.1 Effort to Maintain Loving Relationship between Spouses

Which sex does more to maintain a sociosexual relationship? According to the studies cited in Table 17.1.6.1, women do more on average than do men.

17.1.6.2 Withdrawal from Marital Conflict

As shown in Table 17.1.6.2, studies of couples who experience marital conflicts have concluded that husbands are more likely to withdraw from these conflicts, or to do so earlier, than are wives. Perhaps there is something to the old adage: Happy wife, happy life.

Table 17.1.6.1 Effort to maintain loving relationship between spouses

Nature of difference	*Post-pubertal*
	Adult
More among males	
Not significant	
More among females	**NORTH AMERICA** *United States*: Acitelli 1992 (42 married couples); Kirkpatrick & Davis 1994 (354 couples in serious relationships)

Table 17.1.6.2 Withdrawal from marital conflict

Nature of difference	*Post-pubertal*
	Adult
More among males	**NORTH AMERICA** *United States*: A Christiansen 1987; A Christensen & Shenk 1991; Heavey et al. 1993; Heavey et al. 1995
Not significant	
More among females	

17.1.6.3 Focusing on a Specific Issue During Marital Conflict

One study sought to determine which sex was most likely to limit marital conflicts to a specific issue (as opposed to bringing in additional matters). One can see in Table 17.1.6.3 that the study indicated that males were more likely than females to limit the conflict to a single issue.

Table 17.1.6.3 Focusing on a specific issue during marital conflict

Nature of difference	*Post-pubertal*
	Adult
More among males	**NORTH AMERICA** *United States*: FLJ Ball et al. 1995 (among married couples)
Not significant	
More among females	

17.1.6.4 Negative Reactions to Parental Breakup

When children are involved, a parental breakup, usually in the form of divorce, can be traumatic to the children. A few studies have sought to determine if one sex is more adversely affected by the breakup of their parents (or to being raised by only one parent). As shown in Table 17.1.6.4, all studies suggest that boys exhibit more negative outcomes on average than do girls.

Table 17.1.6.4 Negative reactions to parental breakup

Nature of difference	*Pre-pubertal*		*Post-pubertal*		*Wide age range*
		Child	*Adolescent*		
More among males		**NORTH AMERICA** *United States*: EM Hetherington et al. 1985; DR Morrison & Cherlin 1995	**ASIA** *Singapore*: Ang & Ooi 2004 (suicide ideation) **NORTH AMERICA** *United States*: JL Peterson & Zill 1986 (exhibiting externalizing behavior & depression)		**OVERVIEW** *Literature Review*: Seltzer 1994
Not significant					
More among females					

17.1.6.5 Social Relationship between Sex of Parents and Offspring

A few studies were located having to do with how closely parents and offspring felt to one another (often referred to as family bonds). Table 17.1.6.5 shows that when statistically significant, these relationships appear to be stronger in the case of female offspring than for male offspring.

Table 17.1.6.5 Social relationships between sex of parents and offspring

Nature of difference	*Pre-pubertal*		*Post-pubertal*		
	Infant/toddler offspring		*Adolescent offspring*		
Stronger among father & offspring					
Not significant			**INTERNATIONAL** *Multiple Countries*: Steketee, Junger & Junger-Tax 2013:Table 1		
Stronger among mother & offspring	**NORTH AMERICA** *United States*: Gunnar & Donahue 1980 (initiation of contact)		**EUROPE** *Czechoslovakia*: Jurovsky 1948 **NORTH AMERICA** *United States*: Steinberg 1987; Starrels 1994:156 (both sexes of offspring)		

17.1.6.6 Parental Time Spent Conversing with Offspring

A few studies have been undertaken to assess the time spent by parents conversing with sons as opposed to daughters. Table 17.1.6.6 shows that mothers appear to converse more with their daughters than with their sons.

Table 17.1.6.6 Parental time spent conversing with offspring

Nature of difference	*Pre-pubertal*		*Post-pubertal*		
	Infant/toddler	*Child*	*Adolescent*		
More among males					
Not significant					
More among females	**EUROPE** *Britain*: J Dunn et al. 1987 (mothers talk to their female toddlers) **NORTH AMERICA** *United States*: Cervantes & Callanan 1998 (mother talks to toddler daughter)	**NORTH AMERICA** *United States*: JR Brown et al. 1996 (mother talks to child daughter)	**ASIA** *Singapore*: Yeo et al. 2007		

17.1.6.7 Parent-Child Conflicts

Research concerning sex differences in parent-child conflict is presented in Table 17.1.6.7. One can see that all of these studies have concluded that conflict between parents and their children are greater in the case of female offspring than male offspring.

Table 17.1.6.7 Parent-child conflicts

Nature of difference			*Post-pubertal*		
			Adolescent		
More among males					
Not significant					
More among females			**EUROPE** *Germany*: Seiffge-Krenke 1999 (offspring-mothers) **NORTH AMERICA** Canada: Briere, Archambault & Janosz 2013 (self-reported conflict & poorer communication, N = 3,862); *United States*: JP Hill & Holmbeck 1987 (offspring-mothers); Papini & Sebby 1988 (offspring-mothers); WA Collins 1990 (offspring-mothers); KT Brady et al. 1993 (substance abusers, family); LS Brown et al. 1993 (heroin addicts, family); RD Weiss et al. 1997 (cocaine addicts, family); Chatham et al. 1999 (by heroin addicts, family); Liu 2004 (offspring-parents)		

17.1.6.8 Family Decision Making

A few studies have sought to determine whether males or females exercise greater control over family decision making. As shown in Table 17.1.6.8, on average, in all countries sampled, males appear to be more likely than females to exercise control over the process of making crucial decisions about family matters.

Table 17.1.6.8 Family decision making

Nature of difference				*Post-pubertal*	
				Adult	
More among males				**ASIA** *China*: Stacey 1983; Lin 1988 **LATIN/CARIBBEAN AMERICA** *Mexico*: Oliveira 1998 **MIDDLE EAST** *Iran*: Azari 1983; Fathi 1985 **NORTH AMERICA** *United States*: O Brim et al. 1963; Stuchert 1963; Durand et al. 2001 (Mexican Americans) **INTERNATIONAL** *Multiple Islamic Countries*: Kazemi 2000	
Not significant					
More among females					

17.1.6.9 Relocating with One's Spouse to a New Job

One study compared married couples in terms of whether or not they would relocate to a new city if their spouse was offered a new job. As shown in Table 17.1.6.9, the study indicated that wives would be more likely to move than would the husband.

Table 17.1.6.9 Relocating with one's spouse to a new job

Nature of difference					*Wide age range*
More among males					
Not significant					
More among females					**NORTH AMERICA** *United States*: Smits et al. 2003

17.1.6.10 Caring for One's Own Offspring (Parenting Behavior)

Table 17.1.6.10a provides a summary of sex differences in parenting behavior. One can see in this table that the relevant research literature is voluminous, and that it is all consistent in indicating that females provide more care to their offspring than is the case for males.

Table 17.1.6.10a Caring for one's own offspring (parenting behavior)

Nature of difference				*Post-pubertal*	
				Adult	
More among males					
Not significant					
More among females				**AFRICA** *Central African Republic*: Hewlett 1988:268 (Aka tribe); Hewlett 1992 (Aka Pygmies of Africa); *Kenya*: Harkness & Super 1992*; *Nigeria*: Robson 2004:203; *South Africa*: MM West & Konner 1976 (!Kung tribe); Katz & Konner 1976 (!Kung tribe) **ASIA** *China*: Ho 1986 **EUROPE** *Belgium*: Van Ranst et al. 1995 (grandchildren); *Britain*: Gershuny & Robinson 1988:548; Gervai et al. 1995* (married couples); O Sullivan 2000; *Germany*: Parke & Buriel 1998; Poshos 2000* (grandchildren); *Greece*: Pashos 2000* (grandchildren); *Hungary*: Gervai et al. 1995* (married couples); *Portugal*: Poeschl 2008:76; *Sweden*: Haas 1982; Lamb et al. 1982; Lamb et al. 1983; Sundström & Duvander 2002 (taking parental leave); Krantz & Lundberg 2006:241 (13.9 hours/week for males vs. 19.1 hours/week for females, among fulltime workers, N = 596M + 743F); *Multiple European Countries*: Haas 2003; O Sullivan, Billari & Altintas 2014 **NORTH AMERICA** *Canada*: MS Smith 1988 (grandchildren); Blain 1993; Laflamme et al. 2002 (infants, among duel-earning married couples); *United States*: RD Parke 1967; Fagot 1974:557 (of toddlers); RA Lester 1974:36; PW Berman 1976; JR Robinson et al. 1977; SS Feldman & Nash 1979; E Hoffman 1979 (grandchildren); Hochschild 1989 (dual-earner families); Elrod & Crase 1980; Furstenberg & Nord 1985; La Rossa & La Rossa 1981; Hartshorne & Manaster 1982 (grandchildren); Huber & Spitzer 1983 (dual-earning married couples); Belsky et al. 1984; P Moen 1985; Pleck 1985 (among dual-earning married couples); Genevie & Margolies 1987:21; Bronstein 1988; Hochschild & Machung 1989 (when both parents are employed full-time); L Thompson & Walker 1989; Furstenberg 1990; Rustia & Abbott 1990 (infants); LLE Anderson & Branson 1991; Biernat & Wortman 1991 (when both parents are employed full-time); SL Blair & Lichter 1991 (among married couples); Juster & Stafford 1991:Table 4; LA Leslie et al. 1991; CP Cowan & Cowan 1992; Harkness & Super 1992*; RR Peterson & Gerson 1992 (dual-earning couples); Blain 1993 (to their own children); Demo & Acock 1993; Tiedje & Darling-Fisher 1993 (infants); Brines 1994; Gerstel & Gallagher 1994 (among married couples); Lundberg et al. 1994 (married couples, both employed); Perry-Jenkins & Folk 1994 (dual-earner families); Austin et al. 1995 (undergrad, not necessarily one's own children); GL Fox 1995; Wille 1995 (infants); Amato & Booth 1996; S Coltrane 1996; Munch et al. 1997 (to their own children); Pleck 1997 (interacting with their infants); Wilkie et al. 1998 (dual-earner families); Pittman et al. 1999; Salmon 1999 (grandchildren); Bianchi 2000 (among married couples); SM Bianchi et al. 2000; Cowan & Cowan 2000; Yeung et al. 2001 (among married couples); Federal Interagency Forum on Child & Family Statistics 2003 (single-parent households); J Fields 2003 (two-parent households); Keene & Quadagno 2004; Pleck & Macciadrelli 2004 (among	

(*Continued*)

Table 17.1.6.10a (Continued)

Nature of difference			*Post-pubertal*		
				Adult	
				married couples); Maume 2006 (among duel earning married couples); Farr & Patterson 2013; S Jolly, Griffiths et al. 2014:Figures 1 & 2 (N = 1,949, among duel-earner couples) **OCEANIA** *Australia*: Bittman 1992; J Baxter 1993; L Craig 2006:270 (N = 1,450 + 1,476) **INTERNATIONAL** *Multiple Countries*: Oakes & Almquist 1993:71; Parke 1995; *Multiple Pre-Industrial Cultures*: Coon 1972 (caring for infants); Whiting & Edwards 1973; Crano & Aronoff 1978; Whiting & Edwards 1988; Belsky et al. 1989; Eibl-Eibesfeldt 1989 **OVERVIEW** *Generalization*: Kalleberg & Rosenfeld 1990; *Literature Review*: Serban 1976:283; AS Rossi 1977; JH Block 1983:1340; Ember & Ember 1985:289; Geary 1998:103; Lamb 2000; Parke 2002	

Substantial research has been conducted to assess sex differences in parenting behavior among a wide variety of non-human species. As shown in Table 17.1.6.10b, the evidence is inconsistent regarding which sex is more parentally inclined. About the only broad generalization that seems possible is that among birds, all the research indicates that males provide more parental care than do females.

Table 17.1.6.10b Caring for one's own offspring (parenting behavior) by non-humans

Nature of difference	*Post-pubertal*		
		Adult	
More among males		**BIRD** *Black Coucal*: Goymann et al. 2004b; *Coucal*: Andersson 1995; Ligon 1997; *Moorhen*: Petrie 1983 (nest brooding); *Jacana*: Jenni 1974; Jenni & Betts 1978 (incubating eggs); Butchart 2000; *Spotted Sandpiper*: Oring & Lank 1986; Oring et al. 1991 **CANINE** *Wolf*: Yogman 1990 (except for breast feeding) **FISH** *Cardinal Fish*: Kuwamura 1985 (mouth-brooding) **PRIMATE** *Tite Monkey*: Mendoza & Mason 1986 (except for breast feeding)	
Not significant		**PRIMATE** *Vervet Monkey*: LA Fairbanks 1996	
More among females		**FISH** *Salmon*: AJ Hanson & Smith 1967; Tautz & Groot 1975; Schroder 1981; Quinn & Foote 1994; Quinn et al. 1996 **INSECT** *Beetle*: Fetherston et al. 1990: Rauter & Moore 2004:700; Smiseth & Moore 2004 **PRIMATE** *Bonobo*: Kano 1992; *Rhesus Macaque*: Chamove et al. 1967; Gibber & Goy 1985; *Squirrel Monkey*: JD Baldwin 1969; JD Baldwin & Baldwin 1974; *Vervet Monkey*: Lancaster 1971; *Great Apes in General*: McGrew et al. 1996 **RODENT** *Meadow Vole*: McGuire & Novak 1984; Oliveras & Novak 1986; *Prairie Vole*: Solomon 1993; Lonstein & DeVries 1999 **OVERVIEW** *Generalization*: M Daly & Wilson 1978:140 (mammals); Goy & McEwen 1980:58 (mammals); Jaros & White 1983:132 (mammals)	

An interesting experiment involved parenting by beetles. The study indicated that both sexes cooperatively provided care to their grubs, but that significant differences emerged when either sex was removed by researchers. In this case, both sexes at least partially compensated for their partner's removal, although the male did so somewhat less so than did the female (Rauter & Moore 2004).

Given that greater offspring care by mothers than by fathers appears to be universal for humans (as documented in the preceding table), it is interesting to note that, despite assertions to the contrary from prior literature reviews, there do appear to be exceptions among mammals, even including non-human primates.

17.1.6.11 Parental Responsiveness

Parental responsiveness overlaps with the concept of parenting (or parenting-like) behavior. The main distinction is that parental responsiveness is usually shorter term, focused on caring for infants, and a response to infants signaling some form of distress. As shown in Table 17.1.6.11a, the studies relevant to parental responsiveness indicate that females are more so than males.

Table 17.1.6.11a Parental responsiveness

Nature of difference	*Pre-pubertal*		*Post-pubertal*		
		Child		*Adult*	
More among males					
Not significant					
More among females		**NORTH AMERICA** *United States*: PW Berman 1991		**NORTH AMERICA** *United States*: JH Pleck 1983	

Research findings on parental responsiveness among non-humans are more numerous than for humans. As shown in Table 17.1.6.11b, the findings are mixed between those indicating there are no significant sex differences and those indicating that females are more responsive than males. Some of the experiments are conducted among virgins, as opposed to sexually experienced animals.

Other experiments have manipulated exposure to testosterone, which is known to be higher in nearly all males compared to females (see Chapter 3). These studies have indicated that, at least among males, removing exposure to testosterone by castrating them soon after birth seems to increase their parental responsiveness as adults (Rosenblatt 1967; McCullough, Quadagno & Goldman 1974; Rosenberg & Herrenkohl 1976; RE Brown 1986).

Table 17.1.6.11b Parental responsiveness among non-humans

Nature of difference	*Pre-pubertal*		*Post-pubertal*		
		Child	*Adolescent*	*Adult*	
More among males			**RODENT** *Rat*: AD Mayer & Rosenblatt 1979; P Gray & Chesley 1984; Brunelli et al. 1987; CH Kinsley & Bridges 1988* (among sexually experienced animals); JM Stern & Rogers 1988; CH Kinsley, Wellman et al. 1983; Wellman, Carr et al. 1997	**PRIMATE** *Rhesus Macaque*: Tomaszycki, Davis et al. 2001 (moms responses to infant distress vocalizations) **RODENT** *Rat*: RS Bridges, Zarrow et al. 1974	
Not significant			**RODENT** *Mouse*: MM McCarthy & von Saal 1985	**RODENT** *Mouse*: MM McCarthy 1990; *Rat*: RS Bridges, Zarrow & Denenberg, 1973; Quadagno, DeBold et al. 1974; JM Stern 1989	
More among females		**PRIMATE** *Rhesus Macaque*: Lovejoy & Wallen 1988	**RODENT** *Rat*: Quadagno & Rockwell 1972 (among virgins, shorter latency to respond); AD Mayer & Freeman 1979 (among virgins, shorter latency to respond); S Fleischer, Kordower et al. 1981 (among virgins, shorter latency to respond); MH Samels & Bridges 1983; CH Kinsley & Bridges 1988* (among virgins, shorter latency to respond)	**RODENT** *Rat*: JS Rosenblatt 1967; Quadagno & Rockwell 1972; Mayer & Rosenthal 1979; Samuels & Bridges 1983	

17.1.6.12 Providing Nurturing Behavior to Youngsters by Non-parents

As noted above, caring for one's own infants (offspring) tends to be much more common among females than among males. What about caring for younger siblings or even infants who are not close relatives? Based mainly on responses to questionnaires about frequency of providing care to infants, particularly being a babysitter, Table 17.1.6.12a shows that findings have been somewhat mixed, although the majority of studies have indicated that females are more likely to exhibit such behavior than males.

The phenomenon of *alloparenting* (also called "helpers at the nest") has been observed in several non-human species. It was first described in birds, although it has since been found in many mammalian species as well (Holden & Mace 1999:41). The main feature of alloparenting in non-humans is that adolescents or adults spend time feeding, comforting, or otherwise tending to the needs of an infant (who are often siblings) much as a parent would do.

Table 17.1.6.12a Providing nurturing behavior to youngsters by non-parents

Nature of difference	*Pre-pubertal*		*Post-pubertal*		
		Child	*Adolescent*	*Adult*	
More among males				**NORTH AMERICA** *United States*: Sternglanzet al. 1977* (young)	
Not significant		**NORTH AMERICA** *United States*: Feldman et al. 1977; Frodi & Lamb 1978; Berman et al. 1979	**NORTH AMERICA** *United States*: Frodi & Lamb 1978	**OCEANIA** *Australia*: Murray 1978* (young) **NORTH AMERICA** *United States*: Parke et al. 1972; Bem et al. 1976* (undergrad); Meehan & Gottfried 1976; Feldman & Nash 1978* (young); Feldman & Nash 1979a* (undergrad)	
More among females		**ASIA** *Japan*: Whiting & Whiting 1975* **AFRICA** *Kenya*: Whiting & Whiting 1975; Konner 1975* (!Kung tribe) **LATIN/CARIBBEAN AMERICA** *Mexico*: Whiting & Whiting 1975* **NORTH AMERICA** *United States*: Whiting & Whiting 1975*; Fullard & Reiling 1976; PW Berman et al. 1977; Berman et al. 1978; Frodi & Lamb 1978; Lamb 1978a; Lamb 1978b; Melson & Fogel 1982; PW Berman et al. 1983*; RB Stewart 1983; PW Berman & Goodman 1984; Trotman Reid et al. 1989; Blakemore 1990; Blakemore 1998; Leveroni & Berenbaum 1998 **OCEANIA** *Philippines*: Whiting & Whiting 1975*	**NORTH AMERICA** *United States*: Fullard & Reiling 1976; Feldman et al. 1977; Berman et al. 1978; Frodi & Lamb 1978; Feldman & Nash 1979a; Blakemore 1981*; PW Berman et al. 1983*; Blakemore 1990; Blakemore 1991; Cardenas, Harris & Becker 2013 (research participants had no children of their own)	**NORTH AMERICA** *United States*: Cann 1953* (young); Beier et al. 1957* (young); Hess & Polt 1960; Parke et al. 1972; Seavyet al. 1975; Berman 1976* (undergrad); Fullard & Reiling 1976; Meeham & Gottfried 1976; Frisch 1977*; Rheingold & Joseph 1977* (undergrad); Feldman & Nash 1978* (young); Frodi et al. 1978; Hildebrandt & Fitzgerald 1978* (young); Zeskind & Lester 1978* (young); Feldman & Nash 1979b* (elderly); Blakemore 1981*; Blakemore 1998; Blakemore 1990; Maestripieri & Pelka 2002 (childhood through adulthood) **OCEANIA** *Australia*: Murray 1978	

Quite a few of the studies of alloparenting have been experimental, especially among rats, typically prior to the potential alloparent ever having mated (i.e., when still virgin). In these experimental studies, an adolescent or adult of each sex is left alone with a litter of infants for an hour or two to assess the extent to which they exhibit parenting-like behavior. Obviously, these experiments rarely reflect circumstances in the wild.

Table 17.1.6.12b shows that the findings are mixed. In natural conditions, most studies of most species indicate that females exhibit more nurturing behavior toward infants that are not their own than do males. However, under experimental conditions, when a single individual of either sex has the opportunity to care for infants, there are often no sex differences or males actually do so more than females.

17.1.6.13 Spending Time with Infants or Toddlers (Excluding Parents)

In the case of non-humans, especially non-human primates, many studies have sought to determine if there are sex differences in the amount of time spent with infants or toddlers, other than by parents. These interactions include individuals taking active roles in attempting to retrieve, cuddle, protecting, and sometimes entertaining infants and toddlers. As one can see by examining Table 17.1.5.13, most of the available research indicate that females exhibit greater tendencies to do so than do males.

17.1.6.14 Providing Transport to Infants

Some studies have watched to see which sex provides transport for infants among a few species of primates. Table 17.1.6.14 reveals that males are more involved in this type of behavior than females. It is worth noting that most of the primate species shown are generally monogamous.

17.1.6.15 Caring for Family Members Other Than Offspring

Numerous studies have investigated sex differences in the providing social, health, and emotional support to their elderly parents. In Table 17.1.6.15, one can see that the vast majority of studies have concluded that more females (daughters) than males (sons) do so. The only exceptions involve people living in China and Taiwan, but even in these societies, the evidence is inconsistent.

17.1.6.16 Providing Financial Support to Family Members

A few studies have investigated sex differences in the tendency to provide financial support to family members, most of which involve offspring helping to support their elderly parents. Table 17.1.6.16 shows that these

Table 17.1.6.12b Providing nurturing behavior to infants by non-parents (alloparenting) among non-humans

Nature of difference	*Pre-pubertal*		*Post-pubertal*		*Wide age range*
		Child	*Adolescent*	*Adult*	
More among males			**BIRD** *Multiple Bird Species*: PB Stacey & Koenig 1990 **RODENT** *Prairie Vole*: Wang, Ferris & DeVries 1994, (among virgins, grooming, crouching, retrieving); Lonstein & DeVries 2000 (among virgins); *Rat*: P Gray & Chesley 1984; Moretto et al. 1986	**PRIMATE** *Pygmy Marmoset*: Wamboldt et al. 1988* (after first 3 weeks of an infant's life) **RODENT** *Golden Hamster*: Marques & Valenstein 1976; LJ Swanson & Campbell 1979; Miceli & Malsbury 1982; *Prairie Vole*: Bamshad et al. 1994 (among virgins); RL Roberts, Miller et al. 1998 (among virgins, alloparenting); Lonstein & DeVries 1999 (among virgins)	**BIRD** *Woodpecker*: Lennortz et al. 1987; JR Walters 1990
Not significant		**PRIMATE** *Barbary Macaque*: FD Burton 1972	**RODENT** *Rat*: DE Ganzalez & Deis 1990* (maternal behavior in response to pups 3-4 months of age under experimental conditions)	**RODENT** *Dzungarian Hamster*: Wynne-Edwards 1987; JS Jones & Wynne-Edwards 2001; *Siberian Hamsters*: Wynne-Edwards & Lisk 1989; *Rat*: Brunelli et al. 1985	
More among females		**PRIMATE** *Rhesus Macaque*: Chamove et al. 1967; JD Mitchell 1968 (holding and grooming infants) **PRIMATE** *Olive Baboon*: NW Owens 1975a; *Rhesus Macaque*: Chamove et al. 1972; Hassett et al. 2009 (experiment with stuffed dolls); *Vervet Monkey*: Gartlan 1968; Lancaster 1971; Alexander & Hines 2002 (experiment with stuffed dolls)	**RODENT** *Meerkat*: Clutton-Brock et al. 2002; *Siberian Hamsters*: Gibber & Terkel 1985 **OVERVIEW** *Literature Review*: Maestripieri 1994 (multiple primate species)	**PRIMATE** *Baboon*: Ehrhardt 1973; *Langur*: Gartlan & Brain 1968; *Pygmy Marmoset*: Wamboldt et al. 1988* (during first 3 weeks of an infant's life); *Rhesus Macaque*: Gebber & Goy 1985 **PROBOSID** *African Elephant*: PC Lee 1987; *Asian Elephant*: Rapaport & Haight 1987 **RODENT** *Mouse*: Noirot 1964 (virgins, toward infants); Noirot 1965 (virgins, toward infants); Svare & Mann 1981; *Rat*: JB Calhoun 1963; Mayer & Rosenblatt 1979; Samuels & Bridges 1983; DE Ganzalez & Deis 1990* (old rat in response to pups 20 months of age); *Siberian Hamsters*: Gibber et al. 1984 **OVERVIEW** *Literature Review*: Nicolson 1987 (multiple primates) Pryce 1992 (multiple mammalian species); Pryce 1995 (multiple primate species)	**PRIMATE** *Spider Monkey*: LM Fedigan & Baxter 1984:Table 1 **OVERVIEW** *Literature Review*: Lonstein et al. 2000 (various species of rodents)

Table 17.1.5.13 Spending time with infants and toddlers (excluding parents) among non-humans

Nature of difference	*Pre-pubertal*		*Post-pubertal*		*Wide age range*
	Infant/toddler	*Child*	*Adolescent*	*Adult*	
More among males		**PRIMATE** *Barbary Macaque*: FD Burton 1972 (field study)		**PRIMATE** *Long-Tailed Macaque*: JC Fady 1969	
Not significant				**PRIMATE** *Talapoin Monkey*: J Wolfheim 1978 (captivity)	
More among females	**PRIMATE** *Baboon*: Rowell et al. 1968 (toddler); *Rhesus Macaque*: Breuggeman 1964 (toddler); Lovejoy & Wallen 1988 (toddler); *Stump-tailed Macaque*: Estrada 1978 (toddler)	**FELINE** *Lion*: G Schaller 1972 (field) **PRIMATE** *Rhesus Macaque*: Chamove et al. 1967 (captivity); Lovejoy & Wallen 1988; *Squirrel Monkeys*: JD Baldwin 1969 (captive); *Vervet Monkey*: JB Lancaster 1971 (field); MJ Raleigh et al. 1979 (captivity)	**PRIMATE** *Baboons*: Bolwig 1959; Jay 1965; Seyfarth 1976 (other than one's own infants); DL Cheney 1978 (other than one's own infants); *Barbary Apes*: FD Burton 1972; *Chimpanzee*: Mellen 1981:35; *Gorilla*: Meder 1990 (captivity); *Pigtail Macaques*: Zehr 1998; *Rhesus Macaque*: Hinde et al. 1964 (not own infants); Spencer-Booth 1968* (not own infants); RA Herman, Measday & Wallen 2003	**PRIMATE** *Langurs*: Jay 1963	**PRIMATE** *Rhesus Macaque*: Spencer-Booth 1968*

Table 17.1.6.14 Providing transport to infants among non-humans

Nature of difference					*Wide age range*
More among males					**PRIMATE** *Titi Monkey*: Mason 1986; Meritt 1980; Fragaszyet al. 1982; PC Wright 1984; Mendoza & Mason 1986; *Owl Monkey*: AF Dixon 1983; *Tamarin Monkey*: Epple & Katz 1983
Not significant					
More among females					

Table 17.1.6.15 Caring for family members other than offspring

Nature of difference			*Post-pubertal*		
				Adult	
More among males				**ASIA** *Taiwan*: IF Lin et al. 2003:790 N = 12,166 adult offspring, caring for aging parents)	
Not significant				**ASIA** *China*: L Lei 2013 (caring for aging parents in urban areas)	
More among females				**AFRICA** *Botswana*: B Ingstadt et al. 1992 (caring for aging parents); S Shaibu 2000:15 (N = 24 caregivers, caring for aging parents); *South Africa*: Hewlett 1992 (Aka Pygmies); EJ Schatz 2007:152 (N = 11,665 households, caring for aging parents) **ASIA** *China*: RS Cooney & J Di 1999 (daughters give more assistance to aging parents); ACY Ng, Phillips & Le 2002 (Hong Kong, emotional and social support to aging parents); R Sun 2002 (daughters give more social assistance to aging parents); MK Whyte 2003 (caring for aging parents); HJ Zhan 2004 (N = 110 caregivers, daughters give more social assistance to aging parents); H-K Kwok 2006 (Hong Kong, caring for aging parents); Y Xie & Zhu 2009 (urban areas, N = 1,801, caring for aging parents); Z Cong & Silverstein 2012:442 (N = 4,791 child-parent dyads, caring for aging parents); Z Yi et al. 2016:Figure 1 (N = 7,430, caring for aged parents); *South Korea*: Y-R Lee & Sung 1997* (caring for aging parents); DI Levande, Herrick & Sung 2000* (caring for aging parents) **EUROPE** *Britain*: U Henz 2009:381 (N = 2,214 couples, caring for aging parents); *Germany*: B Schwarz et al. 2010:238 (caring for aging parents); *Netherlands*: MI van Groenou & CP Knipscheer 1999 (N = 356, emotional support for aging parents); *Multiple European Countries*: M Iacovou 2000:18 (13 countries, caring for aging parents); K Haberkern, Schmid & Szydik 2015 (caring for aging parents) **LATIN/CARIBBEAN AMERICA** *Mexico*: LM Gutiérrez Robledo, Ortega & Lopera 2012 (Mexico, adults, caring for aging parents); Trujillo, Mroz et al. 2012:Table 6 (N = 6,811 elderly parents, caring for aging parents) **MIDDLE EAST** *Israel*: R Khalaila & Litwin 2012 (Arab-Israelis, caring for aging parents)	

(*Continued*)

Table 17.1.6.15 (Continued)

Nature of difference			*Post-pubertal*		
				Adult	
				NORTH AMERICA *United States*: EM Brody 1981:471 (caring for aging parents); AM Lang & Brody 1983:193 (caring for aging parents); MJ Cantor 1983:598 (N = 40 care givers, caring for aging parents); EP Stoller 1983:851 (N = 502, caring for aging parents); EP Stoller & Earl 1983 (N = 753 elderly parents, caring for aging parents); DA Jones & Vetter 1984 (N = 256 elderly parents, caring for aging parents); A Horowitz 1985 (caring for elderly parents, N = 131); Fitting et al. 1986 (caring for elderly); Montemayor 1986 (caregiver of family); Finley 1989 (caring for ill parents); Montgomery & Kamo 1989 (caring for ill elderly); Verbrugge 1989b:287 (ill family members); RT Coward & Dwyer 1990 (N = 3,742 adult offspring, caring for aging parents; G Spitze & Logan 1990:420 (caring for elderly parents); M Baum & Page 1991 (N = 25 four-generational families, caring for aging parents); CF Chang & White-Means 1991 (caring for aging parents); JW Dwyer & Coward 1991 (4,371 caring for elderly parents); J Aronson 1992 (caring for aging parents); Dwyer & Coward 1992 (caring for ill elderly relatives); MP Lawson et al. 1992 (for demented family members); GR Lee, Dwyer & Coward 1993 (N = 13,172 adult children with parents, caring for aging parents); DM Merrill 1993 N = (658 elderly parents, caring for aging parents); Himes 1994 (caring for aging parents); AC Mui 1995:88 (N = 818 care givers for aging parents); M Silverstein, Parrott & Bengtson 1995 (N = 690 parent-child dyads, caring for aging parents); Larson & Richards 1994 (caregiver of family relatives); Kramer & Kipnis 1995 (caring for ill elderly relatives); J Globerman 1996 (caring for aging parents); S Sorenson & Zarit 1996 (N = 690 parent-child dyads, caring for aging parents); Y-R Lee & K-T Sung 1997* (caring for aging parents); MB Neal, Ingersoll-Dayton & Starrels 1997:808 (999M vs. 1,375F caregivers, caring for ill parents); DA Wolf, Freedman & Soldo 1997:107 (in 973 families, caring for aging parents); JC Barker, Morrows & Mitteness 1998 (N = 45 elderly African-Americans, caring for aging parents); SH Zarit et al. 1998:S271 (N = 194 caregivers, caring for aging parents); DI Levande, Herrick & Sung 2000* (caring for aging parents); J Singleton 2000 (caring for aging parents); Yee & Schulz 2000 (for disabled family members); B Ingersoll-Dayton 2003 (caring for aging parents); N Sarkisian & Gerstel 2004:440 (N = 7,350 households, caring for aging parents); M Silverstein, Gans & FM Yang 2006:1076 (N = 488 caregivers, caring for aging parents); LD Campbell & Carroll 2007:493 (caring for aging parents); J Bookwala 2009:Table 1 (N = 716 caregivers, caring for aging parents); N Chesley & K Poppie 2009:256 (providing more emotional & social support to elderly parents, N = 2,085 adult offspring); A Bookman & Kimbrel 2011:124 (caring for aging parents); A Grigoryeva 2017 (caring for aging parents) **OCEANIA** *Australia*: Y-H Jeon & I Madjar 1998 (caring for elderly parents) **OVERVIEW** *Literature Review*: EK Abel 1990 (caring for aging parents); B Miller & L Cafasso 1992 (caring for aging parents); EP Stoller 1994 (caring for aging parents); S Raley & S Bianchi 2006:416 (caring for elderly parents)	

Table 17.1.6.16 Providing financial support to others

Nature of difference				*Post-pubertal*	
				Adult	
More among males				**ASIA** *China*: RS Cooney & J Di 1999 (sons give more financial support to aging parents); R Sun 2002 (sons give more financial support to aging parents); HJ Zhan 2004 (N = 110 caregivers, sons give more financial support to aging parents); L Lei 2013* (financial care for aging parents in rural areas)	
Not significant				**ASIA** *China*: L Lei 2013* (financial care for aging parents in urban areas) **NORTH AMERICA** *United States*: N Chesley & K Poppie 2009:256 (financial support to elderly parents, N = 2,085 adult)	
More among females					

studies have determined that males (sons) are more likely than females (daughters) to provide financial support (or provide more of such support) to their parents in old age, or that there is no sex difference in this regard. This, of course, stands in contrast to the table directly above that indicates that daughters are more likely than sons to provide social support to their elderly parents.

17.1.6.17 Providing Care to Others (Except Offspring and Relatives)

Nurturance involves the tendency to provide care for others, especially the very young or infirmed (Fogel et al. 1986:65). As shown in Table 17.1.6.17, nearly all studies have indicated that females are more prone toward nurturance than males.

17.1.6.18 Single Parenthood

A couple of studies assessed sex differences in being a single parent. As shown in Table 17.1.6.18, both studies concluded that females do so more than males.

17.1.6.19 Obtaining Primary Custody of Children after Divorce

Several studies have investigated sex differences in who is most likely to have primary custody of any children following parental divorce. Table 17.1.6.19 shows that in all studies located, females (mothers) are more often given primary custody of their children than are fathers.

Table 17.1.6.17 Providing care to others (except offspring and relatives)

Nature of difference	*Pre-pubertal*		*Post-pubertal*		*Wide age range*
		Child		*Adult*	
More among males					
Not significant		**NORTH AMERICA** *United States*: Hartup & Keller 1960			
More among females		**ASIA** *China*: Li & Wong 2016 (providing comfort to others, 6-year-olds, N = 80) **MIDDLE EAST** *Israel*: ME Spiro 1965 **NORTH AMERICA** *United States*: Schopler 1967 **INTERNATIONAL** *Multiple Societies*: Whiting & Edwards 1973		**ASIA** *Multiple Asian Countries*: Mason 1992 (care for the elderly) **EUROPE** *Britain*: S Weich et al. 2001:1061 (to disabled persons) **NORTH AMERICA** *Canada*: JC Shaver & Allan 2005 (elderly and disabled); *United States*: Lindzey & Goldberg 1953 (undergrad); Burleson 1982 (person-centered support); RB Hays & Oxley 1986 (social support); SA Stephens & Chrstianson 1986 (for the elderly); R Stone et al. 1987 (for the elderly); Dwyer & Seecomb 1991 (for the elderly); Cutrona 1996 (among married couples); Goldsmith & Dun 1997; Hale et al. 1997 (person-centered support); Navaie-Waliser et al. 2002 (for the elderly); Oxley et al. 2002; Samter 2002 (person-centered support); Basow & Rubenfeld 2003; MacGeorge et al. 2003	**NORTH AMERICA** *United States*: Spangler & Thomas 1962 **OVERVIEW** *Meta-Analysis*: Feingold 1994 (nurturance, d = .97); Jaffee & Hyde 2000 (d = .28)

Table 17.1.6.18 Single parenthood

Nature of difference				*Post-pubertal*	
				Adult	
More among males					
Not significant					
More among females				**EUROPE** *Multiple European Countries*: Schnepf 2010 **NORTH AMERICA** *United States*: Santelli et al. 2000:1584	

Table 17.1.6.19 Gaining primary custody of children after divorce

Nature of difference				*Post-pubertal*	*Wide age range*
				Adult	
More among males					
Not significant					
More among females				**NORTH AMERICA** *United States*: Elrod & Crase 1980; D Meredith 1985; PC Glick 1988; Loewen 1988; Maccoby & Mnookin 1992; Silverstien 1996; Warshak 1996; McNeely 1998	**ASIA** *India*: Choudhary 1988; Amato 1994* **EUROPE** *Britain*: Power & Matthews 1997 **NORTH AMERICA** *United States*: Santrock 1975; Derdeyn 1976; Santrock 1977; Furstenberg et al. 1983; Emery 1988; Amato 1994*; US Bureau of the Census 2001 **OVERVIEW** *Literature Review*: Furstenberg 1990

17.1.6.20 Time Spent by Offspring Close to Mother

Most studies of the time spent by offspring in close proximity to their mothers is usually based on direct observation by researchers, except for studies of adolescents (which normally rely on self-reports). As one can see in Table 17.1.6.20a, most studies agree that female offspring spend more time close to their mothers than do male offspring.

Several studies were located having to do with maintaining close proximity between parents and offspring among non-humans. Table 17.1.6.20b shows that all of these studies concluded that females do so to a greater degree than males.

Table 17.1.6.20a Time spent by offspring close to mother

Nature of difference	*Pre-pubertal*				
	Infant/toddler	*Child*			
More among males	**NORTH AMERICA** *United States*: DM Levy & Tulchin 1925 (toddler, in a novel environment)				
Not significant	**NORTH AMERICA** *United States*: HA Moss 1967:22 (infant)				
More among females	**NORTH AMERICA** *United States*: S Goldberg & Lewis 1969 (infant); M Lewis 1972 (infant); Leiderman et al. 1973 (infant); J Brooks & Lewis 1974 (toddler); Malatesta 1980 (3-6 months old, coded from videotapes); Clarke-Stewart & Hevey 1981 (infant); Lindahl & Heimann 1997 (infant) **NORTH AMERICA** *United States*: Fagot 1978:462; MR Gunnar & Donahue 1980 (with mother, 6, 9, 12 months old)	**AFRICA** *South Africa*: RL Monroe & Monroe 1971 (!Kung tribe) **NORTH AMERICA** *United States*: Draper 1976; IH Block 1976a			

Table 17.1.6.20b Time spent by offspring close to mother among non-humans

Nature of difference	*Pre-pubertal*		*Post-pubertal*		
	Infant/toddler	*Child*	*Adolescent*		
More among males					
Not significant		**PRIMATE** *Chimpanzee*: Lonsdorf et al. 2004			
More among females	**PRIMATE** *Baboon*: Rowell et al. 1968; *Pigtail Macaque*: GD Jensen et al. 1967 (infant); *Rhesus Macaque*: Missakian 1974 (toddler) **PROBOSID** *African Elephant*: PC Lee & Moss 1999:113 (except when breast feeding)	**PRIMATE** *Baboon*: Kummer 1968; *Chimpanzee*: Pusey 1978 **UNGULATE** *Caribou*: CC Gates et al. 1986; *Deer*: FE Guinness et al. 1979	**PRIMATE** *Chimpanzee*: Van Lawick-Goodall 1973; Pusey 1983 **MARSUPIAL** *Wallaby*: C Johnson 1986 **UNGULATE** *Deer*: Nieminen 1988; *Elk*: Altmann 1960		

17.1.6.21 Time Spent by Offspring Close to Father

So far, only one study was located that considered the time spent by offspring interacting with their fathers. This is no doubt due in large measure to the fact that in most species, males have relatively little contact with offspring and when adult males do have contact with youngsters, it is rarely known for certain that the offspring is in fact his. The one available study, shown in Table 17.1.6.21, revealed no significant difference in time spent with their father by sons or daughters.

Table 17.1.6.21 Time spent by offspring close to father

Nature of difference			*Post-pubertal*		
			Adolescent		
More among males					
Not significant			**NORTH AMERICA** *United States*: LS Bensley et al. 1999b		
More among females					

17.1.6.22 Maintaining Social Contact with One or Both Parents

Studies of sex differences in the maintenance of social contact between offspring and parents are summarized in Table 17.1.6.22. These data differ from the data in the preceding two tables in the sense that they simply involve maintaining social or conversational distance (sometimes including contact through electronic means). One can see that all the research indicates that females are more likely than males to maintain contact with one or both parents.

Table 17.1.6.22 Maintaining social contact with one or both parents

Nature of difference			*Post-pubertal*		
			Adolescent		
More among males					
Not significant					
More among females			**AFRICA** *South Africa*: Draper 1973 (!Kung tribe) **NORTH AMERICA** *United States*: RE Johnson & Marcos 1988; Montemayer 1983; LS Bensley et al. 1999b; Kapinus & Corman 2004:701		

17.1.7 Social Interaction Outside the Family

Sex differences in the tendencies to socially interact with others excluding family members have been assessed in numerous studies. Findings are summarized below.

17.1.7.1 Time Spent Socially Interacting in General

Table 17.1.7.1a indicates that females usually spend more time socially interacting with others outside the home than do males, although a few studies have reached the opposite conclusion. Regarding children, most of the findings in this table do not support the conclusion offered by Maccoby & Jacklin (1974:349) that "girls do not spend more time interacting with playmates."

Time spent socially interacting with other conspecifics has been assessed in a few studies of non-human species. Table 17.1.7.1b shows that, except for one study of rats, females spent more time in social interactions than did males.

17.1.7.2 Initiating Social Interactions

One study compared males and females regarding the number of times they sought to socially interact with others of the opposite sex. As shown in Table 17.1.7.2, the study indicated that males do so more.

17.1.7.3 Group Size During Social Interactions

Table 17.1.7.3a shows that, from early childhood onward, most studies have concluded that males are more likely than females to socially interact in larger groups. The few exceptions involve children for whom no significant sex differences were found.

Some studies of sex differences in average group size of social interactants have been conducted among various species of non-human primates. As one can see in Table 17.1.7.3b, all studies indicate that males socially interact in larger social groups than do females.

17.1.7.4 Social Interaction in Small Groups

As noted above, most studies indicate that males socially interact in larger social groups than do females. This conclusion is further reinforced when one examines studies of sex differences in the tendency to socially interact with just one or two other individuals. One can see in Table 17.1.7.4a that all studies have concluded that this type of social interaction is more typical of females.

A couple of studies of non-human primates – chimpanzees specifically – were located on sex differences in interacting in small groups. Table 17.1.7.4b shows that females appear to do so more than males.

17.1.7.5 Time Spent Socially Interacting in Dyadic Groups

One study is cited in Table 17.1.7.5 regarding sex differences in interacting in dyadic groups (as opposed to groups of three or more individuals). The study indicated that females interacted in dyadic groups more than did males.

Table 17.1.7.1a Time spent socially interacting in general

Nature of difference	*Pre-pubertal*		*Post-pubertal*		*Wide age range*
	Infant/toddler	*Child*	*Adolescent*	*Adult*	
More among males			**ASIA** *India*: Grover et al. 2003:17 (young) **NORTH AMERICA** *United States*: Montemayer 1983	**NORTH AMERICA** *Canada*: KA Dawson et al. 2007:39 (undergrad, self-report)	
Not significant	**NORTH AMERICA** *United States*: Lamb 1978a:1194* (infant)	**OVERVIEW** *Literature Review*: Maccoby & Jacklin 1974:349 (playing with age-mates)			
More among females	**NORTH AMERICA** *United States*: Lamb 1978a:1194* (toddler)	**MIDDLE EAST** *Israel*: Tatar & Horenczyk 1996 (closer to teachers) **NORTH AMERICA** *Canada*: Greenglass 1971 (socially dependent behavior); *United States*: Zunich 1964 (as a response to failure); Speer et al. 1969 (socially dependent behavior); Golightly et al. 1970 (socially dependent behavior); Santrock 1970 (socially dependent behavior); Kesner 2000	**NORTH AMERICA** *United States*: Winker 1949; Wong & Csikszentmihalyi 1991	**EUROPE** *Britain*: Gershuny 2000; *Netherlands*: Bensing et al. 1993 (physicians with patients) **NORTH AMERICA** *United States*: Baltes & Nesselroade 1972 (socially dependent behavior); Wheeler & Nezlek 1977 (undergrad); Belle 1987 (provide social support); Ryff 1989:1075 (self-rated); Wohlgemuth et 1991 (provide social support); Ptacek et al. 1992 (provide social support); C West 1993 (physicians with patients); JA Hall et al. 1994; Vandervoort 2000; Dumais 2002 (undergrad, cultural activities); MacGeorge et al. 2003 (undergrad, provide social support)	**EUROPE** *Netherlands*: Bensing et al. 1993 (physicians with patients) **NORTH AMERICA** *United States*: Leik 1963; Kenney & White 1966 (socially dependent behavior); JA Hall et al. 1994 (physicians with patients); J Harrison et al. 1995 (for support among cancer patients)

Table 17.1.7.1b Time spent socially interacting in general among non-humans

Nature of difference	*Pre-pubertal*		*Post-pubertal*		
	Infant/toddler		*Adolescent*	*Adult*	
More among males				**RODENT** *Rat*: Johnston & File 1991	
Not significant					
More among females	**BIRD** *Chicken*: Vallortigara & Zanforlin 1988; Vallortigara & Andrew 1989 **RODENT** *Japanese Macaque*: GG Eaton et al. 1985:243		**PRIMATE** *Chimpanzee*: Pusey 1983	**PROBOSID** *African Elephant*: Douglas-Hamilton 1973; Fernando & Lande 2000	

Table 17.1.7.2 Initiating social interactions

Nature of difference			*Post-pubertal*		
			Adolescent		
More among males			**NORTH AMERICA** *United States*: Wheeler & Nezlek 1977:747 (with opposite sex)		
Not significant					
More among females					

Table 17.1.7.3a Group size during social interactions

Nature of difference	*Pre-pubertal*				
	Infant/toddler	*Child*			
Larger among males	**NORTH AMERICA** *United States*: Fabes et al. 2003 (toddler)	**EUROPE** *Britain*: Blatchford et al. 2003 (age 7-8) **NORTH AMERICA** *United States*: Halvorson & Waldrop 1973; Omark et al. 1975; Waldrop & Halvorson 1975 (7.5-year-olds); Lever 1976; Eder & Hallinan 1978; Lever 1978; Ladd 1983; Benenson et al. 1997* (age 6); Benenson et al. 1998 (same-sex play involving three or more interactants); Strough & Berg 2000; Fabes et al. 2003; Benenson et al. 2004 (time spent in groups of three or			

(*Continued*)

Table 17.1.7.3a (Continued)

Nature of difference	*Pre-pubertal*				
	Infant/toddler	*Child*			
		more) **OVERVIEW** *Literature Review*: Rose & Rudolph 2006			
Not significant		**NORTH AMERICA** *United States*: Benenson et al. 1993; Benenson et al. 1997* (age 4); CL Martin & Fabes 2001			
Larger among females					

Table 17.1.7.3b Group size during social interactions among non-humans

Nature of difference			*Post-pubertal*		
			Adolescent	*Adult*	
More among males			**PRIMATE** *Baboon*: Crooke 1966*; *Japanese Macaque*: Kawai 1958; *Japanese Macaque*: Sugiyama 1960; *Langur*: Sugiyama 1964*; Jay 1965*; Yoshiba 1968*	**PRIMATE** *Baboon*: Crooke 1966*; *Langur*: Sugiyama 1964*; Jay 1965*; Yoshiba 1968*	
Not significant					
More among females					

17.1.7.6 Time Spent Socially Interacting with Peers

The amount of time one spends socially interacting with one's peers (usually as opposed to with one's family) has sometimes been termed a "peer-oriented lifestyle." As shown in Table 17.1.7.6, the available research suggests that such social behavior is more common among males than among females.

17.1.7.7 Social Interaction with Delinquent or Deviant Peers

A couple of studies compared the sexes with respect to the time spent in the company of delinquent or "deviant" peers. One can see in Table 17.1.7.7 that both studies indicated that males do so more than females.

Table 17.1.7.4a Social interaction in small groups

Nature of difference	*Pre-pubertal*		*Post-pubertal*		*Wide age range*
		Child	*Adolescent*	*Adult*	
More among males					
Not significant					
More among females		**LATIN/CARIBBEAN AMERICA** *Brazil*: de Guzman et al. 2004 **NORTH AMERICA** *Canada*: Benenson 1990; Benenson et al. 1997*; Benenson et al. 2002; *United States*: Feshbach & Roe 1971; Laosa & Brophy 1972; Lever 1974; Waldrop & Halverson 1975; Lever 1976; Eder & Hallinan 1978; Pitcher & Schultz 1983; Belle 1989; Benenson 1993 (dyads); Benenson et al. 1997 (dyads); Cairns et al. 1998 (one-to-one); Strough & Berg 2000 (dyads, time spent); Markovits et al. 2001*; CL Martin & Fabes 2001 (dyads); Benenson et al. 2004 (dyads, time spent)	**NORTH AMERICA** *Canada*: Benenson et al. 1997*; *United States*: Savin-Williams 1980; Berndt & Hoyle 1985; Markovits et al. 2001*	**EUROPE** *Germany*: Schurtz 1902 (one-to-one) **NORTH AMERICA** *United States*: Wheeler & Nezlek 1977:749 (with friends); Gabriel & Gardner 1999 (one-to-one)	**NORTH AMERICA** *United States*: Tiger 1969 (one-to-one)

Table 17.1.7.4b Social interaction in small groups among non-humans

Nature of difference			*Post-pubertal*		*Wide age range*
				Adult	
More among males					
Not significant					
More among females				**PRIMATE** *Chimpanzee*: Wrangham et al. 1992 (one-to-one); De Waal 1994 (one-to-one)	**PRIMATE** *Chimpanzee*: Boesch & Boesch-Achermann 2000 (one-to-one)

Table 17.1.7.5 Time spent socially interacting in dyadic groups

Nature of difference	*Pre-pubertal*				
		Child			
More among males					
Not significant					
More among females		**NORTH AMERICA** *United States*: Benenson et al. 1997			

Table 17.1.7.6 Time spent socially interacting with peers

Nature of difference			*Post-pubertal*		
			Adolescent		
More among males			**INTERNATIONAL** *Multiple Countries*: Steketee, Junger & Junger-Tax 2013:Table 1		
Not significant					
More among females					

Table 17.1.7.7 Social interaction with delinquent or deviant peers

Nature of difference			*Post-pubertal*		
			Adolescent		
More among males			**EUROPE** *Sweden*: R Svensson 2003 **INTERNATIONAL** *Multiple Countries*: Steketee, Junger & Junger-Tas 2013:Table 1 (self-report)		
Not significant					
More among females					

17.1.7.8 Quality of Social Relationships

One study was located in which both sexes were asked to rate the quality of their social relationships. As shown in Table 17.1.7.8, females provided higher average ratings than did males.

Table 17.1.7.8 Quality of social relationships

Nature of difference			*Post-pubertal*		
			Adolescent		
More among males					
Not significant					
More among females			**OCEANIA** *Australia*: Caroll et al. 2006 (self-rated with peers)		

17.1.7.9 Visiting Friends and Neighbors

Findings have not been consistent regarding any sex differences in the extent to which people visit friends and neighbors. Nevertheless, as shown in Table 17.1.7.9, most studies indicate that females do so more than do males.

Table 17.1.7.9 Visiting friends and neighbors

Nature of difference			*Post-pubertal*		*Wide age range*
			Adolescent		
More among males					**NORTH AMERICA** *United States*: Taub et al. 1970
Not significant					**NORTH AMERICA** *United States*: Tomeh 1964; Tomeh 1967
More among females			**EUROPE** *Britain*: Gershuny 2000 **NORTH AMERICA** *United States*: HD Johnson 2004:250 (socializing with friends)		**NORTH AMERICA** *United States*: Tallman & Morgner 1970; Unger & Wandersman 1982; KE Campbell & Lee 1990:500

17.1.7.10 Providing Emotional Support to Others

Several studies have investigated sex differences in tendencies to provide emotional support to others. As shown in Table 17.1.7.10, all the available research has concluded that females are more likely than males to devote time and effort to such social activities.

Table 17.1.7.10 Providing emotional support to others

Nature of difference				*Post-pubertal*	
				Adult	
More among males					
Not significant					
More among females				**NORTH AMERICA** *United States*: Burda et al. 1984; Vaux 1985; Rosario et al. 1988; Barbee et al. 1990; Barbee et al. 1993; Derlega et al. 1994; Trobst et al. 1994; KD Michelson et al. 1995 (inquiring about personal problems); CA Liebler & Sandefur 2002:Table 2 (ages 50-54, N = 3,193M + 3,682F); MacGeorge, Gillihan, et al. 2003	

17.1.7.11 Difficulty Adjusting to Divorce

Some studies have assessed sex differences in people's ability to adjust to being divorced. Although the evidence is not unanimous, as shown in Table 17.1.7.11, most studies have indicated that females report having greater difficulties adjusting following a divorce than do males.

Table 17.1.7.11 Difficulty adjusting to divorce

Nature of difference				*Post-pubertal*	
				Adult	
More among males				**NORTH AMERICA** *United States*: Kendler et al. 2003 (problems at work after divorce)	
Not significant					
More among females				**NORTH AMERICA** *United States*: Wagner & Lompas 1990 (problems in interpersonal, non-romantic relationships after divorce); Kellner et al. 2001 (problems in interpersonal, non-romantic relationships after divorce); Nolen-Hoeksema 2001 (problems in interpersonal, non-romantic relationships after divorce)	

17.1.8 Living Arrangements

A few studies have compared males and females regarding the types of living arrangements they have. Results are summarized below.

17.1.8.1 Living Alone

Several studies were located pertaining to sex differences in adults living alone, many having to do with people who are elderly. Table 17.1.8.1

shows that most of these studies have concluded that women are more likely than men to live alone. This is likely to at least partially reflect the fact that females tend to outlive males.

Table 17.1.8.1 Living alone.

Nature of difference			*Post-pubertal*		
				Adult	
More among males					
Not significant				**NORTH AMERICA** *Canada*: M Denton, Prus & Walters 2004:2591 **INTERNATIONAL** *Multiple Industrial Countries*: Kinsella & Velkoff 2001:65* (2/13 countries)	
More among females				**ASIA** *Taiwan*: Hachisuka et al. 1999:1091 (elderly); *Thailand*: Sobieszczyk et al. 2003:711 (elderly) **EUROPE** *Germany*: J Smith & Baltes 1998 (elderly); *Spain*: Regidor et al. 2003:397; *Multiple European Countries*: Schnepf 2010 (21%M vs. 51%F) **NORTH AMERICA** *Canada*: Ratner et al. 2006:609 (13.3%M vs. 20.1%F, N = 427M + 549F); *United States*: Soldo et al. 1997 (elderly) **INTERNATIONAL** *Multiple Industrial Countries*: Kinsella & Velkoff 2001:65* (11/13 countries)	

17.1.8.2 Living in Institutional Settings

A few studies have sought to determine the proportion of males and females who are living in various institutional settings, such as nursing homes and assisted living facilities. Table 17.1.8.2 shows that the findings have been mixed. However, it basically appears that for people who are mentally retarded, more males reside in institutional settings, but institutionalization is more common for females among the elderly.

Table 17.1.8.2 Living in institutional settings

Nature of difference	*Pre-pubertal*		*Post-pubertal*		
		Child		*Adult*	
More among males		**NORTH AMERICA** *United States*: Hollingworth 1922 (mental retardation)			
Not significant					
More among females				**NORTH AMERICA** *United States*: Hing et al. 1983 (elderly, nursing home); Schneider & Guralmik 1990 (elderly, nursing home); CS Gabrel 2000 (elderly)	

17.1.8.3 Being Homeless

Homelessness is a condition in which individuals (or sometimes entire families) are without any permanent shelter (usually in or near an urban area). As shown in Table 17.1.8.3, all the studies that were located indicate that homelessness is more common among males than among females.

Table 17.1.8.3 Being homeless

Nature of difference			*Post-pubertal*		*Wide age range*
				Adult	
More among males				**EUROPE** *Britain*: Warnes & Crane 2000 (448M vs. 43F) **NORTH AMERICA** *Canada*: Goering et al. 2002; L McDonald et al. 2006 (N = 237); *United States*: RB Freeman & Hall 1987; MR Burt & Cohen 1989 (N = 1,704); R Tessler, Rosenheck & Gamacho 2001 (4,497M vs. 2,727F) **OVERVIEW** *Literature Review*: CL Cohen 1999 (ages 50 or older)	**EUROPE** *Britain*: P Reid & Klee 1999 (adolescent & young adults, 143M vs. 57F); Warnes & Crane 2000 (448M vs. 43F); *Italy*: Silvestrini et al. 2016 (among migrants & non-migrants, N = 2,604); *Portugal*: P Santana 2002:Table 2 (N = 1,000) **OVERVIEW** *Literature Review*: KW Silkich 2008:151 (in industrial societies, 90%-67% of homeless persons are males); I Baptista 2010 (in Europe); *Meta-Analysis*: Shlay & Rossi 1992
Not significant					
More among females					

17.2 Exhibiting and Receiving Pro-Social Actions

Research undertaken to determine if males or females are more likely to engage in pro-social acts and/or to seek to obtain such acts from others are the focus of this section.

17.2.1 Acts of Altruism and Sharing

Altruistic acts are ones intended to help others even in the face of hardship for the altruist. Studies of sex differences in altruism and sharing are reviewed below.

17.2.1.1 Behaving Altruistically/Being Altruistic or Prosocial

Altruism refers to self-sacrificing behavior on behalf of others (or an expressed willingness to engage in such behavior). Measuring such behavior is complicated by the fact that the degree of sacrifice can vary

from minimal (sharing food with someone who is hungry or taking time to help a disabled person cross an intersection) to life threatening (jumping into a raging river to save someone from drowning). Another difficulty confronting attempts to scientifically study altruistic behavior is that the behavior is not a common event. Thus, most attempts to measure it rely on self-reports, the accuracy of which can certainly be questioned. As shown in Table 17.2.1.1, several studies have failed to find significant sex differences in altruism, but, when sex differences are found, nearly all studies indicate that females behave more altruistically than do males.

17.2.1.2 Attending to Others in General

Several studies have examined sex differences in giving attention to others regardless of their relationship to the person providing the attention. This attention takes several forms, including general nurturing and caregiving behavior. As shown in Table 17.2.1.2, the majority of studies have indicated that females are more attentive than males.

17.2.1.3 Forgiving Others

A substantial number of studies have sought to determine which sex is more likely to forgive others for committing grievances against them. The results appear to vary, partly depending on the type of grievance involved. Nonetheless, Table 17.2.1.3 shows that most studies have concluded that females are somewhat more likely to forgive others than is the case for males.

17.2.1.4 Harmony-Maintaining Social Interactions

Some research has been undertaken to assess sex differences in people's tendencies to do everything within reason to maintain harmonious relationships with others. As shown in Table 17.2.1.4, all the located studies have concluded that females do so more than do males.

17.2.1.5 Helping Behavior

Many studies have sought to determine if sex differences exist in the tendency to be helpful to others. The methodologies employed in many of these investigations have often involved researchers pretending to need help in some type of situation and then observing which sex is most likely to provide the assistance. For example, a researcher might drop a bunch of pencils in an elevator and then record whether or not anyone helps them retrieve the items (Latane & Dabbs 1975).

Table 17.2.1.1 Behaving altruistically/being altruistic or prosocial

Nature of difference	*Pre-pubertal*		*Post-pubertal*		*Wide age range*
		Child	*Adolescent*	*Adult*	
More among males				**NORTH AMERICA** *United States*: Andreoni & Vesterlund 2001:Figure 1* (in a dictator game when altruistic act is not costly)	
Not significant		**EUROPE** *Britain*: Emler & Rushton 1974; Rushton & Wiener 1975 **NORTH AMERICA** *United States*: MB Harris 1970; Presbie & Coiteux 1971; KH Rubin & Schneider 1973; Yarrow & Waxler 1974; W Furman & Buhrmester 1985 (older); CJ Patterson et al. 1990 (self-report); Rys & Bear 1997	**ASIA** *China*: Chou 1998 **NORTH AMERICA** *United States*: Sharabany et al. 1981 (self-report)		**NORTH AMERICA** *Canada*: RS Mills et al. 1989
More among females		**AFRICA** *Kenya*: Ember 1973:431 (rural) **ASIA** *Japan*: GD Wilson & Iwawaki 1980 **EUROPE** *Britain*: Nias 1973; *Spain*: Azurmendi, Braza et al. 2006:136 (preschool, N = 60M + 69F); *Switzerland*: Rossier et al. 2007:128 (parent rated); Quartier & Rossier	**NORTH AMERICA** *Canada*: Bosachi 2003:149 (age 11); *United States*: Coie et al. 1982; Herzog 1982 (self-report); HK Ma 1985*; Eisenberg et al. 1991; Lempers & Clark-Lempers 1993 (self-report); Marini et al. 1996 (in the jobs they desire); Rys & Bear 1997; Laible et al. 2008 **INTERNATIONAL** *Multiple*	**ASIA** *India*: Kanekar & Merchant 2001; *Russia*: Knyazev et al. 2003:1339 (undergrad) **EUROPE** *Britain*: Rushton et al. 1986 (twins) **NORTH AMERICA** *United States*: Astin & Nichols 1964:55; MB Smith et al. 1970; Simmons et al. 1977 (organ donations); SJ Carroll 1984 (voting patterns in congress); E Klein 1984 (voting	**EUROPE** *Finland*: Koskelainen et al. 2000 (childhood & adolescent, prosocial, teacher & self-rated); *Multiple European Countries*: De Fruyt & Vollrath 2003 (ages 6-14, parental ratings)

(*Continued*)

Table 17.2.1.1 (Continued)

Nature of difference	*Pre-pubertal*		*Post-pubertal*		*Wide age range*
		Child	*Adolescent*	*Adult*	
		2008:583 (benevolent, self-rated) **NORTH AMERICA** *United States*: Hartshorne et al. 1929:156 (ratings by adults and behavioral measures); Skarin & Moely 1976; Shigetomi et al. 1981 (ratings by teachers and two of four behavioral measures); Zarbatany et al. 1985 (peer ratings); Leong & Tata 1990 (Chinese Americans); JG Parker & Asher 1993 (self-reports); Bukowski et al. 1994 (self-report); Chung & Asher 1996 (hypothetical situations); Ladd & Profilet 1996 (teacher reports); W Roberts & Strayer 1996; Hopmeyer & Asher 1997; AJ Rose & Asher 2004 (self-reports); Zakriski 2005:849 (prosocial); Rose & Asher 1999 (self-rated responses to hypothetical situations); Gneezy & Rustichini 2004; Zakriski et al. 2005	*Countries*: De Bolle et al. 2015:178* (N = 4,850)	patterns in congress); Mabry 1985; Craig & Sherif 1986; W Wood & Karten 1986; Carli 1989; RA Johnson & Schulman 1989; M Carlson 1990 (voting patterns in congress); Carlo et al. 1991; Moskowitz 1993; Hutson-Comeaux & Kelly 1996; C Johnson et al. 1996; Andreoni & Vesterlund 2001:Figure 1* (in a dictator game when altruistic act is very costly); T Dietz, Kalof & Stern 2003 (N = 145M + 200F); Gneezy et al. 2003; TL Thompson et al. 2003 (willingness to donate organs after death); Becker & Eagly 2004 (donating more often to charities & willingness to become Peace Corp volunteers); Kajonius & Johnson 2018:127 (internet, N = 320,128, d = .51) **INTERNATIONAL** *Multiple Countries*: McCrae & Terracciano 2005:Table 4 (50 countries, self-rated and observer rated); De Bolle et al. 2015:181* (N = 6,128); Kajonius & Mac Giolla 2017:Table 3 (altruistic personality, 22 countries, N = 130,602); Falk & Hermle 2018 (76 countries)	

Table 17.2.1.2 Attending to others in general

Nature of difference			*Post-pubertal*	*Wide age range*
			Adult	
More among males			**ASIA** *Taiwan*: Lin et al. 2003	
Not significant			**NORTH AMERICA** *United States*: Bem 1978 (more eager to soothe others' hurt feelings, undergrad)	
More among females			**ASIA** *Malaysia*: Piaw 2014 (paying attention, student teachers) **EUROPE** *Scotland*: M Bennett & Jamieson 1999 (rated by offspring) **NORTH AMERICA** *United States*: Zahn-Waxler et al. 1992 (comforting those who suffer); J Wood 1994; JA Harris et al. 1996 (nurturing, self-rated, undergrad); Sugihara & Warner 1999:204 (more eager to soothe others' hurt feelings, Mexican-Americans, undergrad, self-ratings)	**NORTH AMERICA** *United States*: Lenney et al. 1983 (paying attention to instructions); Okin 1989; Ruddick 1989; Siemer & Brown 1992 (animal rehabilitation); George et al. 1998

As one can see by examining Table 17.2.1.5, when sex differences are found among children and adolescents, they indicate that females are more helpful than males. However, among adults, most studies indicate that males are more likely to be helpful than females. The most likely explanation for most of the inconsistencies involved details surrounding the types of situations for which help was being sought. For example, as a general pattern, males seemed to offer greater assistance than females do in situations that risk confrontation or injury (such as trying to break up arguments and fights), whereas most of the circumstances under which females seem to help others involved providing care and comfort to those with emotional distress. Additionally, the sex of the recipient may also affect a number of the research findings.

17.2.1.6 Sharing/Generosity

Several studies have sought to compare the sexes with respect to being generous. Most of these studies have been experimental in nature, where research participants earn some money in an experiment and are then given the opportunity to share the winnings with the losers in the experiment or donate it to a charity. One can see in Table 17.2.1.6 that most studies have concluded that females are more generous than males, although a couple of studies reported no significant sex difference.

Table 17.2.1.3 Forgiving others

Nature of difference			*Post-pubertal*		*Wide age range*
			Adolescent	*Adult*	
More among males				**NORTH AMERICA** *United States*: Shackelford, Buss & Bennett 2002:302 (undergrad, N = 128M + 128F, for a partner's emotional infidelity); AL Miller & Woprthington 2010 (among married couples forgiving one another, N = 311M + 311F) **OCEANIA** *Australia*: J Ward & Voracek 2004:164* (undergrad, N = 80M + 188F; for a partner's emotional infidelity)	
Not significant				**ASIA** *India*: Kumar & Dixit 2014:1416 (N = 20M + 30F); *Malaysia*: Mellor et al. 2012:103 (undergrad, N = 100M + 133F) **EUROPE** *Britain*: Maltby & Day 2004:103 (N = 151M + 153F); Maltby, Macaskill & Gillett 2007:559 (N = 160M + 168F) **NORTH AMERICA** *United States*: Toussaint & Webb 2005:Table 2 (N = 45M + 82F)	
More among females			**EUROPE** *Spain*: Quintana-Orts & Rey 2018:3 (in general, N = 291M + 281F)	**ASIA** *India*: Khan & Singh 2013 (in general, N = 80, among school teachers) **EUROPE** *Serbia*: Rijavec, Jurcec & Mijocevic 2010:194 (in general, undergrad, N = 300M + 300F); *Spain*: Rey & Estremera 2016:106 (undergrad, N = 214M + 326F) **NORTH AMERICA** *United States*: Shackelford, Buss & Bennett 2002:302 (undergrad, N = 128M + 128F, for a partner's sexual infidelity); NG Wade & Goldman 2006 (in general); Toussaint & Williams 2008:491 (N = 563M + 709F); JE Edlund & Sagarin 2009 (undergrad, N = 480M + 601F, for a partner's sexual infidelity); Sheldon & Honeycutt 2011:67 (N = 66M + 81F, communicated forgiveness) **OCEANIA** *Australia*: J Ward & Voracek 2004:164* (undergrad, N = 80M + 188F; for a partner's sexual infidelity)	**NORTH AMERICA** *United States*: Ghaemmaghami et al. 2011:198 (ages 16-39, N = 39M + 38F) **OVERVIEW** *Literature Review*: AJ Miller & Worthington 2015; *Meta-Analysis*: AJ Miller, Worthington & McDaniel 2008:Table 2

Table 17.2.1.4 Harmony-maintaining social interactions

Nature of difference				*Post-pubertal*	
				Adult	
More among males					
Not significant					
More among females				**NORTH AMERICA** *United States*: Vinacke 1959; Bond & Vinacke 1961; Uesugi & Vinacke 1963 (experimental game); Leventhal & Lane 1970; A Kahn et al. 1980 (experimental game)	

17.2.1.7 Distributing Rewards Equitably

Some research, usually of an experimental nature, has given both males and females opportunities to distribute rewards (usually in monetary form) equitably, rather than using some unequal way of distributing rewards. Although the details of these studies are too varied and complex to fully explain in a summary table, Table 17.2.1.7 shows that there are no consistent sex differences in the outcome of these studies.

17.2.1.8 Reciprocating Good Deeds

Experimental studies have been conducted to assess sex differences in tendencies to reciprocate good deeds performed by others. As shown in Table 17.2.1.8, findings are not consistent but if there are sex differences, most suggest that they indicate females are more likely to reciprocate good deeds than are males.

17.2.1.9 Reconciling (or Attempting to Reconcile) after a Conflict

Reconciling behavior involves attempting to restore a relationship back to its pre-conflict state, and possibly even improve it (Sackin & Thelen 1984; de Waal 1993). In humans, it is often accompanied by apologies and asking for forgiveness (Sackin & Thelen 1984), whereas in other primates, one often sees this behavior coinciding with bowing and attempting to touch, groom, and kiss the extremities of the former opponent (de Waal 1993). In both human children and non-human primates, if reconciling behavior occurs, it nearly always occurs within one or two minutes of the end of the conflict (Butovskaya & Kozintsev 1999:135).

Table 17.2.1.9a shows that the research on human attempts to reconcile is limited. The evidence compiled suggests that there are no sex differences among children, but that, among adolescents, females are more likely to attempt to reconcile after a conflict.

Table 17.2.1.5 Helping behavior

Nature of difference	*Pre-pubertal*		*Post-pubertal*		
		Child	*Adolescent*	*Adult*	
More among males				**EUROPE** *Germany*: J Smith & Baltes 1998 (elderly, providing instrumental support) **NORTH AMERICA** *United States*: Hook 1943 (field); Thomas 1943 (field); Kerenyi 1960 (field); Schopler & Bateson 1965 (young, lab); Bryan & Test 1967 (distressed motorist); Darley & Latane 1968 (young, lab); Piliavin et al. 1969 (field); Latane 1970 (field); Schwartz & Clausen 1970 (field); Borofsky et al. 1971 (young, lab); Emswiller et al. 1971 (field); Gaertner & Bickerman 1971 (field); Rudestam et al. 1971 (young, field); Wispe & Freshley 1971 (field); Moss & Page 1972 (field); Piliavin & Piliavin 1972 (field); Dutton & Lake 1973 (young, field); Gaertner 1973 (field); Gelfand et al. 1973 (field); Harris & Bays 1973 (field); Morgan 1973 (field); Pomazal & Clore 1973 (field); Bickman 1974* (young, lab experiment); Blevins & Murphy 1974 (field); Lerner & Frank 1974 (dropped groceries in supermarket experiment); Harris et al. 1975 (field); Karabenick et al. 1975 (field); Konecni & Ebbesen 1975 (field); Latane & Dabbs 1975 (field experiment); Piliavin et al. 1975 (field); Shaffer et al. 1975* (young, field); West et al. 1975 (field); Benson et al. 1976 (field); Isen et al. 1976 (field); Samerotte & Harris 1976 (field); Kleinke 1977 (field); Lindskold et al. 1977 (young, field); Pomazal 1977 (field); Solomon & Herman 1977 (field); Wispe et al. 1977 (field); Baker & Reitz 1978 (field); Beaman et al. 1978 (young, field); Begin 1978 (young, field); Benson & Catt 1978 (field); Cunningham 1978 (field); Feinman 1978 (field); Kleinke et al. 1978 (field); Seaman 1979 (field); Senneker 1979 (young, lab); Shotland & Huston 1979 (young, field); Shotland & Stebbins 1980 (young, field); Schwarz et al. 1980 (field); Barnett et al. 1981 (field); Goldman et al. 1981 (field); Jackson & Latane 1981 (field) **OVERVIEW** *Meta-Analysis*: Eagly & Crowley 1986 (d = .34; when they knew they were being observed d = .74; when assistance was not requested d = .55); Basow 1992:103 (d = .32)	

Not significant		**LATIN/ CARIBBEAN AMERICA** *Mexico*: S Kagan & Madsen 1972 **NORTH AMERICA** *United States*: Stith & Connor 1962; Kagan & Madsen 1972*	**NORTH AMERICA** *United States*: Sharabany et al. 1981	**NORTH AMERICA** *United States*: Gruder & Cook 1971 (young, lab); Simon 1971 (field); Harris et al. 1973* (field); Harris & Huang 1973 (young, lab); Thayer 1973 (field); Bickman 1974* (young, lab); Levin & Isen 1975 (field); Shaffer et al. 1975* (field); Bloom & Clark 1976 (field); Shotland & Straw 1976 (young, lab); Levitt & Kornhaber 1977 (field); Weyant & Clark 1977 (field); Zuckerman & Reis 1978 (field); Austin 1979* (helping a theft victim with major losses); Foss & Dempsey 1979 (field); Solanch 1979* (young, lab); Valentine & Ehrlichman 1979 (field); Piliavin & Unger 1985	
More among females		**EUROPE** *Netherlands*: Meerum Terwogt 2002 **NORTH AMERICA** *Canada*: Cote et al. 2002a*:614 (helpful in general); Cote et al. 2002a*1089 (helpful to parents); *United States*: Shigetomi et al. 1981; Furman & Buhrmester 1985; CJ Patterson et al. 1990; Parker & Asher 1993; Rose & Asher 2004	**NORTH AMERICA** *United States*: Lempers & Clark-Lempers 1993 (to friends); Bukowski et al. 1994 (to friends)	**NORTH AMERICA** *United States*: Schwartz & Clausen 1970; Thalholfer 1971 (young & middle age, lab); Cartwright 1972:215 (self-assessed, medical students); Deaux 1972 (field); Levy et al. 1972 (young, lab); Harris et al. 1973* (field); Bickman 1974* (young, lab); Dertke et al. 1974 (field); Pandey & Griffitt 1974 (young, lab); Fink et al. 1975 (field); Wilson & Kahn 1975 (young, lab); RA Baron & Bel 1976 (field); Bleda et al. 1976 (young, lab); Pandey & Griffitt 1977 (young, lab); Schwartz & Ames 1977 (field); Foss & Crenshaw 1978 (field); Zinser & Farra 1978 (young, lab); Austin 1979* (helping a theft victim with moderate losses); Bihm et al. 1979 (field); Cunningham 1979 (field); Eisenberg-Berg 1979 (young, friends); Enzle & Harvey 1979 (comforting a depressed person); Leftgoff-Sechooler 1979 (young, lab); Solanch 1979* (young & middle age, lab); Harrell & Goltz 1980 (field); Slochower et al. 1980 (field); Bernard 1981 (field); Boice & Goldman 1981 (field); Johnson & Aries 1983 (young and full, friends); Berg 1984 (young, friends); Vaux 1985* (among friends); Bridges 1989; Astin 1991 (undergrad); Croson & Buchan 1999 (returning lost money); JT Spence & Buckner 2000:50 (self-rated) **OCEANIA** *Australia*: Hong & Grambower 1986 (undergrad)	

Table 17.2.1.6 Sharing/generosity

Nature of difference	*Pre-pubertal*		*Post-pubertal*		
		Child	*Adolescent*	*Adult*	
More among males					
Not significant			**NORTH AMERICA** *United States*: Ugurel-Semin 1952 (young)	**NORTH AMERICA** *United States*: GE Bolton & Katok 1995 (dictator game)	
More among females		**NORTH AMERICA** *United States*: Wasik et al. 1969		**NORTH AMERICA** *United States*: Mikula 1974 (young, sharing winnings in an experiment); Eckel & Grossman 1998 (dictator game); Brunel & Nelson 2000 (complying with charitable appeal ads); CL Wang et al. 2000 (complying with charitable appeal ads); Andsager et al. 2002 (complying with charitable appeal ads)	

Table 17.2.1.7 Distributing rewards equitably

Nature of difference	*Pre-pubertal*				
		Child			
More among males		**NORTH AMERICA** *United States*: MA Barhett & Andrews 1977; Reis & Jackson 1981* (more equitably than equally, in same-sex situations); Charlesworth & Dzur 1987 (same-sex groups); LA Jackson 1987* (more equitably than equally, in same-sex situations)			
Not significant		**NORTH AMERICA** *United States*: Reis & Jackson 1981* (in opposite-sex situations); LA Jackson 1987* (opposite-sex situations)			
More among females		**NORTH AMERICA** *United States*: Eckel & Grossman 1998 (experimental games); Selten & Ockenfels 1998 (solitary game); Solnick 2001 (experimental games); Dickinson & Tiefenthaler 2002 (dictator game, pay others equally more); Dufwenberg & Muren 2006a (dictator game); Dufwenberg & Muren 2006b (dictator game); Güth et al. 2007 (in a pie splitting experiment)			

Two studies of reconciling efforts were located for non-human primates. As one can see in Table 17.2.1.9b, one study of chimpanzees indicated that males were more prone to make such efforts than females, but that there were no sex differences among bonobos.

Table 17.2.1.8 Reciprocating good deeds

Nature of difference	*Post-pubertal*	
	Adult	
More among males	**EUROPE** *Germany*: Bellemare & Kroger 2007 (experimental game)	
Not significant	**NORTH AMERICA** *Canada*: Bohnet 2007 (experimental game); *United States*: K Clark & Sefton 2001 (experimental prisoner dilemma game)	
More among females	**NORTH AMERICA** *United States*: Eckel & Grossman 1996 (experimental game); Croson & Buchan 1999 (experimental trust game); Chaudhuri & Gangadharan 2007 (trust game); Buchan et al. 2008 (investment game); Schwieren & Sutter 2008 (experimental)	

Table 17.2.1.9a Reconciling (or attempting to reconcile) after a conflict

Nature of difference	*Pre-pubertal*	*Post-pubertal*	
	Child	*Adolescent*	
More among males			
Not significant	**ASIA** *Russia*: Butovskaya & Kozintsev 1999		
More among females		**NORTH AMERICA** *United States*: Lindeman et al. 1997 (linguistic means); KA Black 2000 (linguistic means)	

Table 17.2.1.9b Reconciling (or attempting to reconcile) after a conflict among non-humans

Nature of difference	*Post-pubertal*	
	Adult	
More among males	**PRIMATE** *Chimpanzee*: de Waal 1989 (same-sex conflict)	
Not significant	**PRIMATE** *Bonobo*: de Waal & Lanting 1997 (same-sex conflict)	
More among females		

17.2.1.10 Donating to Charity

Several studies have investigated the possibility of sex differences in making charitable donations to the welfare of others. Most of these studies were based on experiments in which members of both sexes are allowed to

earn some money by performing a task (usually cognitive in nature) and then they are asked if they would be willing to donate money that they earned to a public welfare charity rather than keeping it themselves. As shown in Table 17.2.1.10, the findings of sex differences in this regard have been mixed.

Table 17.2.1.10 Donating to charity

Nature of difference				*Post-pubertal*	
				Adult	
More among males				**EUROPE** *Britain*: Belfield & Beney 2000* (amount donated); Piper & Schnepf 2008* (amount donated) **NORTH AMERICA** *United States*: JM Jackson & Latane 1981; Sell & Wilson 1991 (experiment, contributing to public welfare); Brown-Kruse & Hummels 1993 (experiment, contributing to public welfare, in same-sex dyadic games); Sell 1997 (experiment, contributing to public welfare); Andreoni et al. 2003* (amount given, among married couples); WC Chang 2005; Mesch et al. 2006* (amount donated); S Meier 2007 (experimental study); Einolf 2011* (donating to religious charities, N = 345M + 621F)	
Not significant				**NORTH AMERICA** *United States*: Sell et al. 1993 (experiment); GE Bolton & Katok 1995 (experimental study); Cadsby & Maynes 1998 (experiment, in same-sex dyad game); Chermak & Krause 2002 (experiment, when neither sex is assigned a specific "role"); Solow & Kirkwood 2002 (experiment); BS Frey & Meier 2004	
More among females				**EUROPE** *Britain*: Belfield & Beney 2000* (likelihood of donating); Piper & Schnepf 2008* (likelihood of donating); *Netherlands*: Bekkers 2004 (likelihood of giving) **NORTH AMERICA** *United States*: Nowell & Tinkler 1994 (in same-sex dyad experiment); Nowell & Tinkler 1994 (experiment); Braus 1996 (donate more money); Seguino et al. 1996 (experiment); Eckel & Grossman 1998 (experimental study); Croson & Buchan 1999 (experimental study); Andreoni et al. 2003* (likelihood of giving, among married couples); Eckel & Grossman 2003 (experimental study); Mesch et al. 2006* (likelihood of donating); Kamas et al. 2008	

17.2.1.11 Volunteering in Charitable Activities

Several studies have compared the sexes regarding their tendencies to volunteer for some form of charity. In these activities, what one is providing is one's time rather than one's money. As shown in Table 17.2.1.11, females are more likely than males to volunteer for charitable activities.

17.2.1.12 Giving Gifts

Two studies of sex differences in giving gifts were located. As one can see in Table 17.2.1.12, both studies concluded that females give gifts more often than do males.

Table 17.2.1.11 Volunteering in charitable activities

Nature of difference	*Post-pubertal*
	Adult
More among males	
Not significant	
More among females	**NORTH AMERICA** *United States*: Hodgkinson et al. 1992 (volunteering); Sokolowski 1996 (volunteering); Hodgkinson & Weitzman 1996 (volunteering); Mesch et al. 2006 (volunteering); AN Bryant 2007:Table 1 (charitable involvement, undergrad, N = 3,680); Sax & Harper 2007:680 (undergrad, self-report, N = 6,736M + 10,901F); Einolf 2011* (volunteering to help others, N = 345M + 621F)

Table 17.2.1.12 Giving gifts

Nature of difference	*Post-pubertal*
	Adult
More among males	
Not significant	
More among females	**NORTH AMERICA** *United States*: Cheal 1987; Fischer & Arnold 1990

17.2.2 Donating and Receiving Bodily Organs or Fluids

Attention will now be given to sex differences in the donation of bodily organs and blood along with the recipiency of such donations. It should be noted that the evidence is complicated by the fact that organ transplants across sex appear to be less successful (in terms of long-term survival of recipients) than transplants within sex (Puoto, Ricco et al. 2016).

17.2.2.1 Being a Blood Donor

Being a blood donor is a common practice throughout the world. However, as shown in Table 17.2.2.1, all available studies have concluded that males are more likely than females to engage in this practice. Nevertheless, one literature review indicated that there are a few exceptional countries.

17.2.2.2 Being an Organ Donor

The practice of donating one or more of one's organs can either be done while still living or can occur after an individual has died. Table 17.2.2.2 shows that most studies have found females are more likely than males to make both types of donations.

Table 17.2.2.1 Being a blood donor

Nature of difference				*Post-pubertal*	
				Adult	
More among males				**AFRICA** *Nigeria*: Erhabor et al. 2013:Table 1 (ages 18-50, N = 14,965) **ASIA** *India*: Bala, Handoo & Jallu 2015:117 (N = 7,012) **EUROPE** *Greece*: Marantidou et al. 2007:Table 1 (N = 898M + 702F); *Norway*: Misje, Bosnes & Heier 2010:244 (N = 18,473) **LATIN/CARIBBEAN AMERICA** *Mexico*: Alvardo-Espyivel et al. 2007:Table 1 (N = 433) **MIDDLE EAST** *Iran*: Mousavi et al. 2011 (N = 1,000) **NORTH AMERICA** *United States*: Wu et al. 2001; LE Boulware et al. 2002 (N = 385) **OVERVIEW** *Literature Review*: Bani & Gussani 2010 (in most but not all countries)	
Not significant					
More among females					

Table 17.2.2.2 Being an organ donor

Nature of difference			*Post-pubertal*		*Wide age range*
				Adult	
More among males				**EUROPE** *Italy*: Puoti, Ricci et al. 2016* (55% of deceased donors, 2002-2015)	
Not significant				**NORTH AMERICA** *United States*: HM Nathan et al. 2003:35* (live donors)	
More among females				**EUROPE** *Italy*: Puoti, Ricci et al. 2016* (66% of live donors, 2002-2015); *Switzerland*: Thiel et al. 2005 (kidney) **NORTH AMERICA** *United States*: Simmons et al. 1977; Lerner & Kannel 1986; Carducci et al. 1989; Creecy et al. 1992 (blacks); Bloembergen et al. 1996; Zimmerman et al. 2000 (kidney); Biller-Andorno 2002; Boulware et al. 2002; Kayler et al. 2002 (especially kidney donation to spouse); Kayler et al. 2003 (especially for spousal donation of kidney); HM Nathan et al. 2003:35* (deceased donors); TL Thompson et al. 2003; Thornton et al. 2006	**NORTH AMERICA** *United States*: Bloembergen et al. 1996 (kidney, transplant donation, live donor)

17.2.2.3 Willingness to Receive Blood or an Organ from Someone Else

Would you be willing to accept the blood or organ from another person if doing so had the promise of substantially extending your life? Most people will, but, for religious or various other reasons, some people choose not to do so. According to one study, cited in Table 17.2.2.3, greater proportions of males than females express a willingness to receive another person's organ if the need arose.

Table 17.2.2.3 Willingness to receive blood or an organ from someone else

Nature of difference			*Post-pubertal*		
			Adolescent		
More among males			**NORTH AMERICA** *United States*: MJ Legato 2004 (willing to accept another's organ)		
Not significant					
More among females					

17.2.3 Seeking or Receiving Help from Others

Many researchers have studied sex differences in various forms of help-seeking behavior. Below are tables summarizing findings from these studies.

17.2.3.1 Seeking or Obtaining Support from Others in General

Research concerning sex differences in the tendency to seek and/or obtain support from others is usually based on self-reports. Table 17.2.3.1 pertains to sex differences in seeking or obtaining support in general and indicates that most studies have reported females seeking or receiving more than males, with a few studies indicating no significant differences. Evidence bearing on several fairly specific forms of support is provided in subsequent tables.

17.2.3.2 Seeking or Obtaining Support from Others for Health-Related Problems

Research findings having to do with sex differences in people seeking support due to health issues is summarized in Table 17.2.3.2. One can see that the findings have been quite inconsistent. However, it does appear that males seek or receive more support following a heart attack, while females do so after being diagnosed with cancer.

Table 17.2.3.1 Seeking or obtaining support from others in general

Nature of difference	*Pre-pubertal*		*Post-pubertal*		
		Child	*Adolescent*	*Adult*	
More among males					
Not significant	**NORTH AMERICA** *United States*: Fagot 1974:556 (toddler, ask for help more)	**NORTH AMERICA** *United States*: Bernzweig et al. 1993* (self-reports)		**NORTH AMERICA** *United States*: Fusilier et al. 1986; Draye et al. 1988 (concerning infertility, small sample); JR Turner & Marino 1994* (rated by spouse)	
More among females		**EUROPE** *Britain*: RB Thompson 1999 **NORTH AMERICA** *United States*: Bernzweig et al. 1993* (according to parent reports); JH Larson et al. 1994:83 (career choice & development) **INTERNATIONAL** *Multiple Countries*: Whiting & Edwards 1974	**ASIA** *China*: R Zhang 2015:46 (self-rated, receive more); *Japan*: Takakura & Sakihara 2001 **NORTH AMERICA** *United States*: O'Hare & Buetell 1987 (career choice & development); Frydenberg & Lewis 1991; Copeland & Hess 1995 (to cope with stress); Salmivalli et al. 1996 (support for victims of bullying); Zani et al. 2001 (rated by friends)	**AFRICA** *South Africa*: Pretorius 1996 **EUROPE** *Britain*: L Kelly et al. 1998 (reporting sexual abuse); Naylor & Cowie 1999; Dalgard, Dowrick et al. 2006:Table 4; *Finland*: Dalgard, Dowrick et al. 2006:Table 4*; *Germany*: J Smith & Baltes 1998 (elderly); *Ireland*: Dalgard, Dowrick et al. 2006:Table 4*; *Norway*: Dalgard, Dowrick et al. 2006:Table 4*; *Spain*: Dalgard, Dowrick et al. 2006:Table 4* **NORTH AMERICA** *Canada*: Bonin et al. 2000:155; *United States*: Bickman 1974 (requesters were undergrad students; requestees were both sexes); L Wheeler & Nezlek 1977 (undergrad, from same-sex friends); Depner & Ingersoll-Dayton 1988 (elderly, rated by offspring & friends); CE Ross & Mirowsky 1989 (recipient perceived); Barbee et al. 1990; Derlega 1994; DA Olson & Shultz 1994 (social support, undergrad); HA Turner 1994; JR Turner & Marino 1994* (recipient perceived & rated by friends); Umberson et al. 1996; GR Holmes et al. 1997 (reporting sexual abuse); M Cunningham et al. 1998 (support for child aggression victims); Elliott 2001:169; Liebler & Sandefur 2002; Prezza & Pacilli 2002 (rated by friends) **OVERVIEW** *Meta-Analysis*: C Jordan & Revenson 1999 (to deal with infertility); Tamres et al. 2002 (d = .41)	

Table 17.2.3.2 Seeking or obtaining support from others for health-related problems

Nature of difference				*Post-pubertal*	
				Adult	
More among males				**MIDDLE EAST** *Israel*: Carmel et al. 2007:520 (elderly) **NORTH AMERICA** *Canada*: Aish 1996 (social support following heart attack); *United States*: Stokes & Wilson 1984*; GA Hamilton & Seidman 1993 (social support following a heart attack); RF Young & Kahana 1993 (social support after heart attack); DA Olson & Shultz 1994* (social support, employed workers); Hildingh et al. 1997 (elderly, spousal support after heart attack); Mendes de Leon et al. 2001 (social support after heart attack)	
Not significant				**ASIA** *Japan*: Furukawa et al. 1999 (psychiatric patients, self-perceived) **NORTH AMERICA** *United States*: Fusilier et al. 1986; JR Turner & Noh 1988 (persons with disabilities); Conn et al. 1991 (social support after heart attack); Unruh et al. 1999 (social support to cope with pain)	
More among females				**EUROPE** *Britain*: Seale et al. 2006 (among persons with cancer, joining an online support group); *Sweden*: Berglund et al. 1997 (cancer patients, involvement in cancer support groups); Salander & Hamberg 2005 (among persons diagnosed with cancer) **NORTH AMERICA** *United States*: Fife et al. 1994 (cancer sufferers); J Harrison et al. 1995 (rely on loved ones for support, cancer patients)	

17.2.3.3 Seeking or Obtaining Support from Others for Infertility Issues

In a few studies, researchers investigated sex differences in people seeking or obtaining support for matters having to do with infertility. Table 17.2.3.3 shows that most studies indicate that more females seek or obtain this type of support than do males.

Table 17.2.3.3 Seeking or obtaining support for infertility issues

Nature of difference				*Post-pubertal*	
				Adult	
More among males					
Not significant				**NORTH AMERICA** *United States*: Draye et al. 1988 (concerning infertility, small sample)	
More among females				**NORTH AMERICA** *United States*: Slade et al. 1990 (to deal with infertility); Stanton et al. 1992 (dealing with infertility); Morrow et al. 1995 (dealing with infertility)	

17.2.3.4 Seeking or Obtaining Support from Others when under Stress

Considerable research has investigated sex differences in seeking or obtaining support from others when one is under stress (including feeling depressed). The findings, summarized in Table 17.2.3.4, indicate that there are no significant differences among children. However, among adolescents, and especially among adults, nearly all the research indicates that females seek or obtain more support than do males.

17.2.3.5 Help Seeking When Confronted with Novel Tasks

A few studies have investigated sex differences in tendencies to seek help when confronted with a novel task. Table 17.2.3.5 shows that the available research has concluded that females are more likely to do so than males.

17.2.3.6 Help Seeking When Interpersonal Disputes Arise

Several studies have compared the sexes in terms of help seeking behavior (usually from adults) when disputes arise between themselves and peers. Table 17.2.3.6 shows that females are more likely to do so than males in the vast majority of studies.

17.2.3.7 Obtaining Support from Others in Job Searches

Table 17.2.3.7 summarizes research findings regarding sex differences in receiving help from others when searching for a job. One can see that all the evidence points toward males receiving more help of this nature than is the case for females.

17.2.3.8 Seeking or Needing Assistance with Transportation

Some studies compared elderly men and women regarding their need for transportation assistance. Table 17.2.3.8 shows that all the findings point toward a greater need by females than by males.

17.2.3.9 Receiving Gifts

One study of sex differences in receiving gifts was conducted in several African countries. Table 17.2.3.9 shows that it concluded that adolescent females were more likely to be the recipient of gifts than were adolescent males.

Table 17.2.3.4 Seeking or obtaining support from others when under stress

Nature of difference	*Pre-pubertal*		*Post-pubertal*		
		Child	*Adolescent*	*Adult*	
More among males					
Not significant		**NORTH AMERICA** *United States*: Wertlieb et al. 1987 (when under stress, self-report); Herman & McHale 1993 (family stress, self-reports); Broderick 1998 (academic and family stress, self-reports)	**NORTH AMERICA** *United States*: Whitesell & Harter 1996 (when under stress, self-report)		
More among females			**EUROPE** *Hungry*: Piko 2001 (as a coping method) **NORTH AMERICA** *United States*: Kurdek 1987 (when under stress, self-report); JM Patterson & McCubbin 1987 (when under stress, self-report); GW Bird & Harris 1990 (when under stress, self-report); Bordzinsky et al. 1992 (young, when under stress, self-report); Halstead et al. 1993 (when under stress, self-report); Ebata & Moos 1994 (when under stress, self-report); SB Phelps & Jarvis 1994 (when under stress, self-report); Copeland & Hess 1995 (to cope with stress); Plancherel & Bolognini 1995 (young, when under stress, self-reports); Hastings et al. 1996 (when under stress, self-report); Chapman & Mullis 1999 (when under stress, self-report); Gomez et al. 1999 (young, when under stress, self-report); Bowker et al. 2000 (young, when under stress, self-report); Hunter & Boyle 2004 (when under stress, self-report)	**EUROPE** *Britain*: PDB O'Connor et al. 2003:213 (undergrad, in times of stress) **NORTH AMERICA** AL Day & Livingstone 2003 (seeking support as a coping strategy); *United States*: De Berger 1967 (when stressed); Pearlin & Schooler 1978 (when under stress); Funabiki et al. 1980 (when depressed); Folkman & Lazarus 1980 (social support to cope with stress); Billings & Moos 1981 (to cope with stress); AG Billings & Moos 1984 (depressed patients); A Nadler et al. 1984; Stokes & Wilson 1984* (emotional support); S Hamilton & Fagot 1988 (social support to cope with stress); SA Shields 1995 (emotional support); R Gray et al. 1996 (seek emotional support, among persons with cancer); Kavanaugh 1997 (following a newborn's death); Samter et al. 1997 (emotional support); Irizarry & Willard 1998 (following a child's SID); Klemm et al. 1999 (among persons with either breast or prostate cancer, seeking online support); Krizek et al. 1999 (involvement in cancer support groups); BA Matthews 2003 (broader range of support, cancer patients); Matud 2004 (seeking support as a coping strategy) **INTERNATIONAL** *Multiple Countries*: RM Ryan et al. 2005 (emotional support from family & friends)	

Table 17.2.3.5 Help seeking when confronted with novel tasks.

Nature of difference	*Pre-pubertal*		*Post-pubertal*		
		Child	*Adolescent*		
More among males					
Not significant					
More among females		**NORTH AMERICA** *United States*: Nelson-LeGall & Glor-Scheib 1985; RB Thompson 1999	**EUROPE** *Sweden*: Gadin & Hammarstrom 2000 (females ask teachers for help more often)		

Table 17.2.3.6 Help seeking when interpersonal disputes arise

Nature of difference	*Pre-pubertal*		*Post-pubertal*		*Wide age range*
		Child	*Adolescent*		
More among males					
Not significant		**NORTH AMERICA** *United States*: Brodzinsky et al. 1992; Bernzweig et al. 1993* (self-report); Herman & McHale 1993 (self-report, in response to family stress)			
More among females		**AFRICA** *South Africa*: Draper 1976 (!Kung tribe) **NORTH AMERICA** *United States*: McCandless et al. 1961; Freedman 1980; Causey & Dubow 1992 (self-report); Bernzweig et al. 1993* (parent-report); Kliewer et al. 1996 (self-report); Eisenberg et al. 1998*; Phelps 2001 (self-report, in response to relational aggression) **INTERNATIONAL** *Multiple Countries*: Whiting & Edwards 1973	**EUROPE** *Switzerland*: Plancherel & Bolognini 1995 (in response to relational aggression) **NORTH AMERICA** *United States*: Kurdek 1987 (young, self-report); CL Mitchell 1987; JM Patterson & McCubbin 1987 (self-report); GW Bird & Harris 1990 (young, self-report); Halstead et al. 1993 (self-report); Ebata & Moos 1994 (self-report); TL Hastings et al. 1996; Chapman & Mullis 1999; Gomez et al. 1999 (young); Bowker et al. 2000 (young); AJ Rose & Asher 2004 (older, self-report)		**NORTH AMERICA** *United States*: SC Hunter & Boyle 2004 (ages 9-14, self-report)

Table 17.2.3.7 Obtaining support from others in job searches

Nature of difference					*Wide age range*
More among males					**NORTH AMERICA** *United States*: Beggs & Hurlbert 1997 (job leads); Drentea 1998 (job leads); Straits 1998 (personal contacts in job searches); Mau & Kopischke 2001 (personal contacts in job searches); Huffman & Torres 2002 (job leads and personal contacts)
Not significant					
More among females					

Table 17.2.3.8 Seeking or needing assistance with transportation

Nature of difference			*Post-pubertal*		
				Adult	
More among males					
Not significant					
More among females				**EUROPE** *Britain*: Scott & Wenger 1995 (elderly) **NORTH AMERICA** *Canada*: Dupuis et al. 2007 (elderly, 33% vs. 10%, N = 263M + 576F); *United States*: Cutler & Coward 1992 (elderly); Collia et al. 2003 (elderly)	

Table 17.2.3.9 Receiving gifts

Nature of difference			*Post-pubertal*		
			Adolescent		
More among males					
Not significant					
More among females			**AFRICA** *Multiple Sub-Sahara African Countries*: AM Moore, Biddlecom & Zulu 2007:Table 1 (in connection with marriage or sexual favors, ages 12–19, N = 324M + 790F)		

17.3 Nonlingustic Communication or Communication in General

Nonlinguistic communication comes in several different forms. These forms include a variety of hand and facial gestures, and even fluctuations in one's tone or voice. Research having to do with sex differences in the use of nonlinguistic communication is presented below.

17.3.1 Nonlinguistic Communication

The most obvious forms of communication involve the use of language. Nevertheless, considerable information can be transmitted to others with facial expressions and other types of nonlinguistic gestures. In the section below, attention is given to findings of sex differences in nonlinguistic communication.

17.3.1.1 Gazing at Others

Substantial research has compared males and females regarding the time they spend gazing at others. Table 17.3.1.1a shows that most studies have found females gazing at other people more than do males.

Table 17.3.1.1a Gazing at others

Nature of difference	*Pre-pubertal*			*Post-pubertal*	
	Infant/toddler	*Child*		*Adult*	
More among males				**NORTH AMERICA** *United States*: Bente et al. 1998:53* (number of gaze incidences); B Levy et al. 2008 (an attractive member of the opposite sex); Lippa et al. 2010:242 (looking at female swimsuit models)	
Not significant					
More among females	**NORTH AMERICA** *Canada*: JF Benenson et al. 1999 (among newborns, N = 15m + 16F, circumcised boys excluded, researchers blind as to sex of the newborn)	**NORTH AMERICA** *United States*: Ashear & Snortum 1971 (while speaking); Podrouzek & Furrow 1988 (while speaking)		**EUROPE** *Britain*: Argyle & Dean 1965 **NORTH AMERICA** *United States*: WL Libby 1970; Aiello 1972 (time spent gazing); Exline 1963; Exline & Winters 1965; Exline et al. 1965; SJ Frances 1979 (N = 44M + 44F); Davidio et al. 1988 (at members of the opposite sex); Ickes et al. 1988 (same-sex interactions); Bente et al. 1998:53* (length of gaze) **OVERVIEW** *Meta-Analysis*: JA Hall 1984	

One study of sex differences in time spent gazing at images of fellow rhesus macaques after prolonged social isolation. Table 17.3.1.1b shows that the study indicated that females did so more than males.

Table 17.3.1.1b Gazing at others among non-humans

Nature of difference	*Pre-pubertal*				
	Infant/toddler				
More among males					
Not significant					
More among females	**PRIMATE** *Rhesus Macaque*: EA Simpson, Nicolini et al. 2016:Figure 2 (gazing at images of conspecifics)				

17.3.1.2 Head Nodding When Listening to Someone Speak

One study compared males and females as both were listening to an authoritative speaker. Table 17.3.1.2 shows that females nodded their head more as they were listening than was the case for males.

Table 17.3.1.2 Head nodding with listening to someone speak

Nature of difference				*Post-pubertal*	
				Adult	
More among males					
Not significant					
More among females				**NORTH AMERICA** *United States*: Helweg-Larsen et al. 2004 (undergrad, listening to an authority figure)	

17.3.1.3 Establishing/Maintaining Eye Contact in Social Interactions in General

Eye contact during social interactions is usually assessed by direct observation by a researcher either as events unfold or via videotaping the events. According to Table 17.3.1.3, nearly all studies indicate that females maintain greater eye contact with others during social interactions than do males. The two exceptional studies had to do with people who are speaking to an audience. In this case, males appear to maintain eye contact more than do females.

17.3.1.4 Making Eye Contact with Members of the Opposite-Sex

Making eye contact specifically with a member of the opposite sex often has flirtatious or sexual overtones. Table 17.3.1.4 shows that during adolescents, males appear to make eye contact with the opposite sex more often, whereas in other age groups, females appear to do so more.

Table 17.3.1.3 Establishing/maintaining eye contact in social interactions in general

Nature of difference	*Pre-pubertal*		*Post-pubertal*	*Wide age range*
	Infant/toddler	*Child*	*Adult*	
More among males			**NORTH AMERICA** *United States*: Dovidio et al. 1988a (with listeners while speaking); Dovidio et al. 1988b (with listeners while speaking)	
Not significant				
More among females	**EUROPE** *Britain*: Lutchmaya et al. 2002a (infant, with care giver/mother) **NORTH AMERICA** *United States*: Moss & Robson 1968 (3-month-olds); Hittelman & Dickes 1979 (infant with an adult); D Silverman 1987 (infant, with mothers); Podrouzek & Furrow 1988 (toddler, with adults)	**NORTH AMERICA** *United States*: Ashear & Snortum 1971; Levine & Sutton-Smith 1973; Russo 1975; Scheman & Lockard 1979; Benenson et al. 1998 (with their mothers while playing, N = 41) **OVERVIEW** *Literature Review*: Ellsworth & Ludwig 1972)	**NORTH AMERICA** *United States*: Exline 1963 (young); Argyle & Dean 1965 (when listening); Exline et al. 1965 (undergrad); Rubin 1970 (undergrad); Exline 1972 (young); Libby & Yaklevich 1973; Russo 1975; SJ Frances 1979; WL Libby 1990 (young); JA Hall & Freidman 1999:1088 (undergrad)	**NORTH AMERICA** *United States*: Ashear & Snortum 1971 (ages 4-14); Levine & Sutton-Smith 1973 (ages 4 to adulthood); Tennis & Dabbs 1975 **OVERVIEW** *Meta-Analysis*: J Hall 1984 (d = .68)

Table 17.3.1.4 Making eye contact with members of the opposite sex

Nature of difference	*Pre-pubertal*		*Post-pubertal*		*Wide age range*
	Infant/toddler	*Child*	*Adolescent*	*Adult*	
More among males			**EUROPE** *Germany*: Bente et al. 1998:45 **NORTH AMERICA** *United States*: TA Lamb 1981 (initial interaction)		
Not significant					
More among females	**NORTH AMERICA** *United States*: W Phillips et al. 1992	**NORTH AMERICA** *United States*: Hold 1976		**NORTH AMERICA** *United States*: JA Hall 1985 (undergrad); JA Hall & Halberstadt 1986 (undergrad); SJ Francis 1979 (young)	**NORTH AMERICA** *United States*: Dovidio et al. 1988a; Dovidio et al. 1988b; Ellyson 1992

17.3.1.5 Leaning Forward During Conversations

In two studies, sex differences in the tendency to lean forward during conversations with others were assessed. Table 17.3.1.5 shows that males did so more than females.

Table 17.3.1.5 Leaning forward during conversations

Nature of difference			*Post-pubertal*		
				Adult	
More among males				**NORTH AMERICA** *United States*: JA Hall 1985; Guerrero 1997	
Not significant					
More among females					

17.3.1.6 Unfriendly Nonverbal Communication

A few studies have compared the sexes regarding tendencies to exhibit unfriendly (including threatening) nonverbal behavior. Table 17.3.1.6a shows that such behavior appears to be more common among males than among females.

Table 17.3.1.6a Unfriendly nonverbal communication

Nature of difference	*Pre-pubertal*				*Wide age range*
		Child			
More among males		**NORTH AMERICA** *United States*: Kyratzis 1992 (young, threats); Hartup et al. 1993 (threats); Killen & Naigles 1995 (threats)			**ASIA** *Japan*: Cocroft & Ting-Toomey 1994* (face-threatening behavior) **NORTH AMERICA** *United States*: Cocroft & Ting-Toomey 1994* (face-threatening behavior)
Not significant					
More among females					

Two studies of sex differences in unfriendly communications (usually in the form of making threats) were located for non-humans. One can see in Table 17.3.1.6b that, among young opossums, females were found to be more unfriendly, but males were more among various species of primates.

Table 17.3.1.6b Unfriendly nonverbal communication among non-humans

Nature of difference	*Pre-pubertal*				*Wide age range*
		Child			
More among males					**PRIMATE** *Multiple Species*: Harlow & Rosenblum 1971
Not significant					
More among females		**MARSUPIAL** *Gray Short-Tailed Opossum*: BH Fadem & Corbett 1997 (threatening behaviors)			

17.3.2 Friendly Nonlinguistic Communication

Research findings on friendliness and honesty (as well as their opposites) will be examined in this section. Readers will see that a considerable amount of research on sex differences in these types of traits have been amassed.

17.3.2.1 Friendliness/Politeness/Respectfulness

A few studies of sex differences in friendliness, politeness, and respectfulness of others were located. As one can see in Table 17.3.2.1, while the number of findings is limited to adults, they all agree that females exhibit these tendencies to a greater degree than do males.

Table 17.3.2.1 Friendliness/politeness/respectfulness

Nature of difference			*Post-pubertal*		
				Adult	
More among males					
Not significant					
More among females				**ASIA** *Japan*: JS Smith 1992 (polite speech); Otto et al. 1996 (politeness) **NORTH AMERICA** *United States*: Cartwright 1972:215 (among medical students, self-assessed); WE Snell et al. 1989 (positive/friendly emotions toward others); MK Saurer & Eisler 1990 (express more positive and friendly emotions toward others); LF Barrett, Robin et al. 1998:565 (pleasant, self-assessment, undergrad, N = 28M + 42F); Kajonius & Johnson 2018:127 (N = 320,128, d = .07)	

17.3.2.2 Hand Shaking

A few studies have assessed sex differences in the frequency with which people shook hands. Table 17.3.2.2 shows that all studies concluded that males shook hands more than did females.

Table 17.3.2.2 Hand shaking

Nature of difference			*Post-pubertal*		
				Adult	
More among males				**NORTH AMERICA** *United States*: Kendon & Ferber 1973 (same-sex); Greenbaum & Rosenfeld 1980 (same-sex); Heslen & Boss 1980 (same-sex); Riggio et al. 1981 (same-sex)	
Not significant					
More among females					

17.3.2.3 Hugging

Table 17.3.2.3 presents findings regarding the number of times each sex was observed hugging. It indicated that same-sex hugging was more common among females.

Table 17.3.2.3 Hugging

Nature of difference			*Post-pubertal*		
				Adult	
More among males					
Not significant					
More among females				**NORTH AMERICA** *United States*: Heslin & Boss 1980 (same-sex hugging)	

17.3.2.4 Smiling Behavior

Smiling can occur under a variety of circumstances, but it is usually a social gesture that is most commonly exhibited under friendly social circumstances (Hall 1998:157). A very large number of studies have compared the prevalence of smiling by males and females. Due to the large number, the findings are presented in two tables, one for pre-pubertal individuals and the other for post-pubertal individuals.

Regarding individuals prior to puberty, Table 17.3.2.4a shows that the findings have been quite mixed among infants and toddlers. However, beyond toddlerhood, most studies suggest that girls smile more than do boys (although a few studies have reported no significant differences).

Table 17.3.2.4a Smiling behavior before puberty

Nature of difference	*Pre-pubertal*	
	Infant/toddler	*Child*
More among males	**NORTH AMERICA** *United States*: Lasky & Klein 1979 (infant, when in presence of mothers) **INTERNATIONAL** *Multiple Countries*: Kagan et al. 1994 (infant)	
Not significant	**NORTH AMERICA** *United States*: Nagy et al. 2001 (infant)	**LATIN/CARIBBEAN AMERICA** *Brazil*: Otto & Sarra 1990 (in interpersonal interactions); Otta 1998:910* (in photos) **NORTH AMERICA** *United States*: Stern & Bender 1974; B Lott 1978; Basow 1992:103* (d = .04); DK Dodd et al. 1999 (in photos); Wondergem & Friedlmeier 2012:407 (yearbook photos)
More among females	**NORTH AMERICA** *United States*: R Justin 1932 (toddler); HA Moss 1967:22 (infant); Korner 1969 (infant, during sleep); Korner 1969; Freedman 1974 (infant); DG Freedman 1979:175 (infant, blacks); Feldman et al. 1980; Cossette et al. 1996 (infant)	**ASIA** *Japan*: MH Bond and Ho 1978 (in interview) **LATIN/CARIBBEAN AMERICA** *Brazil*: Otta 1998:910* (in photos) **NORTH AMERICA** *United States*: Ding & Jersild 1932 (Chinese ancestry); McAdams et al. 1984 (in interpersonal interactions); PM Cole 1985 (when given a disappointing gift); Halberstadt et al. 1988 (in interpersonal interactions); JA Hall et al. 1994 (in interpersonal interactions); C Johnson 1994 (in interpersonal interactions

In the case of studies of individuals following puberty, Table 17.3.2.4b brings one to a similar conclusion. Thus, throughout the world, females appear to smile more than males, although the differences are not to the extent that they are always statistically significant.

17.3.2.5 Age of Onset of Smiling

One study was undertaken to determine if infant boys or infant girls exhibited smiling at an earlier average age. Table 17.3.2.5 shows that no significant difference was found.

Table 17.3.2.4b Smiling behavior following puberty

Nature of difference	*Post-pubertal*		*Wide age range*
	Adolescent	*Adult*	
More among males			
Not significant		**NORTH AMERICA** *United States*: Rosenfeld 1966; Mehrabian 1971a; Mehrabian 1971b; Jorgenson 1978; Tidd & Lockard 1978; Brennan-Parks et al. 1991:381 (young); JA Hall & Halberstadt 1986 (non-social settings); Fridlund 1991 (undergrad); JA Harrigan & O'Connell 1996 (undergrad, in interpersonal interactions); Guerrero 1997* (romantic interactions); Cashdan 1998 (undergrad)	**OCEANIA** *Australia*: DG Freedman 1979:178* (aboriginals)
More among females	**LATIN/CARIBBEAN AMERICA** *Brazil*: Otta 1998:9108 (in photos) **NORTH AMERICA** *United States*: SJ Frances 1979:525 (undergrad, during social interactions, N = 44M + 44F); Morse 1982 (photo); JM Regan 1982 (in photos); PW Berman & Smith 1984 (in personal interactions); J Mills 1984 (in photos); Kolaric & Galambos 1995 (in interpersonal interactions); Chapell 1997 (in interpersonal interactions); DK Dodd et al. 1999* (in photos); L Ellis & Das 2011:348 (when being photographed); Wondergem & Friedemeier 2012:407 (in HS yearbook photos)	**ASIA** *Japan*: MH Bond & Shiraishi 1974; MH Bond & Ho 1978:133 (during an interview); Wada 1989 (in interpersonal interactions) **EUROPE** *Germany*: Brosius et al. 1991* (in photos); *Italy*: Ricci Bitti et al. 1974 (in photos); *Netherlands*: Vrugt & Kerkstra 1984 (in photos); Vrugt & vanEechoud 2002:426 (undergrad, in personal interactions) **LATIN/CARIBBEAN AMERICA** *Brazil*: Otta 1998:910* (in photos); *Mexico*: Korzenny et al. 1985 (self-report) **NORTH AMERICA** *United States*: Sarason & Winkel 1966; Beekman 1970 (young); Bugental et al. 1971 (undergrad); Chaikin et al. 1974; McClintock & Hunt 1975 (in interpersonal interactions); Deaux 1976 (undergrad); DG Freedman 1976:52* (undergrad, in photos); Mackey 1976 (young); Henley 1977 (toward opposite sex); Chaikin & Derlega 1978; Chaiken 1979 (young); SJ Frances 1979 (when socially interacting, undergrad); Ickes et al. 1979; LaFrance & Carmen 1980 (undergrad); M Davis & Weitz 1981; C Morse 1982 (undergrad, in photos); JM Ragan 1982 (undergrad, in yearbook photos); Ickes & Turner 1983 (toward opposite sex); Kennedy & Camden 1983; McAdams et al. 1984 (in interpersonal interactions): J Mills 1984 (undergrad, in	**NORTH AMERICA** *United States*: Mehrabian & Williams 1969; JH Block 1976 (in interpersonal interactions); Mackey 1976 (in interpersonal interactions); RM Adams & Kirkevold 1978 (in a restaurant); Hildebrandt & Fitzgerald 1978; DE Freedman 1979:176* (in interpersonal interactions); Kraut & Johnston 1979; Hall 1984; Hall & Halberstadt 1986; Halberstadt et al. 1988 (in interpersonal interactions) **OVERVIEW** *Meta-Analysis*: J Hall 1994 (d = .63); La France et al. 2003 (d = .41)

		photos); J Hall & Halberstadt 1986 (in interpersonal interactions, undergrad); Halberstadt & Saitta 1987 (in personal interactions, undergrad); Dovidio et al. 1988 (in interpersonal interactions); Halberstadt et al. 1988 (undergrad, in interpersonal interactions, especially when discussing happy topics); Brownlow & Zebrowitz 1990 (in photos); Deutsch 1990 (undergrad, in interpersonal interactions); Brennan-Parks et al. 1991 (young, in yearbook photos); Hinsz & Tomhove 1991 (undergrad); Basow 1992:103* (effect size = 0.63); NJ Briton & Hall 1995 (young); Van Vianen & van Schie 1995 (in personal interactions); Coats & Feldman 1996 (when happy); Coats & Feldman 1996 (when happy); Guerrero 1997* (general social interactions); Hecht & LaFrance 1998 (undergrad, in personal interactions); Desantis et al. 1998 (young); Otta 1998 (in photos); DK Dodd et al. 1999 (young, in photos); DeSantis & Sierra 2000 (in photos); JA Hall et al. 2001 (in photos); JA Hall et al. 2002 (in photos); Kajonius & Johnson 2018:127 (cheerful, N = 320,128, d = .11) **OCEANIA** *Australia*: DG Freedman 1976:52* (undergrad, in photos) **INTERNATIONAL** *Cross-Cultural*: Waxer 1985 (in photos); Choe et al. 1986 (in photos)	

Table 17.3.2.5 Age of onset of smiling

Nature of difference	*Pre-pubertal*				
	Infant/toddler				
More among males					
Not significant	**EUROPE** *Hungary*: Nagy et al. 2001:190 (rated by mothers)				
More among females					

17.4 Linguistic Communication

The single most distinguishing characteristic of the human species is the ability to communicate with language. It is not surprising, therefore, that many scientific efforts have been undertaken to determine if males and females use their language capabilities differently. The findings are summarized below.

17.4.1 Basic Aspects of Linguistic Communication

This section begins by looking at all forms of linguistic communication. One will see that substantial numbers of studies have been reported regarding sex differences in overall linguistic communication.

17.4.1.1 Extensiveness of Linguistic Communication in General

Numerous studies have been undertaken to determine which gender talks the most, i.e., is the most talkative. So large were the number of studies that the relevant findings are summarized in two tables, one for toddlers and children, and the other for adolescents and adults. As shown in Table 17.4.1.1a, the findings for pre-pubertal individuals are quite varied, with most of the studies either suggesting there are no significant sex differences or that females are more talkative, both in terms of number of words spoken or the time spent speaking.

For adolescents and adults, Table 17.4.1.1b shows a pattern of mixed findings similar to those for pre-pubertal individuals, although there is a slight shift toward studies reporting that females talk more than do males in adulthood. There is substantial complexity to the findings reported, however. For example, there may be sex differences in the number of questions asked as opposed to answers given. Also, some of the inconsistencies could be due to whether the talking being sampled was in large gatherings, such as arranged business meetings, or in informal groups or just among close friends. Furthermore, one can see

Table 17.4.1.1a Extensiveness of linguistic communication in general, before puberty

Nature of difference	*Pre-pubertal*	
	Infant/toddler	*Child*
More among males	**NORTH AMERICA** *United States*: Cook et al. 1985 (toddler)	**EUROPE** *Britain*: Turner 1991; *Spain*: Ramirez & Mendoza 1984 (total number of words) **NORTH AMERICA** *United States*: Mueller 1972 (total number of words); AS Cook, Fritz et al. 1985 (preschool, N = 32); Austin et al. 1987 (between-sex conversations); Pellegrini & Perlmutler 1988 (total number of words)
Not significant	**NORTH AMERICA** *Canada*: Dunham et al. 1991 (toddler); *United States*: Garvey & BenDebba 1974 (toddler); Cherry & Lewis 1976 (toddler); Smith & Daglish 1977; Haas 1981 (toddler); Stuckey et al. 1982 (toddler); Liss 1983 (toddler); Miller et al. 1985 (toddler, duration of speech); DeLoache & DeMendoza 1987 (toddler); Blakemore 1990 (toddler); Dunn et al. 1991 (toddler); Black & Logan 1995 (toddler); Killen & Naigles 1995 (toddler); Leaper et al. 1995 (toddler)	**NORTH AMERICA** *Canada*: Serbin et al. 1979; Nohara 1996 (total number of words); *United States*: FL Goodenough 1930 (preschool); MS Fisher 1934 (preschool); Cowan et al 1967; Heider 1971; Milgram et al. 1971 (total number of words); Harris & Hassemer 1972; Klecan-Aker 1984; Mullis & Mullis 1985; Oscarson et al. 1987 (total number of words); Haslett & Bowen 1989; Craig & Evans 1991; McCloskey & Coleman 1992; Quay & Blaney 1992; Flannagan et al. 1995; DeHart 1996; Foot et al. 1997
More among females	**NORTH AMERICA** *United States*: S Goldberg & Lewis 1969 (toddler); Koenigsknecht & Friedman 1976* (toddler); Schachter et al. 1978 (mean length of utterance); Nasur & Gleason 1980 (toddler, total number of words); Fagot et al. 1985* (toddler); Coster et al. 1989; Reese & Fivush 1993 (toddler, speech duration); Morisset et al. 1995 (toddler, length of utterance); Leaper & Gleason 1996 (toddler) **OCEANIA** *Australia*: Hay et al. 1987	**EUROPE** *Britain*: PK Smith & Connolly 1972; *Finland*: Jormakka 1976 **NORTH AMERICA** *United States*: Smith & Connolly 1972 (total number of words); Brownell & Smith 1973; Langlois et al. 1973; Koenigsknecht & Friedman 1976*; McLoyd 1980 (total number of words); DiPietro 1981*; Lever 1976; DiPietro 1981*; Mather & Black 1984 (total number of words); Welkowitz et al. 1984 (speech duration); Buhrmester & Furman 1987; Charlesworth & Dzur 1987:198; Moore & Porter 1988 (speech duration); Leaper 1991

that the publications listed under the overviews were also inconsistent, with ones for adults indicating that males are more talkative, while one meta-analysis that included children concluded that most studies found females being more talkative prior to puberty.

Table 17.4.1.1b Linguistic communication in general, extensiveness of, after puberty

Nature of difference	*Post-pubertal*		*Wide age range*
	Adolescent	*Adult*	
More among males	**NORTH AMERICA** *United States*: Brophy & Good 1974 (talkative in class); Swacker 1975 (in formal settings)	**NORTH AMERICA** *United States*: Strodtbeck 1951 (husband-wife conversations); Stodtbeck & Mann 1956 (during jury deliberations); Strodtbeck et al. 1957 (during jury deliberations); DW Carment et al. 1964 (undergrad, spoke more in class, introduction to psychology); Lakoff 1975 (between-sex conversations); Zanna & Pack 1975; N Henley 1977 (between-sex conversations); Mayo & Henley 1981 (between-sex conversations); Aries 1987 (between-sex conversations); DeFrancisco 1991 (among married couples); Athenstaedt et al. 2004 **OVERVIEW** *Literature Review*: D James & Drakich 1993; *Meta-Analysis*: C Leaper et al. 2007:Table 7, N = 4,385)	**NORTH AMERICA** *United States*: Swacker 1979 (in formal settings)
Not significant	**NORTH AMERICA** *United States*: Webb 1984 (total number of words); Morse & Handley 1985 (speech duration)	**NORTH AMERICA** *United States*: Martin & Craig 1982 (undergrad, dyadic interactions); Mc Millan et al. 1977* (dyadic interactions); Cashdan 1998 (young); Robey et al. 1998:385 (married couples) **INTERNATIONAL** *Multiple Countries*: Mehl, Vazire et al. 2007:Table 1 (undergrad, N = 186M + 210F, both about 16,000 words spoken per day, U.S. & Mexico, F>M, d = .07)	**NORTH AMERICA** *Canada*: Walker 1991 (speech duration); *United States*: Johnson 1974; Staley 1982 (total number of words)
More among females	**NORTH AMERICA** *Canada*: Kolaric & Galambos 1995; *United States*: Entwisle & Garvey 1972; DM Bush et al. 1987; Raffaelli & Duckett 1989; Wong & Csikszentmihalyi 1991; TE Smith 1997 (self-report)	**NORTH AMERICA** *United States*: Argyle et al. 1968 (dyadic interactions); Marlett 1970 (dyadic interactions); Doherty 1974 (dyadic interactions); Fishman 1977 (young); Ickes & Barnes 1977 (young); Dabbs & Ruback 1984 (young); Grotenant & Cooper 1985 (respond more extensively to parental questions); De Francisco 1991; Sussman & Tyson 2000:389 (internet chatting)	**NORTH AMERICA** *United States*: Montemayor & Flannery 1989 (time spent talking); Tannen 1990 **OVERVIEW** *Meta-Analysis*: Leaper & Smith 2004 (especially prior to adulthood)

17.4.1.2 Words Spoken per Minute

Three studies reported on sex differences in the average number of words spoken per minute. As one can see in Table 17.4.1.2, the findings have not been consistent.

Table 17.4.1.2 Words spoken per minute

Nature of difference			*Post-pubertal*		
				Adult	
More among males				**EUROPE** *Ireland*: A Lee & Doherty 2017 (N = 22M + 22F)	
Not significant				**NORTH AMERICA** *United States*: VG Walker 1988:16 (young)	
More among females				**NORTH AMERICA** *United States*: W Johnson et al. 1963:220	

17.4.1.3 Storytelling

Are men or women more prolific storytellers? Especially in remote or pre-mass media human populations, a common way to pass the time was to convey stories, whether true or not. As shown in Table 17.4.1.3, there is no consistent sex difference in the telling of stories.

Table 17.4.1.3 Storytelling

Nature of difference			*Post-pubertal*		*Wide age range*
				Adult	
More among males				**AFRICA** *Morocco*: Kapchak 1996:39 (Morocco, adults) **ASIA** *India*: Fuchs 1960 (Gond & Bhuma ethnic groups, adults) **EUROPE** *Estonia*: R Järv 2005:52 (1855-1918, 687 stories, 70.7% of storytellers were males) **LATIN/CARRIBBEAN AMERICA** *Mexico*: JM Taggart 1979:723 (Mexico, Nahuat, adults) **NORTH AMERICA** *United States*: BA Babcock 1993:84-85 (Native American in New Mexico)	**LATIN/CARRIBBEAN AMERICA** *Bolivia*: E Schniter et al. 2018:101* (ages 15-59, N = 188)
Not significant				**AFRICA** *Botswana*: M Biesele 1993); PW Wiessner 2014 (174 nightly conversations)	

(*Continued*)

Table 17.4.1.3 (Continued)

Nature of difference			*Post-pubertal*		*Wide age range*
				Adult	
More among females				**AFRICA** *Mali*: Calame-Griaule 1986:596 (Dogon tribe); *Sudan*: El Nour 1997; El Nour 2011a; El Nour 2011b **ASIA** *Russia*: K Van Deussen 2001:xii **EUROPE** *Estonia*: R Järv 2005:52 (1918-1999, 2,541 stories, 75.2% of story-tellers female) **LATIN/CARRIBBEAN AMERICA** *Bolivia*: E Schniter et al. 2018:101* (over age 60, N = 37) **NORTH AMERICA** *United States*: ME Gregor 2010 (between 1890 and 1920) **OCEANIA** *Philippines*: D Smith, Schlaeper et al. 2017:6 (Agta tribe, 51M vs. 74F, considered most skilled storytellers)	

17.4.2 Type of Sentences Used

Sex differences in the types of sentences constructed are summarized in the following section. Some of the studies are based on speech while others come from studying writing.

17.4.2.1 Adopting an Opposite-Sex Conversational Style

Males and females may exhibit differences in how they converse. One study examined male-female differences in conversational styles when talking to their own sex and when talking to the opposite sex. As shown in Table 17.4.2.1, the study found males shifting their conversational style more toward a female mode when talking to the opposite sex than did females when talking to the opposite sex.

17.4.2.2 Average Sentence Length

Are there sex differences in the average sentence produced either spoken or in writing? Considerable research has sought to find out. Table 17.4.2.2 provides somewhat mixed evidence, although most studies have found females producing sentences with more words than is true for males. Topics being discussed could account for some of the inconsistencies.

Table 17.4.2.1 Adopting an opposite sex conversational style

Nature of difference				*Post-pubertal*	
				Adult	
More among males				**NORTH AMERICA** *United States*: MA Fitzpatrick et al. 1995 (when conversing with a spouse)	
Not significant					
More among females					

Table 17.4.2.2 Average sentence length

Nature of difference	*Pre-pubertal*			*Post-pubertal*	
	Infant/toddler	*Child*		*Adult*	
More among males		**NORTH AMERICA** *United States*: MS Fisher 1934* (preschool, spoken); Mulac et al. 1990 (written essays)			
Not significant					
More among females	**NORTH AMERICA** *United States*: MS Fisher 1934* (toddler, spoken)	**NORTH AMERICA** *United States*: ME Smith 1926; DA McCarthy 1930 (preschool, spoken); EA Davis 1937a:49 (spoken); EA Davis 1937b:72 (spoken); Bennett et al. 1956 (longer and more complex); Hunt 1965 (written assignments); Poole 1979 (spoken discourse)		**NORTH AMERICA** *United States*: Krugman 1966 (describing things in response to commercials); DePaulo & Rosenthal 1979 (to describe things); Mulac et al. 1986 (verbal discourse); Mulac & Lundell 1986 (verbal speech); Meyers-Levy & Sternthal 1991:89 (in describing things); Mulac & Lundell 1994 (written discourse); NS Baron 2004 (undergrad students, length of instant messaging via internet)	

17.4.2.3 Referring to Emotions (Using Emotion-Laden Sentences)

Emotion-laden words include those of *love*, *hate*, *happy*, and *sad*. As shown in Table 17.4.2.3, most studies have indicated that females are more likely than males to include emotion-laden words in their conversations and writings.

Table 17.4.2.3 Referring to emotions (using emotion-laden sentences)

Nature of difference	*Pre-pubertal*		*Post-pubertal*	
	Infant/toddler	*Child*	*Adult*	
More among males			**NORTH AMERICA** *United States*: Rubin & Greene 1992 (undergrad, writing assignment)	
Not significant	**NORTH AMERICA** *United States*: S Adams et al. 1995 (toddler)		**NORTH AMERICA** *United States*: Brownlow et al. 2003	
More among females	**NORTH AMERICA** *United States*: Malatesta et al. 1989 (toddler, assessed by parents); S Adams et al. 1995* (toddler); Fivush et al. 2000* (toddler)	**NORTH AMERICA** *United States*: Staley 1982 (oral descriptions of pictures); J Dunn et al. 1987 (assessed by parents); Botkin & Twardosz 1988 (assessed by teachers); Kuebli & Fivush 1992; S Adams et al. 1995*	**NORTH AMERICA** *United States*: Balswick & Avertt 1977 (written responses to questions); Mulac et al. 1986 (public speeches); Fivush et al. 2000*; Brody 2001:56; Winn & Rubin 2001 (use more references to emotions in writing); NS Baron 2004* (undergrad, more emoticons in instant messages) **INTERNATIONAL** *Multiple Countries*: Scherer et al. 1986; ML Newman, Groom et al. 2008:Table 1 (both positive and negative)	

17.4.3 Types of Words Used

Are there sex differences in terms of the types of words people use, either when speaking or when writing? The tables below address this question.

17.4.3.1 Beginning Sentences with Adverbial Clauses

An adverbial clause is a group of words that adds meaning to a sentence even though they are not essential for making a sentence complete. These clauses usually appear at the beginning of a sentence followed by a comma. For example, the statement "The birds flew away." is a complete sentence. However, more information can be provided by adding an adverbial clause: "As soon as the bomb exploded, the birds flew away." Table 17.4.3.1 indicates that females are more likely than males to use these clauses.

Table 17.4.3.1 Beginning sentences with adverbial clauses

Nature of difference	*Pre-pubertal*		*Post-pubertal*		
		Child		*Adult*	
More among males					
Not significant					
More among females		**NORTH AMERICA** *United States*: Mulac et al. 1990 (written essays)		**NORTH AMERICA** *United States*: Mulac et al. 1986 (public speaking); Mulac et al. 1988 (dyadic interactions); Mulac & Lundell 1994 (written discourse)	

17.4.3.2 Swearing and Cursing

Numerous studies have investigated sex differences in the use of "coarse language" or "taboo words." As one can see in Table 17.4.3.2, nearly all of these studies have concluded that males use such language more. The two exceptional studies involved mixed-sex conversations, as opposed to same-sex conversations, both indicating that in this case swearing and cursing were not significantly different.

17.4.3.3 Using Abbreviations and Acronyms

One study compared samples of electronic communication regarding sex differences in the use of abbreviations and acronyms. Table 17.4.3.3 shows that it concluded that females do so more than males.

Table 17.4.3.2 Swearing and cursing

Nature of difference	*Pre-pubertal*		*Post-pubertal*		*Wide age range*
		Child	*Adolescent*	*Adult*	
More among males		**NORTH AMERICA** *United States*: Abrahams 1962; Sutton-Smith & Abrams 1978; McCabe & Lipscomb 1988	**MIDDLE EAST** *Israel*: Sherer & Karnieli-Miller 2004:102 **NORTH AMERICA** *United States*: GW Bird & Harris 1990 (as a coping response); Lerman 1968; Shuntich & Shapiro 1991	**EUROPE** *Britain*: Thelwall 2008* (postings on My Space, N = 486 + 281F) **LATIN/CARIBBEAN AMERICA** *Mexico*: Bernard 1975* (young; Otomi Indians) **NORTH AMERICA** *United States*: Steadman 1935; Hunter & Gaines 1938; Joffe 1948; McGinnies 1949; Deveraux 1951* (young, Mohave Indians); Postman et al. 1953; Nothman 1962; Grosser & Laczek 1963; Grosser & Walsh 1966; Gilley & Summers 1970; Milner & Moses 1972; Foote & Woodward 1973; Kutner & Brogan 1974; Walsh & Leonard 1974; Mabry 1975; W Wilson 1975 (undergrad); Halaby & Long 1979; JS Sanders & Robinson 1979 (undergrad); Selnow 1985; De Klerk 1991; Murnen 2000 (undergrad); Kinney et al. 2001 (undergrad); Thelwall 2008* (postings on My Space, N = 4,659M + 3,950F); Cressman & Callister 2009:Table 3 (characters played on 90 moves released from 1980-2006) **OCEANIA** *New Zealand*: Bayard & Krishnayya 2001* (same-sex groups)	**ASIA** *Japan*: Shibamoto 1985 (adolescent & adult); Shibamoto 1990 (adolescent & adult); JS Smith 1992 (adolescent & adult) **EUROPE** *Britain*: Jespersen 1922 **NORTH AMERICA** *United States*: Flexner 1960; Lowenstine et al. 1982 (in graffiti); Limbrick 1991* (same-sex groups) **OCEANIA** *New Zealand*: JA Green 2003 (in graffiti)
Not significant				**OCEANIA** *New Zealand*: Bayard & Krishnayya 2001* (mixed-sex groups)	**NORTH AMERICA** *United States*: Limbrick 1991* (mixed-sex groups)
More among females					

Table 17.4.3.3 Using abbreviations and acronyms

Nature of difference				*Post-pubertal*	
				Adult	
More among males					
Not significant					
More among females				**NORTH AMERICA** *United States*: NS Baron 2004 (undergrad, abbreviations & acronyms in instant messages)	

17.4.3.4 Using Assertive Speech

Research findings on sex differences in the use of assertive speech were limited to a single study. Table 17.4.3.4 shows that the study reported males doing so more than females.

Table 17.4.3.4 Using assertive speech

Nature of difference					*Wide age range*
More among males					**OVERVIEW** *Meta-Analysis*: C Leaper et al. 2007:Table 7 (N = 2,781, d = .09)
Not significant					
More among females					

17.4.3.5 Using Big Words

So-called *big words* usually mean words that are rarely used in normal conversations or writings and that often have some obscure technical meaning. Table 17.4.3.5 shows that the one study of sex differences in the use of big words found it to be more common among males than among females.

Table 17.4.3.5 Using big words

Nature of difference				*Post-pubertal*	
				Adult	
More among males				**NORTH AMERICA** *United States*: Brownlow et al. 2003	
Not significant					
More among females					

17.4.3.6 Using Bold (Flamboyant) Phrasing

Bold and flamboyant phrasing can take on a variety of forms, but usually involve exaggerating what are typically modest differences and patterns. According to Table 17.4.3.6, the limited findings have not been entirely consistent in documenting a sex difference in this regard.

Table 17.4.3.6 Using bold (flamboyant) phrasing

Nature of difference			*Post-pubertal*		
			Adolescent	*Adult*	
More among males			**NORTH AMERICA** *United States*: Markel et al. 1972* (with greater intensity)	**EUROPE** *Britain*: Francis et al. 2001 **NORTH AMERICA** *United States*: Markel et al. 1972* (with greater intensity)	
Not significant					
More among females				**NORTH AMERICA** *United States*: NS Baron 2004 (undergrad, more emoticons in instant messages)	

17.4.3.7 Using Proper Grammar

A few studies compared the sexes regarding their use of proper grammar. Table 17.4.3.7 shows that, except for a study of preschoolers that found no difference, all studies have concluded that females are more likely than males to use proper grammar.

Table 17.4.3.7 Using proper grammar

Nature of difference	*Pre-pubertal*				*Wide age range*
		Child			
More among males					
Not significant		**NORTH AMERICA** *Canada*: Timmons & Boudreau 1976 (ages 5-13, proper speech); *United States*: Mehrabian 1970 (preschool, N = 127)			
More among females		**NORTH AMERICA** *United States*: WW Clark 1959			**EUROPE** *Britain*: Trudgill 1972 (grammar) **NORTH AMERICA** *United States*: Terman et al. 1925; Fischer 1958 (grammar); Levine & Crocket 1966 (grammar); Shuy et al. 1967 (grammar); Anshen 1969 (grammar); Wolfram 1969 (grammar, blacks); Loewenstine et al. 1982 (in graffiti messages) **INTERNATIONAL** *Multiple Countries*: D Reilly 2002

17.4.3.8 Using Tentative Language (Qualifiers and Hedging Words)

Quite a number of studies have compared the sexes regarding the use of various qualifying and hedging words and phrases (such as *more or less* and *sort of* or *I could be wrong, but*). Also, phrases such as "you know?" and "I mean" fit into this category. Table 17.4.3.8 shows that most of studies have concluded that these tentative words and phrases are more common in the speech and writing of females than of males.

17.4.3.9 Using Terms Indicating Uncertainty

Some studies have investigated sex differences in the use of words indicating uncertainty with regard to a variety of questions, usually of an empirical nature. Table 17.4.3.9 shows that all of these studies agree that females appear to be less certain about any answer they give than is the case for males.

17.4.3.10 Using Intensifying Adverbs

Sex differences in the use of intensifying adverbs (such as *very* and *extremely*) have been the focus of several studies. One can see by viewing Table 17.4.3.10 that they have all concluded that females use these adverbs more than do males.

17.4.3.11 Using Words Designed to Influence Others

A few studies have sought to determine which sex seems to be seeking to influence others the most. Examination of Table 17.4.3.11 reveals that males make utterances reflecting such intensions more than do females.

17.4.3.12 Using Judgmental Adjectives

Judgmental adjectives are ones that express or at least imply a value judgment by the person who is speaking or writing. As shown in Table 17.4.3.12, males appear to use such adjectives to a greater degree than do females.

17.4.3.13 Using Pronouns

Pronouns are words such as *he*, *she*, *it*, and *them* that can be broadly applied to specific individuals or groups without actually referring to them by name. The evidence summarized in Table 17.4.3.13 provides a mixed picture regarding any sex difference in the use of pronouns although most studies suggest that females do so more.

Table 17.4.3.8 Using tentative language (qualifiers and hedging words)

Nature of difference			*Post-pubertal*		*Wide age range*
			Adolescent	*Adult*	
More among males				**NORTH AMERICA** *United States*: Polomares 2009* (when discussing masculine topics) **OCEANIA** *New Zealand*: J Holmes 1987 ("sort of")	
Not significant				**AFRICA** *South Africa*: JR Dixon & Foster 1997 (undergrad, whites) **NORTH AMERICA** *United States*: Baumann 1976; Crosby & Nyquist 1977; Brouiver et al. 1979; Mulac et al. 1986; Mulac et al. 1988; Grob, Meyers & Schuh 1997:292; R Thomson 2006 (via computer mediated conversations)	
More among females			**NORTH AMERICA** *United States*: Entwisle & Garvey 1972; Mulac et al. 1990 (impromptu written essays); DL Rubin & Green 1992 (in writing qualifiers)	**ASIA** *Malaysia*: Michael, Chone et al. 2010:Figure 5 (hedging words or phrases) **EUROPE** *Britain*: Preisler 1986; Pasterski et al. 2011 (undergrad, categorical questions) **NORTH AMERICA** *United States*: Lakoff 1973; Lakoff 1975 (in qualifiers); Swacker 1975; Hartman 1976; F Crosby & Nyquist 1977 (undergrad, dyadic interactions); JR McMillan, Clifton et al. 1977; PM Fishman 1980; O'Barr 1982; Stutman 1987; LL Carli 1989 (psychology undergrads); LL Carli 1990; Womak 1987; Mulac 1989 (qualifiers); Carli 1990; Lakoff 1990 (qualifiers); Carli et al. 1995 (psychology undergraduates); Mulac 1998 (qualifiers); Polomares 2009* (when discussing masculine topics) **OCEANIA** *Australia*: Reid et al. 2003 (undergraduates); *New Zealand*: J Holmes 1988	**NORTH AMERICA** *United States*: Hass & Wepman 1973 (early childhood through adolescence); Laserna, Seih & Pennebaker 2014 (ages 17-69, N = 126M + 137F) **OVERVIEW** *Meta-Analysis*: Grob & Allen 1996

Table 17.4.3.9 Using terms indicating uncertainty

Nature of difference	*Pre-pubertal*		*Post-pubertal*	
		Child		*Adult*
More among males				
Not significant				
More among females		**NORTH AMERICA** *United States*: Mulac & Lundell 1994 (impromptu talks)		**NORTH AMERICA** *United States*: Hartman 1976 (interviews); B Duncan & Duncan 1978; Poole 1979 (interviews); R Shapiro & Mahajan 1986 (responding "don't know" in a survey); Carli 1990 (psychology undergraduates); MF Fox & Firebaugh 1992:107 (responding "don't know" in a survey)

Table 17.4.3.10 Using intensifying adverbs

Nature of difference			*Post-pubertal*	
			Adolescent	*Adult*
More among males				
Not significant				
More among females			**NORTH AMERICA** *United States*: Mulac et al. 1990 (written essays)	**NORTH AMERICA** *United States*: Crosby & Nyquist 1977 (dyadic interactions); Mc Millan et al. 1977 (group discussions); Lapadat & Seesahai 1978 (group discussions); Mulac & Lundell 1986 (oral descriptions of pictures); Mulac et al. 1986 (public speeches); Mulac et al. 1988 (dyadic interactions); Braduc et al. 1995 (communication students); MA Fiztpatrick et al. 1995; LH Turner et al. 1995 (dyadic interactions)

Table 17.4.3.11 Using words designed to influence others

Nature of difference			*Post-pubertal*	*Wide age range*
			Adult	
More among males			**NORTH AMERICA** *United States*: Ayers-Nachamkin et al. 1982 (young, threats & pledges to influence others); DeTurck & Miller 1982 (young, threats & pledges to influence others)	**NORTH AMERICA** *United States*: Kipnis et al. 1980 (threats & pledges to influence others)
Not significant				
More among females				

Table 17.4.3.12 Using judgmental adjectives

Nature of difference	*Pre-pubertal*		*Post-pubertal*		
		Child	*Adolescent*	*Adult*	
More among males		**NORTH AMERICA** *United States*: Sause 1976 (writing)	**NORTH AMERICA** *United States*: Mulac et al. 1990 (written essays)	**NORTH AMERICA** *United States*: Mulac & Lundell 1994 (written descriptions of photos)	
Not significant					
More among females					

Table 17.4.3.13 Using pronouns

Nature of difference	*Pre-pubertal*		*Post-pubertal*		
		Child	*Adolescent*	*Adult*	
More among males			**NORTH AMERICA** *United States*: Mulac et al. 1990 (impromptu essays, personal)	**NORTH AMERICA** *United States*: Mulac & Lundell 1994 (written discourse, personal); Argamon et al. 2003* (in writing, plural)	
Not significant					
More among females		**NORTH AMERICA** *United States*: Koenigsknecht & Friedman 1976 (verbal description of experiences, personal); Haslett 1983 (written stories, personal)		**NORTH AMERICA** *United States*: Gleser et al. 1959 (verbal conversation, personal); Westmoreland et al. 1977 (undergrad, authored news articles, personal); Mulac & Lundell 1986 (oral description of photos, personal); Mulac et al. 1988 (self-referent pronouns, dyadic interactions, personal); Hay 2000; Argamon et al. 2003* (in writing, personal); Brownlow et al. 2003 (self-referent pronouns) **INTERNATIONAL** *Multiple Countries*: ML Newman, Groom et al. 2008:Table 1	

17.4.3.14 Using Active/Progressive Verbs

Most words ending in *ing* are active (or progressive) verbs (e.g., I am *going* to the store). Table 17.4.3.14 shows that the findings of studies of sex differences in the use of progressive verbs have not reached consistent conclusions.

Table 17.4.3.14 Using active/progressive verbs

Nature of difference	*Pre-pubertal*		*Post-pubertal*		
		Child	*Adolescent*	*Adult*	
More among males				**NORTH AMERICA** *United States*: Mulac et al. 1986 (public speaking)	
Not significant					
More among females		**NORTH AMERICA** *United States*: Mulac & Lundell 1994 (impromptu talks)	**NORTH AMERICA** *United States*: Mulac et al. 1990 (impromptu written essays)		

17.4.3.15 Using Dependent Clauses

Clauses are groups of words containing both a subject and a verb. *Dependent clauses* convey information within a sentence but cannot stand along as a complete sentence. As shown in Table 17.4.3.15, a few studies have indicated that females surpass males in the use of dependent clauses.

Table 17.4.3.15 Using dependent clauses

Nature of difference	*Pre-pubertal*		*Post-pubertal*		
		Child		*Adult*	
More among males					
Not significant					
More among females		**NORTH AMERICA** *United States*: KW Hunt 1965 (in written essays); Poole 1979 (in spoken discourse); Mulac et al. 1990 (in impromptu talks)		**NORTH AMERICA** *United States*: R Beck 1978 (in oral presentations); Mulac & Lundell 1994 (written discourse)	

17.4.4 Topics of Conversation or Writings

Do the sexes differ with regard to the topics they discuss or write about? Findings pertinent to this question are presented in the following tables.

17.4.4.1 Communicating Emotional States

In one study, boys and girls were judged in terms of their abilities to communicate their emotional states. As shown in Table 17.4.4.1, girls were thought to have better abilities than boys in this regard.

Table 17.4.4.1 Communicating emotional states

Nature of difference	*Pre-pubertal*				
		Child			
More among males					
Not significant					
More among females		**NORTH AMERICA** *United States*: Buck 1975 (judges college age)			

17.4.4.2 Referring to Physical Objects and Locations

Some research has investigated sex differences in tendencies to refer to specific physical objects or geographic locations. One can see in Table 17.4.4.2 that all studies agree that males are more likely than females to make such references.

Table 17.4.4.2 Referring to physical objects and locations

Nature of difference			*Post-pubertal*		
				Adult	
More among males				**NORTH AMERICA** *United States*: Gleser et al. 1959 (oral descriptions of events); Mulac & Lundell 1986 (oral descriptions of objects) **OVERVIEW** *Meta-Analysis*: ML Newman, Groom et al. 2008:Table 4	
Not significant					
More among females					

17.4.4.3 Referring to Specific Quantities

A few studies have investigated sex differences in terms of the number of references made to quantities. As shown in Table 17.4.4.3, males appear to be more likely to make such references than are females.

Table 17.4.4.3 Referring to specific quantities

Nature of difference	*Pre-pubertal*		*Post-pubertal*		
		Child		*Adult*	
More among males		**NORTH AMERICA** *United States*: Sause 1976 (oral interview)		**NORTH AMERICA** *United States*: Gleser et al. 1959 (oral conversation); MM Wood 1966 (spontaneous speech); Warshay 1972 (written essay); Mulac & Lundell 1986 (oral description of figures)	
Not significant					
More among females					

17.4.4.4 Making Self-Derogatory Remarks

One study compared the sexes in terms of having made self-derogatory remarks. Table 17.4.4.4 shows that females do so to a greater degree than males.

Table 17.4.4.4 Making self-derogatory remarks

Nature of difference				*Post-pubertal*	
				Adult	
More among males					
Not significant					
More among females				**NORTH AMERICA** *United States*: R Thomson et al. 2001:173 (internet conversations)	

17.4.1.5 Disclosing Personal Information

Substantial research has been undertaken to assess sex differences in tendencies to disclose personal information. Table 17.4.1.5 shows that all studies have found this tendency to be more prevalent among females than among males.

17.4.4.6 Discussing Sexuality

One study investigated sex differences in the tendency to discuss matters having to do with sexuality. In Table 17.4.4.6, one can see that males do so more than do females.

17.4.4.7 Referring to People's Social Relationships

One report reviewed findings of sex differences in the number of references people make to other people or to social relationships in their conversations. Table 17.4.4.7 shows that it indicated that females do so more than males.

17.4.4.8 Using Words Referring to Home

In a study of several countries, one research team reported evidence of sex differences in the use of words referring to home. As shown in Table 17.4.4.8, it indicated that females did so more than males.

17.4.4.9 Using Words Referring to Work or Money

Do the sexes differ in terms of using words referring to work or to money? As shown in Table 17.4.4.9, one study indicated that both of these words were used by males more than by females.

Table 17.4.1.5 Disclosing personal information

Nature of difference	*Pre-pubertal*		*Post-pubertal*		*Wide age range*
		Child	*Adolescent*	*Adult*	
More among males				**NORTH AMERICA** *United States*: Derlega et al. 1985* (to same-sex target)	
Not significant				**NORTH AMERICA** *United States*: Derlega et al. 1985* (to opposite-sex target)	**NORTH AMERICA** *United States*: HR Reis et al. 1985* (to same-sex target)
More among females		**EUROPE** *Britain*: RB Thompson & Moore 2000 **NORTH AMERICA** *United States*: Fuchs & Thelen 1988 (negative experiences); ML Clark & Ayers 1993	**EUROPE** *Britain*: D Tanner 1990 **NORTH AMERICA** *United States*: Kraft & Vros 1975	**NORTH AMERICA** *United States*: Jourard & Lasakow 1958; Komarovsky 1967 (married couples); Levinger & Senn 1967 (married couples); Jourard 1971; RJ Burke et al. 1976 (among married couples); Derlega et al. 1981; Henrick 1981 (among married couples); Hayes 1984; CT Hill & Stull 1987; LJ Walker et al 1987 (discuss personal problems with counselors/researchers); Balswick 1988; Lewis & McCarthy 1988; Pratt et al. 1988 (discuss personal problems with counselors/researchers); Snell et al. 1988 (especially negative emotions); Snell et al. 1989 (expressed a willingness to do so); Acitelli 1992 (discuss personal problems with counselors/researchers, marital couples); Hay 2000 (provide more personal information with their speech) **NORTH AMERICA** *United States*: Jourard & Lasakow 1958; Jourard & Richman 1963 (undergrad)	**NORTH AMERICA** *United States*: Jourard 1961; HR Reis et al. 1985* (to opposite-sex target) **OVERVIEW** *Meta-Analysis*: Dindia & Allen 1992:110 (d = .18 overall, d = .35 to female target, d = .37 for same-sex target, d = .13 to opposite-sex target)

Table 17.4.4.6 Discussing sexuality

Nature of difference					*Wide age range*
More among males					**NORTH AMERICA** *United States*: W Simon et al. 1972 (past premarital sexual experiences)
Not significant					
More among females					

Table 17.4.4.7 Referring to people's social relationships

Nature of difference			*Post-pubertal*		
				Adult	
More among males					
Not significant					
More among females				**OVERVIEW** *Meta-Analysis*: ML Newman, Groom et al. 2008:Table 4	

Table 17.4.4.8 Using words referring to home

Nature of difference			*Post-pubertal*		
				Adult	
More among males					
Not significant					
More among females				**INTERNATIONAL** *Multiple Countries*: ML Newman, Groom et al. 2008:Table 1 (d = .15)	

Table 17.4.4.9 Using words referring to work or money

Nature of difference			*Post-pubertal*		
				Adult	
More among males				**INTERNATIONAL** *Multiple Countries*: ML Newman, Groom et al. 2008:Table 1	
Not significant					
More among females					

17.4.4.10 Using Words Referring to Sports

Sex differences in the use of words having to do with sports has been investigated by one study. Table 17.4.4.10 shows that the study concluded that males use more sports references in their discussions than is true for females.

Table 17.4.4.10 Using words referring to sports

Nature of difference			*Post-pubertal*		
				Adult	
More among males				**INTERNATIONAL** *Multiple Countries*: ML Newman, Groom et al. 2008:Table 1 (d = .15)	
Not significant					
More among females					

17.4.5 Graffiti

Graffiti refers to written messages that most often appear on toilet stalls or on the walls of subways and underpasses. Most of the studies located pertained to graffiti appearing on toilet stalls, some of which were based on self-reports.

17.4.5.1 Writing Graffiti in General

Since most studies of graffiti are not based on direct observation of the writing taking place or on the basis of self-reports, the age of the writers is generally inferred. For example, in all likelihood, graffiti in high school restrooms were written by teenagers, whereas restrooms in universities or in bars frequented by college students were most likely written by these students. It is on these bases that the age groupings are presented. To control for any sex differences in the frequency of restroom usage, some studies have used counters for the number of times stall doors are being open and closed, while other studies divide the messages written by the number of rolls of toilet paper used (Buser & Ferreira 1980). Table 17.4.5.1 indicates that findings have been mixed with respect to indicating significant sex differences in the writing of graffiti messages on restroom walls.

17.4.5.2 Writing Graffiti on Political Topics

Most graffiti have been found to deal with one of three topics: politics, sexuality, and romance. In Table 17.4.5.2, one can see that the findings are not consistent regarding any sex differences in tendencies to write on political topics.

Table 17.4.5.1 Writing graffiti in general

Nature of difference			*Post-pubertal*		*Wide age range*
			Adolescent	*Adult*	
More among males			**NORTH AMERICA** *United States*: Peretti et al. 1977	**NORTH AMERICA** *United States*: Sechrest & Flores 1969*; Schreer & Strichartz 1997 **OCEANIA** *Philippines*: Sechrest & Flores 1969*	**NORTH AMERICA** *United States*: Otta 1993
Not significant					
More among females			**NORTH AMERICA** *Canada*: Ahmed 1981; *United States*: Wales & Brewer 1976	**NORTH AMERICA** *United States*: Stocker et al. 1972	

Table 17.4.5.2 Writing graffiti on political topics

Nature of difference			*Post-pubertal*	*Wide age range*
			Adult	
More among males				**NORTH AMERICA** *United States*: Loewenstine et al. 1982; Otta et al. 1996
Not significant				**NORTH AMERICA** *United States*: Otta 1993
More among females			**NORTH AMERICA** *United States*: Schreer & Strichartz 1997 (self-reports)	

17.4.5.3 Writing Graffiti on Sexual Topics

A few studies investigated sex differences in the proportion of graffiti written on sexual topics (excluding romantic topics). One can see in Table 17.4.5.3 that the findings were not consistent.

17.4.5.4 Writing Graffiti on Romantic Topics

Just one study was located on sex differences in writing graffiti containing a romantic theme. Table 17.4.5.4 shows that the study concluded that this type of graffiti is more common among females than among males.

Table 17.4.5.3 Writing graffiti on sexual topics

Nature of difference	*Post-pubertal*	*Wide age range*
	Adult	
More among males	**NORTH AMERICA** *United States*: Schreer & Strachartz 1997 (self-report)	
Not significant		**NORTH AMERICA** *United States*: Otta et al. 1996
More among females		**NORTH AMERICA** *United States*: Bates & Martin 1980

Table 17.4.5.4 Writing graffiti on romantic topics

Nature of difference	*Wide age range*
More among males	
Not significant	
More among females	**NORTH AMERICA** *United States*: Loewenstine et al. 1982:308

17.4.6 Manners of Communication

Communication is at the heart of human culture. Findings from studies of sex differences in various ways of communicating are summarized below.

17.4.6.1 Speech Articulation

Speech articulation refers to the tendency to be precise in pronouncing words as well as proper sentence structure. As shown in Table 17.4.6.1, one study concluded that females were more articulate than males when speaking.

Table 17.4.6.1 Speech articulation

Nature of difference	*Pre-pubertal*	
	Child	
More among males		
Not significant		
More among females	**NORTH AMERICA** *United States*: Hull et al. 1971	

17.4.6.2 Speech Intonation

In the field of linguistics, *speech intonation* refers to the tendency for a speaker to change pitch as they speak (rather than speaking is monotone). As shown in Table 17.4.6.2, one study concluded that females varied their intonations more when speaking than did males.

Table 17.4.6.2 Speech intonation

Nature of difference				*Post-pubertal*	
				Adult	
More among males					
Not significant					
More among females				**NORTH AMERICA** *United States*: McConnell-Ginet 1983	

17.4.6.3 Speech Fillers

Speech fillers are utterances such as "uh" and "um" that are inserted during speech. Typically, these fillers are used by speakers as they seek to collect their thoughts before continuing to talk. As shown in Table 17.4.6.3, males appear to use more speech fillers than do females.

Table 17.4.6.3 Speech fillers

Nature of difference			*Post-pubertal*	*Wide age range*
			Adult	
More among males			**ASIA** *Malaysia*: Michael, Chone et al. 2010:Figure 2	**OVERVIEW** *Meta-Analysis*: JA Hall 1984 (d = 1.19)
Not significant				
More among females				

17.4.6.4 Linguistic Complexity

One study was located that assessed sex differences in the complexity of linguistic communication. As shown in Table 17.4.6.4, it concluded that the linguistic communication of adults was more complex for males than for females.

Table 17.4.6.4 Linguistic complexity

Nature of difference			*Post-pubertal*		
				Adult	
More among males				**NORTH AMERICA** *United States*: Brownlow et al. 2003	
Not significant					
More among females					

17.4.6.5 Affiliative Speech

Affiliative speech is speech that is supportive and inclusive. Table 17.4.6.5 indicates that research largely reveals either no significant sex difference in affiliative speech or a greater tendency for females to engage in affiliative speech than males.

17.4.6.6 Talking About Oneself

A few studies have sought to determine if there are sex differences in tendencies to talk about oneself. Table 17.4.6.6 shows that all the available research indicates that this is more common among males than among females.

17.4.6.7 Friendly/Pro-social Communication in General

Overall, friendly or pro-social communication is the opposite of combative and derogative communication. Table 17.4.6.7 indicates that females are more likely to engage in friendly and prosocial communications than are males.

17.4.6.8 Engaging in Intimate Communications

Intimate communications usually have to do with highly personal information that one would not normally share with people generally. As shown in Table 17.4.6.8, all three studies of sex differences in such communications have concluded that females engage in them to a greater degree than do males.

17.4.6.9 Using Tag Questions

So-called *tag questions* are those in which one makes a statement and then asks for confirmation (e.g., "It's cold in here, right?"). Table 17.4.6.9 shows that studies have provided mixed results regarding any sex differences in the use of these types of questions.

Table 17.4.6.5 Affiliative speech

Nature of difference	*Pre-pubertal*		*Post-pubertal*		*Wide age range*
	Infant/toddler	*Child*	*Adolescent*		
More among males		**NORTH AMERICA** *Canada*: Borja-Alvarez et al. 1991 (amount of agreement)			
Not significant		**EUROPE** *Finland*: Rasku-Puttonen 1983 **NORTH AMERICA** *Canada*: Marche & Peterson 1993* (amount of acknowledgment); *United States*: Zander & Van Egmond 1958 (amount of praise); Haslett & Bowen 1989 (amount of responsiveness); Leaper 1991 (amount of responsiveness); Weiss & Sachs 1991 (bargaining speech); Schley & Snow 1992 (amount of agreement); Ausch 1994 (amount of agreement) Leaper et al. 1999 (amount of responsiveness, among blacks)	**NORTH AMERICA** *Canada*: Marche & Peterson 1993* (amount of acknowledgment); Phillipson 1999 (amount of agreement); *United States*: Grotevant & Cooper 1985 (amount of agreement)		**NORTH AMERICA** *Canada*: Denton & Zarbatany 1996 (amount of praise)
More among females	**NORTH AMERICA** *United States*: Haslett 1983 (toddler, amount of responsiveness); Klecan-Aker 1986 (toddler, amount of responsiveness)	**NORTH AMERICA** *United States*: Becker & Smenner 1986 (number of suggestions); Miller et al. 1986; Austin et al. 1987 (amount of praise); Black & Hazen 1990 (amount of responsiveness); Black 1992 (amount of responsiveness); Strough & Berg 2000	**NORTH AMERICA** *United States*: Feshbach & Sones 1971 (amount of responsiveness); Zeldin et al. 1982 (amount of praise); Buller & Buller 1987 (physicians); Buller & Street 1992 (physicians); Filardo 1996 (amount of agreement); Aruguete & Roberts 2000 (physicians)		**NORTH AMERICA** *United States*: Burleson 1982 (1st -12th grades, amount of praise) **OVERVIEW** *Meta-Analysis*: C Leaper et al. 2007:Table 7 (N = 2,541, d = .12)

Table 17.4.6.6 Talking about oneself

Nature of difference			*Post-pubertal*		
			Adolescent	*Adult*	
More among males			**NORTH AMERICA** *United States*: JD Davis 1978 (in initial interactions)	**NORTH AMERICA** *United States*: Lockheed & Hall 1976 (in initial interactions); J Stokes et al. 1980 (in initial interactions); J Stokes et al. 1981 (in initial interactions); Derlega et al. 1985 (in initial interactions)	
Not significant					
More among females					

Table 17.4.6.7 Friendly/pro-social communication in general

Nature of difference					*Wide age range*
More among males					
Not significant					
More among females					**NORTH AMERICA** *United States*: J Wood & Inman 1993 (to maintain social relationships); FL Johnson 1996 (verbal communication to maintain social relationships)

Table 17.4.6.8 Engaging in intimate communications

Nature of difference			*Post-pubertal*		
				Adult	
More among males					
Not significant					
More among females				**NORTH AMERICA** *United States*: D Hall & Langellier 1988; Wood 1993; F Johnson 2000	

17.4.6.10 Mixed-Sex Verbal/Linguistic Communication (Time Spent Conversing)

Many studies have sought to determine which sex is likely to spend more time conversing in mixed-sex groups. Table 17.4.6.10 shows that nearly all the available research has indicated that males do so more than females.

Table 17.4.6.9 Using tag questions

Nature of difference				*Post-pubertal*	
				Adult	
More among males				**NORTH AMERICA** *United States*: Dubois & Crouch 1975 (tag questions, mixed sex conference participants); Lapadat & Seesahai 1978 (tag questions, casual mixed-sex conversations)	
Not significant				**NORTH AMERICA** *United States*: Baumann 1976 (tag questions) **OVERVIEW** *Literature Review*: Aries 1996 (tag questions)	
More among females				**NORTH AMERICA** *United States*: Hartman 1976 (while being interviewed, tag questions); F Crosby & Nyquist 1977 (undergrad, mixed-sex gatherings, tag questions); JR McMillan et al. 1977 (mixed-sex groups, tag questions); J Holmes 1984 (tag questions); Mulac & Lundell 1986 (tag questions); B Preisler 1986 (tag questions);	

17.4.6.11 Use of Emojis

Since it is often difficult to express emotions with written words, emojis are often used, especially in internet communications. One study, cited in Table 17.4.6.11, indicated that females use emojis more than do males.

17.4.6.12 Written Communication

Who spends more time communicating through writing (as opposed to communicating through speech)? Table 17.4.6.12 shows that the available research suggests that females do so more than do males.

17.4.7 Purpose of Communication

The general purpose of social behavior and of communication has been the focus of a limited number of studies. Findings are summarized in the tables below.

17.4.7.1 Arguing and Quarreling

Which sex is more argumentative? Table 17.4.7.1 shows that most studies of people's tendencies to quarrel and argue have concluded that males do so more than do females.

17.4.7.2 Asking Questions

Numerous studies have investigated sex differences in asking questions. Table 17.4.7.2 shows that most, but far from all, of the results from these investigations have indicated that females ask more questions than do males.

Table 17.4.6.10 Mixed-sex verbal/linguistic communication (time spent conversing)

Nature of difference	*Pre-pubertal*		*Post-pubertal*		*Wide age range*
	Infant/toddler		*Adolescent*	*Adult*	
More among males	**NORTH AMERICA** *United States*: Jacklin & Maccoby 1978 (toddler)		**EUROPE** *Britain*: Swann & Graddol 1988 (classes); Bousted 1989 (classes); Myhill 2002; *Scotland*: Howe 1997	**ASIA** *Japan*: Hayashi 1996 **EUROPE** *Britain*: M Argyle et al. 1968 (young) **NORTH AMERICA** *United States*: Strodbeck 1951; HM Rosenfeld 1966 (young); Marlatt 1970 (young); Hilpert et al. 1975 (young); Duncan & Fiske 1977 (young); Vrugt & Kerkstra 1984 (young); Smith-Lovin et al. 1986 (young); Bilous & Kruss 1988 (young); Mulac et al. 1988 (undergrad); Mulac 1989 (young); Lee 1991 (young)	**NORTH AMERICA** *United States*: Soskin & John 1963; J Bernard 1972; Swacker 1975; DH Zimmerman & West 1975; Aries & Johnson 1983; Kollock et al. 1985
Not significant				**NORTH AMERICA** *United States*: Hayashi 1996	
More among females					

Table 17.4.6.11 Use of emojis

Nature of difference				*Post-pubertal*	
				Adult	
More among males					
Not significant					
More among females				**NORTH AMERICA** *United States*: LL Jones, Wurm et al. 2020 (undergrad)	

Table 17.4.6.12 Written communication

Nature of difference	*Pre-pubertal*		*Post-pubertal*		
		Child	*Adolescent*	*Adult*	
More among males				**NORTH AMERICA** *United States*: Muscanell & Guadagno 2012:110* (establishing new internet relationships, undergrad, N = 135M + 103F)	
Not significant				**NORTH AMERICA** *United States*: Dholakia 2006:235 (internet)	
More among females		**NORTH AMERICA** *United States*: Plamondon 1994; Durandell et al. 1995	**NORTH AMERICA** *United States*: Savicki et al. 2002* (computer)	**NORTH AMERICA** *United States*: SR Hitz & Johnson 1990 (computer); B Allen 1995 (undergrad, computer); Weiser 2000:174 (undergrad, on the internet); Howard et al. 2001 (to maintain social contacts); LA Jackson et al. 2001 (to maintain social contacts); Savicki et al. 2002* (computer); Wasserman & Richmond-Abbott 2005 (email); Muscanell & Guadagno 2012:110* (maintaining existing relationships on the internet, undergrad, N = 135M + 103F)	

17.4.7.3 Bragging/Exaggerating One's Ability or Accomplishments

Several studies have investigated possible sex differences in tendencies to brag, exaggerate, or boast about their abilities or accomplishments, or to otherwise make sure their accomplishments are known to others. In Table 17.4.7.3, one can see that all but two studies have concluded that such tendencies are more prevalent among males.

Table 17.4.7.1 Arguing and quarreling

Nature of difference	*Pre-pubertal*		*Post-pubertal*		*Wide age range*
	Infant/toddler	*Child*		*Adult*	
More among males	**NORTH AMERICA** *United States*: Dawe 1934 (toddler)	**NORTH AMERICA** *United States*: EH Green 1933a (same-sex play); EH Green 1933b; Dawe 1934; Macfarlane et al. 1937; Lever 1976:482; RF Marcus 1999		**NORTH AMERICA** *United States*: A Christensen 1988 (with romantic partners); Gottman & Levenson 1988; A Christensen & Heavey 1990 (with romantic partners); Suh et al. 2004:53 (with romantic partners)	**NORTH AMERICA** *United States*: Piliavin & Martin 1978 (disagreeing); Carli 1989 (disagreeing)
Not significant		**NORTH AMERICA** *United States*: Jersild & Markey 1935		**NORTH AMERICA** *United States*: CR Harris et al. 2006:53 (undergrad, N = 657)	
More among females					

Table 17.4.7.2 Asking questions

Nature of difference	*Pre-pubertal*		*Post-pubertal*		*Wide age range*
		Child	*Adolescent*	*Adult*	
More among males				**INTERNATIONAL** *Multiple Countries*: Hinsley, Sutherland & Johnston 2017 (at scientific STEM conferences)	
Not significant			**NORTH AMERICA** *United States*: Webb & Kenderski 1985 (requests for information)	**NORTH AMERICA** *United States*: Grob, Meyers & Schuh 1997:292	
More among females		**NORTH AMERICA** *United States*: McCloskey 1987 (same & opposite sex dyadic interactions)		**ASIA** *Malaysia*: Michael, Chone et al. 2010:Figure 1 **EUROPE** *Britain*: Tannen 1994 **NORTH AMERICA** *United States*: McMillan et al. 1977* (females ask more questions); Eakins & Eakins 1978 (during dyadic interactions); Brouwer et al. 1979; Fishman 1978 (among married couples); Endsley et al. 1979 (requests for information); Mc Closkey 1987 (in same & opposite sex dyadic interactions); Mulac et al. 1988 (mixed-dyadic conversations); Carli 1990 (end statement with questions); MA Fitzpatrick et al. 1995; Chebat et al. 2008 (asking for directions, in a shopping mall)	**NORTH AMERICA** *United States*: K Hawkins & Power 1999 (probing questions in committees)

Table 17.4.7.3 Bragging/exaggerating one's ability or accomplishments

Nature of difference	*Pre-pubertal*		*Post-pubertal*		
		Child	*Adolescent*	*Adult*	
More among males		**NORTH AMERICA** *United States*: Sheehy 1938; Dweck & Bush 1976; Frey & Ruble 1987 (in a classroom); McCloskey & Coleman 1992	**EUROPE** *Britain*: J Holmes 1995 **NORTH AMERICA** *United States*: AR Gold et al. 1980 (regarding one's intellectual ability); Achenbach & Edelbrock 1981:14; Gitelson et al. 1982 (regarding one's intellectual performance)	**EUROPE** *Britain*: J Holmes 1995; *Norway*: F Vollmer 1984 (undergrad, N = 55M + 75F) **NORTH AMERICA** *United States*: M Zuckerman 1979:254; RJ Gould & Slone 1982 (regarding accomplishments in general); Erkut 1983 (in an academic setting); Lippa & Beauvais 1983 (in an experimental game); BA Goldman et al. 1990 (about high school GPA); Daubman et al. 1992 (regarding academic achievement); LC Miller et al. 1992 (bragging); Heatherington et al. 1993 (when self-assessments were made public)	
Not significant					
More among females				**NORTH AMERICA** *United States*: Hartman 1976 (claiming expertise more); Carli 1990 (claiming expertise more)	

17.4.7.4 Complaining

One study of sex differences in complaining behavior was located. Table 17.4.7.4 shows that it found no significant sex differences, although the reasons for complaining were somewhat different for males and for females.

Table 17.4.7.4 Complaining

Nature of difference				*Post-pubertal*	
				Adult	
More among males					
Not significant				**NORTH AMERICA** *United States*: Wolfe & Powell 2006 (but complain for different reasons)	
More among females					

17.4.7.5 Confiding/Sharing Secrets and Emotional Feelings with Close Friends

Sex differences in the tendency to confide in others have been the subject of numerous empirical investigations. As shown in Table 17.4.7.5, they have all concluded that females are more likely than males to confide in others.

17.4.7.6 Gossiping

Substantial research has compared the sexes regarding their involvement in gossiping (including spreading rumors). As shown in Table 17.4.7.6, findings have been somewhat mixed. While most studies have indicated that females gossip more than do males, research involving internet gossip have indicated there are no significant sex differences.

17.4.7.7 Insulting/Negative Communication

Sex differences in conveying insulting or unpleasant feelings to others has been investigated in several studies. One can see in Table 17.4.7.7 that, except for two studies reporting no significant differences, most research has suggested that males express more forms of insulting or negative communication towards or about others than do females.

17.4.7.8 Interrupting Others as They Speak (Conversational Dominance)

Substantial research has sought to determine if the sex differ with regard to interrupting others as others are speaking. Inspection of Table 17.4.7.8 reveals that the evidence is mixed but generally indicating that, in sex differences exist,

Table 17.4.7.5 Confiding/sharing secrets and emotional feelings with close friends

Nature of difference	*Pre-pubertal*		*Post-pubertal*		*Wide age range*
		Child	*Adolescent*	*Adult*	
More among males					
Not significant		**NORTH AMERICA** *United States*: Buhrmester & Furman 1987*; CJ Patterson et al. 1990; Zarbatany et al. 2000*			
More among females		**NORTH AMERICA** *United States*: Z Rubin 1980; Furman & Buhrmester 1985; Buhrmester & Furman 1987; Parker & Asher 1993; Bukowski et al. 1994; Lansford & Parker 1999; AJ Rose & Asher 1999	**EUROPE** *Netherlands*: Landman-Peeters et al. 2005 (when faced with family problems) **NORTH AMERICA** *Canada*: RJ Burke & Weir 1978 (females disclose negative experiences to same sex confidantes more); *United States*: Douvan & Adelson 1966; RE Pimond & Munz 1967; Mulcahy 1968 (same-sex peers); Rivenbark 1971 (same-sex peers); Eder & Hallinan 1978; MA Caldwell & Peplau 1982; Crockett et al. 1984 (young); Belle 1987 (stress); Buhrmester & Furman 1987*; Camarena et al. 1990; Papini et al. 1990 (to parents and friends); Lempers & Clark-Lempers 1993 (self-reports); Seiffge-Krenke 1995; McNelles & Connolly 1999; Hussong 2000:230; Zarbatany et al. 2000* (young)	**EUROPE** *Britain*: E Barrett & Lally 1999 (undergrad, on internet) **NORTH AMERICA** *United States*: Jourard & Richman 1963 (undergrad); I Katz et al. 1963 (married couples); Levinger & Senn 1967 (among married couples); Jourard 1971 (same-sex peers); A Booth 1972:186; Henley 1973; W Pearce et al. 1974 (same-sex peers); A Horwitz 1977 (among mental patients); Z Rubin et al. 1980 (to a dating partner); Hacker 1981 (females disclose more information to close friends); MA Caldwell & Peplau 1982 (emotional feelings); FL Johnson & Aries 1983 (females disclose more information to close friends); RB Hays 1984; RB Hays 1985; Aukett et al. 1988* (same-sex); JT Wood & Inman 1993; JT Wood 1994; Matthews et al. 1999 (to enhance mood); Norris et al. 2001; McKenna et al. 2002 (internet communication); Agrawal et al. 2002 (twins) **OCEANIA** *New Zealand*: Aukett et al. 1988* (same-sex)	**EUROPE** *Britain*: Fuhrer et al. 1999; Fuhrer & Stansfeld 2002 **NORTH AMERICA** *United States*: Jourard & Lasakow 1958 (same-sex peers); O'Conner & Brown 1984; Buhrmester & Prager 1995 (children & adolescents, to close friends); Kraut et al. 1998 (e-mail); Boneva et al. 2001(e-mail); AJ Rose 2002 (ages 7-15) **OVERVIEW** *Literature Review*: Cozby 1973; AJ Rose & Rudolph 2006; *Meta-Analysis*: Dindia & Allen 1992

Table 17.4.7.6 Gossiping

Nature of difference	*Pre-pubertal*		*Post-pubertal*		*Wide age range*
		Child	*Adolescent*	*Adult*	
More among males					
Not significant			**EUROPE** *Spain*: Romera, Herrera-Lopez et al. 2018* (cyber-gossiping, N = 1,816) **LATIN/CARIBBEAN AMERICA** *Colombia*: Romera, Herrera-Lopez et al. 2018* (cyber-gossiping, N = 1,931)	**MIDDLE EAST** *Israel*: Eckhaus & Ben-Hador 2019 (internet, N = 2,230)	
More among females		**NORTH AMERICA** *United States*: Kless 1992; Crick 1996	**NORTH AMERICA** *United States*: C Leaper & Holliday 1995 (negative gossip); Wiseman 2002	**EUROPE** *Spain*: Okazaki, Rubio & Campo 2014:724 (online) **MIDDLE EAST** *Israel*: Nevo et al. 1993 (undergrad) **NORTH AMERICA** *Canada*: DC Watson 2012:Table 1; AC Davis, Dufort et al. 2018 (undergrad, N = 290); *United States*: J Levin & Arluke 1985 (undergrad, N = 76M + 120F); McAndrew & Milenkovic 2002 (undergrad); McAndrew, Bell & Garcia 2007 (undergrad); DC Watson 2012; CD Marcum, Higgins et al. 2014:544 (undergrad)	**OVERVIEW** *Literature Review*: Ahmad & Smith 1994 (spreading negative rumors)

Table 17.4.7.7 Insulting/negative communication

Nature of difference			*Post-pubertal*		*Wide age range*
			Adolescent	*Adult*	
More among males			**EUROPE** *Britain*: Archer et al. 1988 (number of negative statements) **NORTH AMERICA** *United States*: McCabe & Lipscombe 1988 (number of negative statements); Wiseman 2002	**NORTH AMERICA** *United States*: Schreer & Strichartz 1997 (undergrad, in racist graffiti)	**EUROPE** *Britain*: J Holmes 1995 **NORTH AMERICA** *United States*: Stocker et al. 1972 (in racist graffiti); Bruner & Kelso 1981 (in graffiti); Otta 1993 (in graffiti) **OCEANIA** *New Zealand*: JA Green 2003 (in graffiti)
Not significant			**NORTH AMERICA** *United States*: Wilkinson et al. 1985		**NORTH AMERICA** *United States*: JA Bates & Martin 1980 (in graffiti)
More among females					

males interrupt others as they are speaking more than do females. It is worth adding that, in several of the studies, the sex of the people being interrupted is of the opposite sex, while in other cases, they are of either sex.

17.4.7.9 Issuing Commands/Orders/Instructions or Using Assertive Speech

Considerable research has been undertaken to assess sex differences in the issuing of commands or instructions to others. Table 17.4.7.9 shows that the evidence is quite varied, probably due to a number of social circumstances (including who is being addressed).

17.4.7.10 Negotiating Behavior

A few research studies have sought to determine which sex is more likely to engage in negotiating behavior, particularly with prospective employers over the wages that will be paid. As shown in Table 17.4.7.10, all the findings have concluded that males negotiate more than do females.

17.4.7.11 Support and Inclusive Communication

Some studies of sex differences in tendencies to exhibit behavior and communication intended to provide social support and inclusiveness to others. One can see in Table 17.4.7.11 that all the studies concluded that these tendencies are more prevalent among females than among males.

Table 17.4.7.8 Interrupting others as they speak (conversational dominance)

Nature of difference	*Child*	*Post-pubertal* — *Adult*	*Wide age range*
More among males	**NORTH AMERICA** *United States*: Esposito 1979 (young, member of the opposite sex)	**EUROPE** *Britain*: M Argyle et al. 1968 (young; Leet-Pellegrini 1980 (young) **NORTH AMERICA** *United States*: Heiss 1962 (young); Thorne & Henley 1975 (member of the opposite sex); DH Zimmerman & West 1975* (in general); Eakins & Eakins 1976 (college faculty); FN Willis & Williams 1976 (undergrad, member of the opposite sex); JR McMillan, Clifton et al. 1977 (undergrad); C West & Zimmerman 1977 (undergrad, member of the opposite sex); Eakins & Eakins 1978 (young, member of the opposite sex); PM Fishman 1978 (member of the opposite sex); Natale et al. 1979 (undergrad); Octigan & Niederman 1979 (undergrad, member of the opposite sex); C West 1979 (young); O'Barr & Atkins-Bowman 1980 (member of the opposite sex); McCarrick et al. 1981 (married couple); Thorne et al. 1983 (member of the opposite sex); Mulac et al. 1988; C West & Zimmerman 1983; Dovidio et al. 1988 (undergrad); MG Wiley & Woolley 1988; Sitth-Lovin & Brody 1989; Makri-Tsilipakov 1994; Mulac & Bradac 1995 (undergrad); Redeker & Maes 1996; Keltner et al. 2003; Athenstaedt et al. 2004 **OVERVIEW** *Literature Review*: La France & Mayo 1979	**NORTH AMERICA** *United States*: Strodtbeck & Mann 1955; Edelsky 1981 (member of the opposite sex) **OVERVIEW** *Generalization*: JJ Haviland & Malatesta1981:185
Not significant	**NORTH AMERICA** *United States*: Esposito 1979 (interruptions)	**NORTH AMERICA** *United States*: Rogers & Jones 1975 (same-sex dyads); Zimmerman & West 1975* (in same-sex conversations); GW Beattie 1981; La France & Ickes 1981 (same-sex dyads); Simkins-Bullock & Wildman 1991 (undergrad); Roger & Schumacher 1983 (same-sex dyads); Kollock, Blumstein & Schwartz 1985 (undergrad, mixed sex couples); Dindia 1987 (in both same-sex and opposite-sex dyads); Grob, Meyers & Schuh 1997:292; Robey et al. 1998 (married couples, member of the opposite sex); Hannah & Murachver 1999:169 (young)	**NORTH AMERICA** *Canada*: Marche & Peterson 1993 (4-9th graders) **OVERVIEW** *Literature Review*: D James & Clarke 1993
More among females		**NORTH AMERICA** *United States*: CW Kennedy & Camden 1983; Bilous & Krauss 1988 (N = 30M + 30F)	

Table 17.4.7.9 Issuing commands/orders/instructions or using assertive speech

Nature of difference	*Pre-pubertal*		*Post-pubertal*		
	Infant/toddler	*Child*	*Adolescent*	*Adult*	
More among males	**NORTH AMERICA** *Canada*: Kerig et al. 1993 (toddler)	**NORTH AMERICA** *Canada*: Serbin et al. 1982; *United States*: Lever 1976; MH Goodwin 1980 (during play); Hold-Cavell & Borsutzky 1986 (commands uttered during play); PM Miller et al. 1986; Sachs 1987; Leaper 1991; Hartup et al. 1993 (number of directive statements); McCloskey 1996; Leaper et al. 1999 (blacks); A Rose & Asher 1999 (agentic instructions)	**NORTH AMERICA** *United States*: Jarvinen & Nicholls 1996 (agentic instructions)	**EUROPE** *Britain*: SU Philips et al. 1987 (toward offspring) **NORTH AMERICA** *United States*: A Haas 1979 (when being interviewed); Bellinger & Gleason 1982 (toward offspring); Mulac et al. 1988 (undergrad, e.g., "write this down"); D Tanner 1990; Fultz & Herzog 1991 (agentic instructions); Mulac & Gibbons 1993; Aruguete & Roberts 2000 (physicians when dealing with patients); Keltner et al. 2003; Athenstaedt et al. 2004 **OVERVIEW** *Meta-Analysis*: Leaper & Smith 2004	
Not significant	**NORTH AMERICA** *Canada*: Kuczynski et al. 1987 (toddler, assertive speech)	**EUROPE** *Britain*: Lloyd & Goodwin 1993 (number of directive statements) **NORTH AMERICA** *Canada*: Powlishta & Maccoby 1990 (number of directive statements); *United States*: Jacklin & Maccoby 1978 (number of directive statements); Camras 1984 (number of directive statements)	**NORTH AMERICA** *United States*: Hauser et al. 1987; Leaper et al. 1989 (assertive speech)		
More among females		**NORTH AMERICA** *Canada*: Serbin et al. 1982 (number of directive statements); *United States*: Lindow et al. 1985 (number of directive statements); Hendrick & Storge 1991 (number of interruptions); Eisenberg 1996 (number of directive statements)			

Table 17.4.7.10 Negotiating behavior

Nature of difference				*Post-pubertal*	
				Adult	
More among males				**NORTH AMERICA** *United States*: M Nadler & Nadler 1987 (wages); Neu et al. 1988 (higher prices from buyers); Babcock & Laschever 2003 (with employer regarding salaries); Babcock et al. 2006; HR Bowles et al. 2007 (in experimental job interviews)	
Not significant					
More among females					

Table 17.4.7.11 Mutual support and inclusive communication

Nature of difference	*Pre-pubertal*		*Post-pubertal*		
		Child	*Adolescent*	*Adult*	
More among males					
Not significant					
More among females		**NORTH AMERICA** *United States*: A Sheldon 1990; JG Parker & Asher 1993; AJ Rose & Asher 1999; AJ Rose 2002	**NORTH AMERICA** *United States*: Maccoby 1990; Jarvinen & Nicholls 1996; Strough & Berg 2000 (young)	**ASIA** *Malaysia*: Michael, Chone et al. 2010 (affirmative words) **NORTH AMERICA** *United States*: Carli 1990; Fultz & Herzog 1991; Briston & Hall 1995; Mulac 1998; Brownlow et al. 2003	

17.4.7.12 Telling Jokes

Several studies have sought to determine if there is a sex difference in joke telling. Most of these studies have focused on so-called *dirty jokes* (i.e., jokes with sexual or excretory references) but a few have looked and joke-telling in general. As shown in Table 17.4.7.12, males appear to tell more jokes than do females, particularly jokes having to do with topics not frequently discussed in polite conversations.

17.4.7.13 Agentic Communication and Relationships

Working in ways that serve to advance someone else's agenda rather than one's own is known as an agentic social relationship. Table 17.4.7.13 shows that, when sex differences have been found, they suggest that males are more likely than females to form agentic relationships along with their supportive communications, especially in occupational settings.

Table 17.4.7.12 Telling jokes

Nature of difference				*Post-pubertal*	
				Adult	
More among males				**MIDDLE EAST** *Israel*: Ziv 1981 (general) **NORTH AMERICA** *United States*: Coser 1960 (dirty); Chapman & Foot 1976 (dirty); Chapman 1977 (dirty); Hassett & Houlian 1979 (general); McGee 1979 (dirty); AM Johnson 1991 (general, undergrad, N = 250); SA Myers, Ropog & Rodgers 1997 (general, undergrad, N = 48M + 48F); DT Robinson & Smith-Lovin 2001 (general, undergrad, N = 139)	
Not significant					
More among females					

Table 17.4.7.13 Agentic communication and relationships

Nature of difference				*Post-pubertal*	
				Adult	
More among males				**EUROPE** *Belgium*: Gilmond, Branscombe et al. 2007:1126*; *France*: Gilmond, Branscombe et al. 2007:1126*; *Germany*: Abele 2003:771 (undergrad); *Netherlands*: Gilmond, Branscombe et al. 2007:1126* **NORTH AMERICA** *United States*: R Carlson 1971; JL Yee et al. 1998; Gilmond, Branscombe et al. 2007:1126*; Evans & Diekman 2016:244	
Not significant				**EUROPE** *Germany*: Abele 2000 (undergrad)	
More among females					

17.4.7.14 Communal Communication and Relationships

Working with others in a mutually supportive fashion rather than competitively or in some type of hierarchical arrangement is referred to as a *communal social relationship*. As shown in Table 17.4.7.14, communal social relationships (and their accompanying communication) have been shown to be more characteristic of females than of males.

17.4.8 Conversational Focus

The topics that are the focus of people's discussion have been studied with respect to sex differences. Findings are summarized below.

Table 17.4.7.14 Communal communication and relationships

Nature of difference			*Post-pubertal*		
				Adult	
More among males					
Not significant					
More among females				**EUROPE** *Germany*: Abele 2003:771 (undergrad) **NORTH AMERICA** *United States*: Carlson 1971; Eagly 1987:16 (undergrad); Wright & Scanlon 1991 (undergrad); Duck & Wright 1993 (undergrad); Evans & Diekman 2016:244	

17.4.8.1 Initiating Topics to Be Discussed

In one study, sex differences were assessed regarding the initiation of topics of conversation. Table 17.4.8.1 shows that the study indicated that boys initiated more topics to discuss than did females.

Table 17.4.8.1 Initiating topics of conversation

Nature of difference	*Pre-pubertal*				
		Child			
More among males		**NORTH AMERICA** *United States*: AS Cook et al. 1985 (preschoolers)			
Not significant					
More among females					

17.4.8.2 Attending to the Conversations or Speech of Others

Some research has compared baby boys and girls regarding their tendencies to direct attention to adults (usually mothers) while being spoken to. Table 17.4.8.2 shows that females appear to pay greater attention to utterances of others than do males.

17.4.8.3 Conversations Focused on People

Two studies were located pertaining to sex differences in the tendency to focus one's conversations on people (as opposed to other topics). One can see in Table 17.4.8.3 that, in both cases, greater proportions of conversations by females had to do with people than with other topics.

Table 17.4.8.2 Attending to the conversations or speech of others

Nature of difference	*Pre-pubertal*					
	Infant/toddler					
More among males						
Not significant						
More among females	**NORTH AMERICA** *United States*: Clarke-Stewart 1973 (toddler, mother's voice); R Klein & Durfee 1978 (mother's voice); Gunnar & Donahue 1980 (infant, mother's voice)					

Table 17.4.8.3 Conversations focused on people

Nature of difference	*Pre-pubertal*			*Post-pubertal*	
	Infant/toddler			*Adult*	
More among males					
Not significant					
More among females	**NORTH AMERICA** *United States*: Goodenough 1957 (toddler)			**NORTH AMERICA** *United States*: Kipers 1987 (family); Brownlow et al. 2003 (family)	

17.4.8.4 Conversations Focused on Oneself

One study compared the sexes regarding which one seemed to focus the greatest proportions of their conversations on themselves (rather than on others or on things other than humans). Table 17.4.8.4 shows that females did so more than males.

Table 17.4.8.4 Conversations focused on oneself

Nature of difference					*Wide age range*
More among males					
Not significant					
More among females					**NORTH AMERICA** *United States*: Sherman & Haas 1984

17.4.8.5 Conversations Focused on Emotions and Feelings

Substantial research has investigated sex differences in the proportion of conversations that focus on emotions or feelings. As one can see in Table 17.4.8.5, most of the available research indicates that females are more likely than males to engage in conversations about emotions and feelings, especially when conversing among themselves.

17.4.8.6 Conversations Focused on People's Physical Appearance

Several studies have compared males and females regarding their conversations about people's physical appearance, e.g., body figure, clothing style, hairdo. Table 17.4.8.6 indicated that these conversations are more common among females than among males.

17.4.8.7 Conversations Focused on People's Behavior

Some research has sought to compare the sexes regarding their conversational focus on people's behavior. One can see in Table 17.4.8.7 that the findings have not all agreed. Specifically, one study of children concluded that males talk about people's behavior more, but all the studies of individuals following puberty have concluded that more females than males have such discussions.

17.4.8.8 Conversations Focused on Politics

Which sex "talks politics" more? One can see in Table 17.4.8.8 that all the research has converged on concluding that males do so more than females, particularly among same-sex friends.

17.4.8.9 Conversations Focused on Drug Use

One study investigated sex differences in conversations between parents and their children about drug use. Table 17.4.8.9 shows that there were no sex differences regarding fathers but that mothers had more conversations with their daughters on this matter than did fathers.

17.4.8.10 Conversations Focused on Leisure or Work

Table 17.4.8.10 shows that substantial research has assessed sex differences in people's conversations about leisure and/or work. The evidence is consistent in indicating that these topics are more common for males than for females.

Table 17.4.8.5 Conversations focused on emotions and feelings

Nature of difference	*Pre-pubertal*		*Post-pubertal*		*Wide age range*
	Infant/toddler	*Child*	*Adolescent*	*Adult*	
More among males				**NORTH AMERICA** *United States*: Burhke & Fuqua 1987 (with members of the opposite-sex rather than same-sex); Aukett et al. 1988 (with members of the opposite-sex rather than same-sex)	
Not significant			**NORTH AMERICA** *United States*: KJ Anderson & Leaper 1998		
More among females	**NORTH AMERICA** *United States*: J Dunn et al. 1987	**EUROPE** *Britain*: Brandis & Henderson 1970; RB Thompson & Moore 2000 **NORTH AMERICA** *United States*: EJ Day 1932; Jourard 1968; Barron 1971*; Alvy 1973; O'Neil et al. 1976 (emotions); A Austin et al. 1987; S Adams et al. 1995; Reese et al. 1996	**NORTH AMERICA** *United States*: Jourard 1971; Rivenbark 1971; Mulcahy 1973 (emotions); PH Wright & Crawford 1977 (social relationships); Mulac et al. 1990 (written essays); Buhrmester & Prager 1995	**NORTH AMERICA** *United States*: Gleser et al. 1959; Soskin & John 1963; Wood 1966 (young adult); Barron 1971*; LK Cartwright 1972 (young, medical students); Kramer 1974; Hartman 1976 (elderly); Notarius & Johnson 1982; Parelman 1983 (among married couples); Shimanoff 1983; Wallbott et al. 1986 (especially sadness); Blier & Blier-Wilson 1989 (undergrad, expressing sadness to others); Snell et al. 1989 (especially sadness); Gottman & Levenson 1992; Rime et al. 1992; Brody & Hall 1993; J Coates 1993; Levenson et al. 1994 (among married couples); MA Fitzpatrick et al. 1995 (speech); RJ Burke et al. 1996; Guerrero & Reiter 1998:338 (especially sadness); Polce-Lynch et al. 1998; RM Simon & Nath 2004:1173 (undergrad, about emotions)	**NORTH AMERICA** *United States*: JG Allen & Haccoun 1976; Dosser et al. 1983; Sherman & Haas 1984; Sprecher & Sedikides 1993; Goldsmith & Dun 1997 (speech); Fivush et al. 2000 (use of emotive words) **OVERVIEW** *Generalization*: Haas 1984

Table 17.4.8.6 Conversations focused on people's physical appearance

Nature of difference			*Post-pubertal*		*Wide age range*
			Adolescent	*Adult*	
More among males					
Not significant					
More among females			**NORTH AMERICA** *United States*: Kipers 1987	**NORTH AMERICA** *United States*: Stoke & West 1930 (young); Meil 1984 (young)	**EUROPE** *Britain*: C Landis 1927 **NORTH AMERICA** *United States*: HT Moore 1922; MH Landis & Burtt 1924; J Watson 1948; Haas & Sherman 1982 (in same-sex conversations); Bischoping 1993 (clothing fashions)

Table 17.4.8.7 Conversations focused on people's behavior

Nature of difference	*Pre-pubertal*		*Post-pubertal*		
		Child	*Adolescent*	*Adult*	
More among males		**NORTH AMERICA** *United States*: Sause 1976			
Not significant					
More among females			**NORTH AMERICA** *United States*: Mukahy 1973	**EUROPE** *Britain*: Landis 1927; Klein 1971 **NORTH AMERICA** *United States*: Moore 1922; MH Landis & Burtt 1924; Komarovsky 1967	

Table 17.4.8.8 Conversations focused on politics

Nature of difference			*Post-pubertal*		
			Adolescent	*Adult*	
More among males			**NORTH AMERICA** *United States*: FL Johnson & Aries 1983 (among same-sex friends)	**NORTH AMERICA** *United States*: SB Hansen et al. 1976; Rapoport 1981; M Caldwell & Peplau 1982 (with same-sex friends); L Davidson & Duberman 1982 (with same-sex friends);	

(*Continued*)

Table 17.4.8.8 (Continued)

Nature of difference			*Post-pubertal*		
			Adolescent	*Adult*	
				Aries & Johnson 1983 (with same-sex friends); M Fox et al. 1985 (with friends); Noelle-Newmann 1993; SB Hansen 1997; Atkeson & Rapoport 2003:516	
Not significant					
More among females					

Table 17.4.8.9 Conversations focused on drug use

Nature of difference			*Post-pubertal*		
			Adolescent		
More among males					
Not significant			**EUROPE** *Spain*: Suris & Parera 2005: 486* (conversation with fathers, self-report)		
More among females			**EUROPE** *Spain*: Suris & Parera 2005: 486* (conversation with mothers, self-report)		

Table 17.4.8.10 Conversations focused on leisure or work

Nature of difference			*Post-pubertal*		*Wide age range*
			Adolescent	*Adult*	
More among males			**NORTH AMERICA** *United States*: Mulcahy 1973; PH Wright & Crawford 1977 (focused on goals and activities); Kipers 1987	**EUROPE** *Britain*: Landis 1927; Klein 1971 **NORTH AMERICA** *United States*: Moore 1922; MH Landis & Burtt 1924; Stoke & West 1930 (young); Komarovsky 1967; Meil 1984 (young)	**EUROPE** *Britain*: C Landis 1927 **NORTH AMERICA** *United States*: HT Moore 1922; J Watson 1948; Aries & Johnson 1983 (young); Bischoping 1993
Not significant					
More among females					

17.4.8.11 Conversations Focused on the Opposite Sex

One research study involved keeping track of topics men and women were overheard discussing. As shown in Table 17.4.8.11, it reported that women were more likely to discuss a member of the opposite sex than were males.

Table 17.4.8.11 Conversations focused on the opposite sex

Nature of difference				*Post-pubertal*	
				Adult	
More among males					
Not significant					
More among females				**NORTH AMERICA** *United States*: HT Moore 1922 (people on the street, 8%M vs. 44%F)	

17.4.8.12 Conversations Focused on Sexuality

Two studies were found having to do with sex differences in conversations about sexuality. One can see in Table 17.4.8.12 that one study reported that both adolescent and adult males spoke about sexuality more than did females, while the other study indicated that fathers discussed sexual issues more with adolescent sons while mothers discussed sexual issues more with adolescent daughters.

Table 17.4.8.12 Conversations focused on sexuality

Nature of difference			*Post-pubertal*		
			Adolescent	*Adult*	
More among males			**ASIA** *Japan*: Nakanishi 1986* **EUROPE** *Spain*: Suris & Parera 2005: 486* (conversation with fathers, self-report)	**ASIA** *Japan*: Nakanishi 1986*	
Not significant					
More among females			**EUROPE** *Spain*: Suris & Parera 2005: 486* (conversation with mothers, self-report)		

17.4.8.13 Conversations Focused on Sports

Considerable research has compared the conversations of males and females regarding sports. One can see in Table 17.4.8.13 that males discuss sports more than do females in all the studies located.

Table 17.4.8.13 Conversations focused on sports

Nature of difference	*Pre-pubertal*		*Post-pubertal*		
		Child	*Adolescent*	*Adult*	
More among males		**NORTH AMERICA** *United States*: Haas 1981	**NORTH AMERICA** *United States*: FL Johnson & Aries 1983 (among same-sex friends)	**NORTH AMERICA** *United States*: Stoke & West 1931 (undergrad); M Caldwell & Peplau 1982 (with same-sex friends); L Davidson & Duberman 1982 (with same-sex friends); Haas & Sherman 1982 (discuss sports with same-sex interactants); Aries & Johnson 1983 (with same-sex friends); M Fox et al. 1985 (with friends); Dominick 1999 (on the internet)	
Not significant					
More among females					

17.4.8.14 Conversations Focused on Current Events

Some studies have compared the sexes regarding conversations about current events, whether local, national, or worldly in nature. One can see in Table 17.4.8.14 that the one study of adolescents concluded that females were found engaging in such conversations more, while the remaining studies all concluded that more males had such conversations.

Table 17.4.8.14 Conversations focused on current events

Nature of difference			*Post-pubertal*		*Wide age range*
			Adolescent	*Adult*	
More among males				**NORTH AMERICA** *United States*: Stoke & West 1930 (young); Langer 1970a; Langer 1970b; Meil 1984 (young)	**EUROPE** *Britain*: C Landis 1927 **NORTH AMERICA** *United States*: HT Moore 1922; MH Landis & Burtt 1924; J Watson 1948; Bischoping 1993
Not significant					
More among females			**NORTH AMERICA** *United States*: Kipers 1987		

17.5 Play and Recreation

Sex differences in play and entertainment behavior have been the focus of considerable social science research. Findings from these studies are summarized in the following section.

17.5.1 Play Behavior

Play is a difficult concept to define, although nearly everyone would say they know it when they see it. Such behavior is especially common among young mammals and usually involves activities that resemble "serious" behavior (such as aggression, competition, and parenting), but in a recognizably playful way. As this section will reveal, sex differences in play have been investigated by many researchers.

17.5.1.1 Play in General

Several studies have been undertaken to assess sex differences in the amount of time spent playing (including engaging in leisure activities) either in a non-social or a social context. One can see in Table 17.5.1.1a that most studies have concluded that males play more than do females.

Table 17.5.1.1a Play in general

Nature of difference	*Pre-pubertal*		*Post-pubertal*		
		Child	*Adolescent*	*Adult*	
More among males		**EUROPE** *Britain*: Blatchford 1996* (age 7 & 11, Ns = 133 & 175); Blatchford, Baines & Pellegrin 2003:498 **NORTH AMERICA** *United States*: Meeks & Mauldin 1990 (leisure activities)	**AFRICA** *Nigeria*: Robson 2004:200 **EUROPE** *Britain*: Blatchford 1996* (age 16, N = 108) **NORTH AMERICA** *United States*: Duncan & Sanik 1989 (leisure activities, ~40 minutes more per day); Mauldin & Meeks 1990 (leisure activities)	**NORTH AMERICA** *United States*: Firestone & Shelton 1988 (leisure time play); Freysinger 1994 (leisure time play)	
Not significant		**NORTH AMERICA** *United States*: Melson 1977 (age 4, N = 34)			
More among females					

Some studies have been conducted among various species of non-humans regarding the time spent playing. One can see in Table 17.5.1.1b that findings have been mixed. Basically, findings of child-aged and adolescent-aged animals have either concluded that males spend more time playing than females or that there were no significant differences.

Table 17.5.1.1b Play in general among non-humans

Nature of difference	*Pre-pubertal*		*Post-pubertal*		
	Infant/toddler	*Child*	*Adolescent*		
More among males	**PRIMATE** *Blue Monkey*: Forster & Cords 2005 (toddler); *Japanese Macaque*: Eaton, Johnson et al. 1985 (toddler); *Rhesus Macaque*: Brown & Dixson 2000 (toddler)	**PRIMATE** *Baboon*: Kummer 1968; NW Owens 1975; Young, Coelho & Bramblatt 1982 (N = 46M + 31F); *Capuchin Monkey*: Paukner & Suomi 2008:Table 1; *Chimpanzee*: Lonsdorf, Anderson et al. 2014 (N = 12M + 8F); *Gorilla*: Maestripiei & Rose 2004 (N = 12); *Langur*: Dolhinow & Bishop 1970; *Rhesus Macaque*: HF Harlow & Harlow 1965; Kulik, Amici, et al. 2015	**PRIMATE** *Howler Monkey*: Gennuso, Brividoro et al. 2017; *Vervet Monkey*: Bramblett 1978* **UNGULATE** *Reindeer*: JH Mathisen et al. 2003		
Not significant		**PRIMATE** *Rhesus Macaque*: Kaufman 1966; Hinde & Spencer-Booth 1967a	**PRIMATE** *Talapoin Monkey*: JA Wolfheim 1978		
More among females					

17.5.1.2 Intra-Sex Variability in Play Activities

Three studies were located that measured the extent to which boys and girls exhibited *variability* in their play activities, i.e., switched from one type of play (or toy) to another most often. One can see in Table 17.5.1.2 that all three studies reported that males were more variable than females in their play activities.

17.5.1.3 Solitary Play

One study was located that assessed the extent to which both sexes played alone. Table 17.5.1.3 shows that it concluded that boys did so more than girls, both as toddlers and as young children.

Table 17.5.1.2 Intra-sex variability in play activities

Nature of difference	*Pre-pubertal*				
		Child			
More among males		**EUROPE** *Britain*: Lloyd & Smith 1985 (during free play, N = 15M + 15F) **NORTH AMERICA** *United States*: Lehman & Witty 1927; Mendel 1965 (novelty of play)			
Not significant					
More among females					

Table 17.5.1.3 Solitary play

Nature of difference	*Pre-pubertal*				
	Infant/toddler	*Child*			
More among males	**EUROPE** *France*: Barbu, Cabanes & Le Maner-Idrissi 2011* (toddler)	**EUROPE** *France*: Barbu, Cabanes & Le Maner-Idrissi 2011* (ages 5-6)			
Not significant					
More among females					

Table 17.5.1.3b shows that one study of solitary play was located for two different species of non-humans, i.e., chimpanzees and bonobos. It reported that young chimpanzees exhibited a greater tendency for male chimpanzees to play with inanimate objects than females, while no sex difference was found for bonobos of similar age.

Table 17.5.1.3b Solitary play among non-humans.

Nature of difference	*Pre-pubertal*				
		Child			
More among males		**PRIMATE** *Chimpanzee*: Koops, Furuichi et al. 2015*			
Not significant		**PRIMATE** *Bonobo*: Koops, Furuichi et al. 2015*			
More among females					

17.5.1.4 Social Play in General

Some research has compared males and females regarding the tendency to engage in social play, particularly in cooperative ways. Table 17.5.1.4a shows that findings have been mixed regarding sex differences in social play.

Table 17.5.1.4a Social play in general

Nature of difference	*Pre-pubertal*		*Post-pubertal*		
	Infant/toddler	*Child*	*Adolescent*		
More among males	**NORTH AMERICA** *United States*: S Goldberg & Lewis 1969 (toddler)	**EUROPE** *France*: Barbu, Cabanes & Le Maner-Idrissi 2011* (ages 5-6)			
Not significant					
More among females	**EUROPE** *France*: Barbu, Cabanes & Le Maner-Idrissi 2011* (toddler)	**NORTH AMERICA** *United States*: S Coates et al. 1975	**EUROPE** *Britain*: Blatchford 1996* (young, guessing games, daring games, rhyming games, clapping games, and hide/seeking games)		

A few studies of sex differences in social play have involved various species of primates. As shown in Table 17.5.1.4b, findings from these studies generally indicate that males engage in more social play than do females.

Table 17.5.1.4b Social play in general among non-humans

Nature of difference	*Pre-pubertal*		*Post-pubertal*		
	Infant/toddler	*Child*	*Adolescent*		
More among males	**PRIMATE** *Gorilla*: Maestripieri & Ross 2003 (N = 12)	**PRIMATE** *Baboon*: NW Owens 1975; *Chimpanzee*: Lonsdorf, Markham, Heintz et al. 2014:Figure 5); *Japanese Macaque*: Koyama 1985; Nakamichi 1989 (more frequent social play, N = 14M + 6F)	**PRIMATE** *Howler Monkey*: Gennuso, Brividoro et al. 2017; *Japanese Macaque*: Eaton, Johnson et al. 1986 (play with peers); *Rhesus Macaque*: Yanagi & Berman 2017		
Not significant			**PRIMATE** *Talapoin Monkey*: Wolfheim 1978		
More among females					

17.5.1.5 Having Same-Sex (versus Opposite-Sex) Playmates

In a few studies, researchers have sought to determine if there are sex differences in having same-sex (as opposed to opposite-sex) playmates. One can see in Table 17.5.1.5a that four studies found no sex differences in this regard while two studies indicated that more than females had predominantly same-sex playmates.

Table 17.5.1.5a Same-sex (versus opposite-sex) playmates

Nature of difference	*Pre-pubertal*				
		Child			
More among males		**EUROPE** *Britain*: Blatchford 1998 **NORTH AMERICA** *United States*: Pellegrini et al. 2002 **INTERNATIONAL** *Multiple Countries*: Pastersk, Geffner et al. 2011(forced choice, N = 17M + 26F)			
Not significant		**EUROPE** *Britain*: Blatchford et al. 2003:495 (80% same-sex for both males & females) **NORTH AMERICA** *United States*: Thorne & Luria 1986; Thorne 1993; Leaper 1994			
More among females					

Studies of various species of non-human primates have also been conducted regarding having same-sex (versus opposite-sex) playmates. As one can see in Table 17.5.1.5b, the evidence is mixed although most studies indicate that males have more same-sex playmates than do females.

Table 17.5.1.5b Same-sex (versus opposite-sex) playmates among non-humans

Nature of difference	*Pre-pubertal*				
	Infant/toddler	*Child*			
More among males		**PRIMATE** *Bonnet Macaque*: Rosenblum et al. 1975; *Japanese Macaque*: Imanishi 1963*; *Tibetan Macaque*: Deng 1993; Deng & Zhao 1987			
Not significant	**PRIMATE** *Japanese Macaque*: K Imanishi 1963* (no sex preferences in playmates)				
More among females					

17.5.1.6 Cross-Generational Play

Play involving individuals of substantially different ages is known as *cross-generational play*. It usually refers to play between adults and children. Typically, the adult will be a parent of the child with whom he or she is playing. Two pertinent studies were located. As shown in Table 17.5.1.6a, one study of cross-generational play indicated that boys were more involved than girls, while the other study reported that there were no significant sex differences.

Table 17.5.1.6a Cross-generational play

Nature of difference					*Wide age range*
More among males					**NORTH AMERICA** *United States*: S Goldberg & Lewis 1969
Not significant					**NORTH AMERICA** *United States*: Biernot & Wortman 1991 (offspring of dual-income couples)
More among females					

Cross-generational play has been documented in primates other than humans. As shown in Table 17.5.1.6b, the available evidence suggests that pre-pubertal males play with adults more than do pre-pubertal females.

Table 17.5.1.6b Cross-generational play among non-humans

Nature of difference	*Pre-pubertal*				
		Child			
More among males		**PRIMATE** *Baboon*: NW Owens 1975; *Japanese Macaque*: Koyama 1985; Nakamichi 1989			
Not significant					
More among females					

17.5.1.7 Playing in Relatively Larger Groups

Some studies have compared boys and girls regarding the number of individuals they play with at a given point in time. As shown in Table 17.5.1.7a, studies indicate that, when girls play in groups, it is usually just one other girl, whereas group play among boys is more likely to involve three or more other boys.

Table 17.5.1.7a Playing in relatively larger groups

Nature of difference	*Pre-pubertal*				
	Infant/toddler	*Child*			
More among males	**ASIA** *Russia*: Sevaleva & Kraswski 1929 (toddler, groups of three or more individuals)	**NORTH AMERICA** *United States*: Fabes, Martin & Hanish 2003 (groups of 3 or more)			
Not significant					
More among females					

One study was located that compared the sexes regarding the tendency to play in large groups. Table 17.5.1.7b shows that, among Japanese macaques, this was more common among child-aged males than among child-aged females.

Table 17.5.1.7b Playing in relatively larger peer groups among non-humans

Nature of difference	*Pre-pubertal*				
	Infant/toddler				
More among males	**PRIMATE** *Japanese Macaque*: Eaton, Johnson et al. 1985 (toddler)				
Not significant					
More among females					

17.5.1.8 Playing or Recreating Outside (Rather Than Inside) the Home

Substantial research has compared males and females with regard to the time spent playing and recreating outside the home. Table 17.5.1.8 shows that all the available studies have concluded that boys and men are more involved in out-of-door play and recreational activities than is true for girls and women.

17.5.2 Vigorous and Combative Forms of Play

Most forms of play can be considered as either being vigorous and combative or at relaxed and cooperative. Accordingly, research findings on sex differences in play that can be reasonably subsumed under each of these two categories are presented, starting with vigorous and combative forms.

Table 17.5.1.8 Playing or recreating outside (rather than inside) the home

Nature of difference	*Pre-pubertal*		*Post-pubertal*		
	Infant/toddler	*Child*	*Adolescent*	*Adult*	
More among males	**NORTH AMERICA** *United States*: Gredlein & Bjorklund 2005 (toddler)	**NORTH AMERICA** *United States*: Witty & Lehman 1930; Van Alstyne 1932; Fagot & Littman 1975; LV Harper & Sanders 1975 (preschool, time spent outside); Lever 1976; Pitcher & Schultz 1983:79; Sandberg & Meyer-Bahlberg 1994; Shalat et al. 2003 (rural community); NC Freeman et al. 2005; Pellegrini & Gustafson 2005; ID Cherney & London 2006 (ages 5-13)	**AFRICA** *Nigeria*: Robson 2004:200; *Sudan*: C Katz 1991	**NORTH AMERICA** *United States*: J Burger et al. 1998 (hiking & camping)	
Not significant					
More among females					

17.5.2.1 Competitive Social Play in General

Competitive social play involves games or other activities in which the goal is for one of the players to win and the other to lose. The nature of winning can vary all the way from scoring more points for being faster or better to winning money, or even avoiding injury.

Studies that have sought to determine if males or females are more likely to engage in competitive social play are summarized in Table 17.5.2.1a. The table indicates that nearly all studies have found males being more likely to engage in competitive social play than females.

Competitive forms of play are not unique to our species. As shown in Table 17.5.2.1b, a few studies of non-human primates have concluded that males are more likely than females to engage in play activities where there are clear winners and losers.

17.5.2.2 Rough-and-Tumble Play

Rough-and-tumble play is nearly always social in nature, but it involves conflict, usually of a physical nature. Other names for this type of play are *play fighting*, and *aggressive play*. It typically involves two individuals (usually of the same species) attempting to gain some sort of physical advantage over a playmate. While the difference between play fighting and "real fighting" is not easily described, nearly everyone readily recognizes it. In play fighting, combatants rarely persist to the point of causing injury, and they often interact with relatively relaxed open-mouth expressions as opposed to stern closed-mouth frowns. Another common difference is age: Most play fighting is exhibited by pre-pubertal individuals, whereas "real fighting" is much more characteristic of adolescents and adults.

Table 17.5.2.2a provides evidence of a clear tendency for males to engage in play fighting more often and with greater persistence than females. The few exceptions simply failed to identify any significant sex differences.

Rough-and-tumble play is not unique to humans involves individuals attempting to gain some physical advantage over a play partner without inflicting serious injury. Unlike fighting in earnest, once "victory" is gained in a bout of play fighting, the "loser" is freed, and sometimes another bout begins. It is worth noting that play fighting is most common among pre-pubertal animals.

Table 17.5.2.2b shows that most studies of pre-pubertal individuals have concluded that males engage in play fighting more often and with greater vigor than do females. Even so, there are some important caveats that need to be made when drawing conclusions from this apparently robust sex difference. Typically, the male-biased sex difference in the

Table 17.5.2.1a Competitive social play in general

Nature of difference	*Pre-pubertal*		*Post-pubertal*		*Wide age range*
		Child	*Adolescent*	*Adult*	
More among males		**ASIA** *China*: Yu, Winter & Xie 2010:811 (pretend soldier, playing king-of-the-mountain, playing with guns, ages 6-12, N = 486M + 417F) **EUROPE** *Britain*: Pellegrini et al. 2004 **NORTH AMERICA** *Canada*: Benenson et al. 2002; Roy & Benenson 2002; *United States*: Waldrop & Halverson 1973; RM Sanders & Harper 1976 (competitive fantasy play); J Lever 1978; Ahlgren & Johnson 1979* (self-report); Di Pietro 1981; Leaper 1991 (playing with puppets); Moller et al. 1992; Leaper et al. 1999; Zarbatany et al. 2000; Roy & Benenson 2002	**NORTH AMERICA** *United States*: Bem 1974 (self-report); Ahlgren & Johnson 1979* (self-report)	**NORTH AMERICA** *United States*: Bond & Vinacke 1961 (undergrad, experimental game in which prizes were divided unequally); Uesugi & Vinacke 1963 (undergrad, experimental game in which prizes were divided unequally); Rosenkrantz et al. 1968 (undergrad, self-report)	**NORTH AMERICA** *United States*: Leventhal & Anderson 1970 (experimental game in which prizes were divided unequally); Leventhal & Lane 1970 (experimental game in which prizes were divided unequally)
Not significant		**NORTH AMERICA** *United States*: Goodenough 1930			
More among females					

Table 17.5.2.1b Competitive social play in general among non-humans

Nature of difference	*Pre-pubertal*				
	Infant/toddler	*Child*			
More among males	**PRIMATE** *Japanese Macaque*: Itoigawa 1973 (toddler); GG Eaton et al. 1985:241 (toddler)	**PRIMATE** *Rhesus Macaque*: IS Bernstein et al. 1993			
Not significant					
More among females					

propensity to engage in play fighting is most strongly evident when individuals are observed under naturalistic conditions. The weight of the evidence among pre-pubertal non-humans is that males engage in rough-and-tumble play more than is the case for females. Nevertheless, there may be some species in which no sex differences are found, and a few species in which females rough-and-tumble play more than do males.

17.5.2.3 Playing Chase-Catch-and-Release

Some social play involves chasing combined with a brief tussle and then release of the one who was chased, often followed by another bout of chasing. Table 17.5.2.3 shows that the located studies all involved various species of monkeys, and that they all concluded that males were more likely to be involved than females.

17.5.2.4 Projective Aggressive Play

Aggression usually occurs in a social context. However, in some cases, aggression can be projected onto inanimate objects, such as two dolls. In this type of aggression, an individual usually holds objects in each had and maneuvers them in ways that resemble fighting behavior or wrestling. Table 17.5.2.4 shows that this type of aggressive play appears to be considerably more common among males than among females.

17.5.2.5 Combative Response to Disputes over Possessions During Play

While combative responses to disputes over possessions is not usually a form of play, per se, such behavior very often occurs in the context of play. Three studies have investigated possible sex difference in this type of behavior. As shown in Table 17.5.2.5, all the studies indicate that males are more likely than females to respond combatively toward a playmate confiscating another's possession.

Table 17.5.2.2a Rough-and-tumble play

Nature of difference	*Pre-pubertal*		*Post-pubertal*		*Wide age range*
	Infant/toddler	*Child*	*Adolescent*		
More among males	**NORTH AMERICA** *United States*: Hattwick 1937 (toddler); Muste & Sharpe 1947 (toddler); AH Clark et al. 1969 (toddler); S Goldberg & Lewis 1969 (toddler); SB Messer & Lewis 1972:301 (toddler); Jacklin et al. 1973 (toddler); Clarke-Stewart & Hevey 1981 (infant, by fathers); DiPietro 1981; TG Power & Parke 1986 (infant, when playing with mother); Crawley & Sherrod 1984 (infant, when playing with parents); Fagot & Hagan 1985 (toddler); K MacDonald & Parke 1986 (toddler, when playing with parents); DW Campbell & Eaton 1999 (infant)	**AFRICA** *South Africa*: Eibl-Eibesfeldt 1989:269 (!Kung Tribe Bushmen) **ASIA** *China*: Yu, Winter & Xie 2010:811 (playing king-of-the-mountain, ages 6-12, N = 486M + 417F) **EUROPE** *Britain*: Blurton-Jones 1967*; PK Smith & Connolly 1972*; PK Smith & Green 1975; PK Smith 1977*; Blatchford et al. 2003 (aggressive fantasy activities such as cops-and-robbers) **LATIN/CARIBBEAN AMERICA** *Colombia*: Chagnon 1988 (Yanomamo); *Mexico*: DP Fry 1990* (Zapotec Tribe) **NORTH AMERICA** *United States*: Acher 1910; Lehman & Witty 1930; TF Vance & McCall 1934; MW Johnson 1935; GR Bach 1945; Pintler et al. 1946; BG Rosenberg & Sutton-Smith 1959; Pitcher & Prelinger 1963; Blurton-Jones 1967*; AH Clark et al. 1969 (same sex); Santrock 1970 (young); Wohlford et al. 1971 (young); Blurton-Jones 1972; PK Smith & Connolly 1972*; Blurton-Jones & Konner 1973; Brindley et al. 1973; Whiting & Edwards 1973 (ages 3-11); Lever 1976; PK Smith 1977*; Stewart & Leone 1978; Crum 1980; JL Singer et al. 1980; DiPietro 1981 (preschool); Hertz-Lazarowitz et al. 1981; Landerholm & Scriven 1981 (age 6, when playing with parents); Morey 1981b; Fagot & Leinback 1983 (preschool); Ladd 1983; Pitcher & Schultz 1983:56*; Sprofkin et al. 1983 (preschool); Paley 1984; D Cole & LaVoie 1985; Humphreys & Smith 1987; Savin-Williams 1987; Pellegrini 1989; McLoyd &Wilson 1990 (blacks); Boulton & Smith 1992; Moller et al. 1992; GM Alexander	**EUROPE** *Finland*: Bjorkqvist et al. 1992a (ages 11-15) **NORTH AMERICA** *United States*: Lehman & Witty 1927:242; Paolino 1964 (self-report); Barclay 1970 (experimental design)		**NORTH AMERICA** *United States*: BG Rosenberg & Sutton-Smith 1960; Aldis 1975; Maccoby 1988

		& Hines 1994; Hines & Kaufman 1994; Frey & Hoppe-Graff 1994; Pellegrini 1995; Braza et al. 1997; Fabes et al. 1997; TK Neppl & Murray 1997; Braggio et al. 1998; RJ Coplan et al. 1998; CL Martin & Fabes 2001; Maccoby 2002; Fabes et al. 2003; Hines 2003; Underwood 2003 **OCEANIA** *Multiple South Pacific Islands*: Davenport 1965 **INTERNATIONAL** *Multiple Countries*: Whiting & Edwards 1988 **OVERVIEW** *Literature Review*: PK Smith 1996:50			
Not significant	**NORTH AMERICA** *Canada*: Laflamme et al. 2002 (9 month-olds, when playing with parents)	**LATIN/CARIBBEAN AMERICA** *Mexico*: DP Fry 1990* (Zapotec tribe) **NORTH AMERICA** *United States*: WC McGrew 1972; KH Hammer & Missakian 1978; Ladd 1983 (among popular children)			
More among females					

Table 17.5.2.2b Rough-and-tumble play (or play fighting) among non-humans

Nature of difference	*Pre-pubertal*				
	Infant/toddler	*Child*			
More among males	**CANINE** *Several Species*: Bekoff 1974* **PINNIPED** *Elephant Seal*: Rasa 1971 **PRIMATE** *Baboon*: GH Young et al. 1982; *Blue Monkey*: Forster & Cords 2005; *Bonnet Macaque*: PE Simonds 1974; *Capuchin Monkey*: Paukner & Suomi 2008:Table 1; *Gorilla*: Hoff et al. 1981; *Japanese Macaque*: GG Eaton et al. 1985; *Langur*: Jay 1963; *Rhesus Macaque*: Harlow 1962*; EW Hansen 1966; EW Hansen et al. 1966; Hinde & Spencer-Booth 1967*; Goldfoot & Wallen 1978; Tartabini 1991; GR Brown & Dixson 2000:Figure 1 (N = 14M + 20F); Paukner 2020 (infant, N = 304); *Squirrel Monkey*: JD Baldwin 1969*	**FELINE** *Domestic Cat*: Barrett & Bateson 1978 **MUSTELID** *Ferret*: Biben 1982 **PINNIPED** *Seal*: Arnold & Trillmich 1985 **PRIMATE** *Baboon*: Ranson & Rowell 1972 (feral); NW Owens 1975b*; DL Cheney 1978; Young, Coelho & Bramblatt 1982 (N = 46M + 31F); *Chimpanzee*: Spijkerman et al. 1996; *Crab-Eating Macaque*: Seay et al. 1972*; *Japanese Macaque*: Eaton et al. 1986*; *Patas Monkey*: Seay et al. 1972*; Rowell & Chism 1986 (N = 11M + 9F); *Rhesus Macaque*: Harlow 1962*; Harlow 1965*; Harlow & Harlow 1965; Young et al. 1965; Hinde & Spencer-Booth 1967*; Goy 1968; Fady 1969; Lindburg 1971*; Brandt & Mitchell 1973; CL Anderson & Mason 1974; Ruppenthal et al. 1974 (same sex); Suomi 1977 (same sex); Goy 1978; D Symons 1978*; Nieuwenhujsen et al. 1988:362*; Janus 1989; Wallen 1996; Brown & Dixson 2000; *Squirrel Monkey*: JD Baldwin 1969*; *Talapoin Monkey*: Wolfheim 1977* **RODENT** *Rat*: Seward 1945*; Olioff & Stewart 1978*; MJ Meaney & Stewart 1981b*; MJ Meaney et al. 1985; Thor & Holloway 1983; MJ Meany & McEwen 1986 (26-40 days old); Birke & Sadler 1987; Pellis et al. 1994; SM Pellis, Field et al. 1997; Olioff & Stewart 1978*; Colbert et al. 2005 **UNGULATE** *Cattle*: Reinhardt et al. 1978; Vitale et al. 1986; *Horse*: Crowell-Davis et al. 1987*; *Ibex*: Byers 1977; *Gazelle*: Gomendio 1988; *Scimitar-Horned Oryx*: Pfieffer 1985; *Welsh Pony*: Crowell-Davis et al. 1987* **OVERVIEW** *Literature Review*: Pellis 2002			
Not significant	**CANINE** *Coyote*: Hill & Bekoff 1977; *Hyena*: Drea et al. 1996; *Multiple Canine Species*: Bekoff 1974* **PRIMATE** *Baboon*: Young & Bramblett 1977; Young & Hawkins 1979; *Rhesus Macaque*: Kaufman 1966 (free-ranging) **RODENT** *Hamster*: Guerra et al. 1992	**PRIMATE** *Marmoset*: HO Box 1975 (captive) **SWINE** *Pig*: Newberry et al. 1988			
More among females	**PRIMATE** *Howler Monkey*: MR Clarke 1982; MR Clarke 1990 (free-ranging)	**PRIMATE** *Howler Monkey*: Zucker & Clarke 1992; *Talapoin Monkey*: Wolfheim 1977* **CANINE** *Spotted Hyena*: Pedersen et al. 1990			

Table 17.5.2.3 Playing chase-catch-and-release

Nature of difference			*Post-pubertal*		
			Adolescent		
More among males			**PRIMATE** *Olive Baboon*: NW Owens 1975a; *Capuchin Monkey*: Paukner & Suomi 2008:Table 1; *Rhesus Macaque*: Harlow 1969; GR Brown & Dixson:Figure 1 (chase play, N = 14M + 20F); *Spider Monkey*: LM Fedigan & Baxter 1984:Table 1		
Not significant					
More among females					

Table 17.5.2.4 Projective aggressive play

Nature of difference	*Pre-pubertal*			
		Child		
More among males		**NORTH AMERICA** *United States*: Bach 1945 (while playing with dolls); Pintler et al. 1946 (while playing with dolls); Yarrow 1948 (while playing with dolls); Sears 1951 (while playing with dolls)		
Not significant				
More among females				

Table 17.5.2.5 Combative response to disputes over possessions during play

Nature of difference	*Pre-pubertal*			
	Infant/toddler			
More among males	**EUROPE** *Britain*: A Campbell et al. 2002 (toddler) **NORTH AMERICA** *United States*: Messer & Lewis 1972 (toddler); Brooks & Lewis 1974 (toddler)			
Not significant				
More among females				

17.5.2.6 Vigorous Play

A few studies have reported on sex differences in tendencies to engage in vigorous play as opposed to relatively sedentary play. Table 17.5.2.6 shows that they have all indicated that males engage in more vigorous forms of play than do females.

Table 17.5.2.6 Vigorous play

Nature of difference	*Pre-pubertal*				
	Infant/toddler	*Child*			
More among males	**NORTH AMERICA** *United States*: S Goldberg & Lewis 1969 (toddler)	**NORTH AMERICA** *United States*: Lehman & Witty 1927; JC Foster 1930; S Coates et al. 1975 (active, perceptual-motor play); Pellegrini 1995 (older)			
Not significant					
More among females					

17.5.2.7 Playing with Loud/Noisy Toys

One study recorded the proportion of boys and girls who played with loud/noisy toys. Table 17.5.2.7 shows that it found boys doing so more than girls.

Table 17.5.2.7 Playing with loud/noisy toys

Nature of difference	*Pre-pubertal*				
	Infant/toddler				
More among males	**NORTH AMERICA** *United States*: Goldberg & Lewis 1969:26 (toddler)				
Not significant					
More among females					

17.5.3 Relaxed and Cooperative Forms of Play

As noted above, many forms of play can be categorized as being either vigorous and combative or as being relaxed, calm, and cooperative. This section considers studies of sex differences in forms of play that fit into the latter of these two categories.

17.5.3.1 Cooperative Social Play in General

Cooperative forms of social play involve supporting and reinforcing one another's activities rather than trying to block or compete against those activities. As shown in Table 17.5.3.1, all the available research indicates that females are more likely than males to engage in cooperative forms of social play.

Table 17.5.3.1 Cooperative social play in general

Nature of difference	*Pre-pubertal*				
		Child			
More among males					
Not significant					
More among females		**NORTH AMERICA** *United States*: Parten 1933; KH Rubin et al. 1976; RM Sanders & Harper 1976 (fantasy play); KH Rubin et al. 1978; Etaugh 1983; Leaper 1991 (playing with puppets); Thorne 1993 (groups are more polite, helpful, and caring); C Garcia 1994; Leaper et al. 1999 (blacks); Maccoby 2002 (in smaller, more intimate groups); Underwood 2003 (in smaller, more intimate groups)			

17.5.3.2 Playing Dress-Up

Five studies of sex differences in playing dress-up were located, two based on studying toddlers and three involving children. In one study, adults were asked if they recalled playing dress-up as children, while another study of children playing dress-up was based on reports by parents. Table 17.5.3.2 shows that more females report playing dress-up in both studies; also, the types of costumes appear to differ.

Table 17.5.3.2 Playing dress-up

Nature of difference	*Pre-pubertal*				
	Infant/toddler	*Child*			
More among males					
Not significant					
More among females	**NORTH AMERICA** *United States*: Fagot 1974:556 (toddler); Fagot 1978:462 (toddler)	**ASIA** *China*: Yu, Winter & Xie 2010:811 (dress-up, ages 6-12, N = 486M + 417F) **NORTH AMERICA** *United States*: Ellis, Robb & Burke 2005:579-580*; Halim, Ruble et al. 2013 (N = 229, 31%M usually as a superhero vs. 56%F usually as a princess)			

17.5.3.3 Playing House

Playing house often involves assuming the role of a parent and pretending to provide care to household members. Other examples of playing house would involve having a miniature tea set or a doll house to occupy ones play time. By viewing Table 17.5.3.3, one can see that all pertinent studies have found females to be more involved in playing house than males.

Table 17.5.3.3 Playing house

Nature of difference	*Pre-pubertal*				
		Child			
More among males					
Not significant					
More among females		**EUROPE** *Britain*: Blatchford et al. 2003 **NORTH AMERICA** *Canada*: Robert & Heroux 2004; *United States*: Acher 1910; Van Alstyne 1932; Vance & McCall 1934; Goodenough 1957; Zelig 1962 (planting flowers); Sutton-Smith et al. 1963; Coates et al. 1975; Lever 1978; Eisenberg 1983; Pitcher & Schultz 1983; Paley 1984; Emmott 1985; Earls 1987; J Connolly et al. 1988; Sandberg & Meyer-Bahlburg 1994; L Ellis, Robb & Burke 2005:579-580 (self-report); Berenbaum et al. 2008:Table 14.1 (preschool, N = 32M + 23F; play with cooking activities, d = .53)			

17.5.3.4 Play-Parenting

Play-parenting refers to the tendency to play in ways that resemble caring for infants, even though the objects involved are often not actually alive (e.g., a doll or stuffed toy). As one can see in Table 17.5.3.4a, studies of humans indicate that females exhibit this type of play behavior more than do males.

Table 17.5.3.4a Play-parenting

Nature of difference	*Pre-Puberal*				
	Infant/toddler				
More among males					
Not significant					
More among females	**AFRICA** *Botswana*: Eibl-Eibesfelt 1989 (!Ko tribe of central Kalahari); *Cameroon*: Kamei 2005 (Himba tribe) **NORTH AMERICA** *United States*: Berman, Monda & Myerscough 1977 (32-63 month-olds, N = 43M + 43F)				

A couple of studies of play-parenting were located for species of non-human primates. Table 17.5.3.4b shows that these studies both indicated that, as with humans, this behavior appears to be more common among child-aged females than among their male peers.

17.5.3.5 Playing with Pets

A few studies were located having to do with sex differences in having spent time playing with pets. As shown in Table 17.5.3.5, the findings have been mixed, depending on the type of pet and the nature of the relationship one has with pets.

Table 17.5.3.4b Play-parenting among non-humans

Nature of difference	*Pre-Puberal*			
		Child		
More among males				
Not significant				
More among females		**PRIMATE** *Chimpanzee*: Kahlenberg & Wrangham 2010; *Rhesus Macaque*: Lovejoy & Wallen 1988 (one year-olds)		

Table 17.5.3.5 Playing with pets

Nature of difference	*Pre-pubertal*			*Wide age range*
		Child		
More among males				**INTERNATIONAL** *Multiple Preliterate Societies*: Murdock & Provost 1973:207* (18/88 societies, caring for small pets)
Not significant		**NORTH AMERICA** *Canada*: B Daly & Morton 2003* (likes dogs more, N = 137)		**INTERNATIONAL** *Multiple Preliterate Societies*: Murdock & Provost 1973:207* (14/88 societies, caring for small pets)
More among females		**EUROPE** *Britain*: Brooke et al. 2013 (age 10, N = 1,600, horseback riding, walking with dogs, playing with pets in general) **NORTH AMERICA** *Canada*: B Daly & Morton 2003* (likes cats more, N = 137)		**INTERNATIONAL** *Multiple Preliterate Societies*: Murdock & Provost 1973:207* (56/88 societies, caring for small pets)

17.5.3.6 Pretend Play in General

Pretend play (also called *fantasy play* or *make-believe play*) involves imagining something that is not real, and then building a play activity around what has been imagined. One can see in Table 17.5.3.6 that research findings have not been entirely consistent regarding sex differences in pretend play. However, there may be sex differences in the specific types of things imagined (e.g., girls having imaginary friends and pretend to be teachers or nurses more, while boys fantasize about being aggressive).

17.5.3.7 Playing with Mechanical Objects or Construction or Building Material

Many studies have sought to determine if there is a sex difference in tendencies to play with mechanical toys or toys that involve construction. As shown in Table 17.5.3.7, all the evidence suggests that such play is more common among males than among females.

Table 17.5.3.6 Pretend play in general

Nature of difference	*Pre-pubertal*				
		Child			
More among males		**ASIA** *China*: Yu, Winter & Xie 2010:811 (pretend soldier, ages 6-12, N = 486M + 417F) **NORTH AMERICA** *United States*: JS Hatfield et al. 1967:376 (fantasy aggressive play); RM Sanders & Harper 1976 (fantasy play); D Singer & Singer 1990 (pretend being a superhero)			
Not significant					
More among females		**ASIA** *China*: Yu, Winter & Xie 2010:811 (pretend teacher or nurse or store keeper, ages 6-12, N = 486M + 417F) **EUROPE** *Norway*: Simonsen, Krestoffenson et al. 2014:Figure 4 (more convincing pretend parenting, ages 1.5-2.5, N = 6,574) **NORTH AMERICA** *United States*: Vostrovsky 1895 (imaginary friends); Jersild et al. 1933 (imaginary friends); Ames & Learned 1946 (imaginary friends); Langlois & Downs 1980 (children's play with parents); Lindsey et al. 1997 (children's play with parents); Lindsey & Mize 2001 (children's play with parents); Carlson & Taylor 2005 (imaginary friends); TR Gleason 2005; Berenbaum et al. 2008:Table 14.1 (preschool, N = 32M + 23F, d = 1.31)			

Table 17.5.3.7 Playing with mechanical objects or construction material

Nature of difference	*Pre-pubertal*		*Post-pubertal*		
	Infant/toddler	*Child*	*Adolescent*		
More among males	**NORTH AMERICA** *United States*: Van Alstyne 1932 (toddler, trucks, sport toys); RB McCall 1974 (toddler); Fagot 1974 (toddler); Etaugh et al. 1975 (toddler); Eisenberg 1983 (toddler, trucks, sport toys); ME Snow et al. 1983 (infant); Emmott 1985 (toddler, trucks, sport toys); GM Alexander & Hines 1994 (toddler)	**EUROPE** *Germany*: Scheifler 1913 **NORTH AMERICA** *Canada*: Robert & Heroux 2004; *United States*: Acher 1910* (simulating functional tools); Lehman & Witty 1930; Van Alstyne 1932; TF Vance & McCall 1934; Honzik 1951; Sutton-Smith et al. 1963 (toy cars); Coates et al. 1975; JM Connor & Serbin 1977; GF Melson 1977; Liss 1981; Eisenberg 1983; Emmott 1985; Earls 1987; Berenbaum & Hines 1992; Sandberg & Meyer-Bahlburg 1994 (toy cars); MG Jones et al. 2000:768; TG Power 2000	**NORTH AMERICA** *United States*: Acher 1910*; Lehman & Witty 1930; Mullis & Jenkins 1988 (tried to fix something mechanical); Wellesley College Center for Research on Women 1992 (used electrical meters)		
Not significant					
More among females					

17.5.3.8 Spatially Oriented Play/Activities

Some research has sought to determine if there is a sex difference in tendencies to play outside or in wide spatial regions. Table 17.5.3.8 indicates that this type of play is more common among males.

Table 17.5.3.8 Spatially oriented play/activities

Nature of difference	*Pre-pubertal*		*Post-pubertal*		*Wide age range*
		Child	*Adolescent*		
More among males		**ASIA** *China*: Yu, Winter & Xie 2010:811 (pretend camping, ages 6-12, N = 486M + 417F) **NORTH AMERICA** *Canada*: Grimshaw et al. 1995:92 (school age); *United States*: Lever 1976; JM Connor & Serbin 1977; Lever 1978; Ladd 1983	**EUROPE** *Britain*: M O'Brien et al. 2000 (spatial mobility)		**NORTH AMERICA** *Canada*: Robert & Heroux 2004 (ages 9-15, parental report)
Not significant					
More among females					

17.5.3.9 Verbal-Oriented Play/Activities

In a couple of studies, researchers sought to determine if there were sex differences in verbally oriented play (such as pretend teaching or spelling words). As one can see in Table 17.5.3.9, the available research indicates that females are more often involved in these types of play.

Table 17.5.3.9 Verbal-oriented play/activities

Nature of difference	*Pre-pubertal*				*Wide age range*
		Child			
More among males					
Not significant					
More among females		**ASIA** *China*: Yu, Winter & Xie 2010:811 (pretend teacher, ages 6-12, N = 486M + 417F)			**NORTH AMERICA** *Canada*: Robert & Heroux 2004 (ages 9-15, parental report)

17.5.4 Toy Choices and Preferences

Toys, like play, are hard to precisely define. In the broadest since, *toys* can be just about any object one chooses to designate as "a toy," even including a stick or a block of wood. But, most commonly, toys are at least rough facsimiles of some real objects such as a person (e.g., doll) or an object that would be used by an adult (e.g., houses, cars, trucks) to accomplish "real-world" tasks. This section will review the many studies of sex differences in toys preferred or played with the most.

17.5.4.1 Feminine Toy Play or Preferences in General

Feminine toys typically have recognizable faces, with dolls being especially distinct examples of feminine (or female-typical) type of toy (Connellan, Baron-Cohen et al. 2000; Davis & Hines 2020:Figure 2). Additional forms of feminine toys are ones involved in performing domestic activities such as cooking (Blakemore & Centers 2005:631).

Substantial research has been devoted to identifying sex differences in preferences for feminine toys and play activities. Table 17.5.4.1 shows that, in all studies, females preferred feminine toys significantly more than did males, with two meta-analyses calculating the magnitude of the differences to be greater than d = .90).

17.5.4.2 Masculine Toy Play or Preferences

Research having to do with sex differences in masculine toy preferences is substantial. *Masculine* (*or male-typical*) *toys* are usually those with moving parts (e.g., mobiles, toy trucks) or construction (e.g., hammers) or projectile capabilities (e.g., bows and arrows, toy guns, balls) (Davis & Hines 2020:Figure 2). As shown in Table 17.5.4.2, all studies agree that males are more likely than females to prefer masculine toys and forms of play. Two meta-analyses concluded that the magnitude of the sex difference is very large, i.e., the average difference surpassing one standard deviation.

17.5.4.3 Playing with (or Giving Attention to) Dolls

Dolls seem to epitomize play objects chosen by females (see Davis & Hines 2020:Figure 2). Of course, dolls come in a wide range of forms (and degrees of "realism"), but nearly all them have two eyes and a mouth. Many studies have examined sex differences in tendencies to play with (or collect) dolls. As shown in Table 17.5.4.3a, all of the studies that could be located concluded that females play with (or give visual attention to) dolls to a greater degree than do males.

Table 17.5.4.1 Feminine toy play or preferences in general

Nature of Difference	*Pre-pubertal*				*Wide age range*
	Infant/toddler	*Child*			
More among males					
Not significant					
More among females	**EUROPE** *Britain*: Lloyd & Smith 1985 (during free play, N = 15M + 15F); A Campbell et al. 2000 infant); Connellan, Baron-Cohen et al. 2000 (toys with human faces, infants); Wong & Hines 2015 (during free play, N = 56M + 70F); Todd, Barry & Thommessen 2017 (32 month-olds, N = 101, dolls & cooking pots); *France*: Le Manet-Idrissi 1996 (during free play, N = 24M + 24F); *Netherlands*: van de Beek, van Goozen et al. 2009:Figure 1 (infant, actual play, N = 63M + 63F); *Sweden*: A Servin, Bohlin & Berlin 1999* (1-3 year-olds, free play toy choice); A Serbin et al. 2001 (infant) **NORTH AMERICA** *Canada*: Pomerleau et al. 1990 (toddler); Moller & Serbin 1996 (during free play, N = 28M + 29F); Rotsztein & Zelazo 2000 (during free play, N = 14M + 14F); E Wood et al. 2002 (toddler); *United States*: H Benjamin 1932 (toddler); S Goldberg & Lewis 1969 (one-year-	**ASIA** *China*: Yu, Winter & Xie 2010 (ages 6-12, N = 486M + 417F); WI Wong & Yeung 2019 (age 5, toys preferred, N = 644) **EUROPE** *Britain*: Pasterski et al. 2005:272; D Spencer, Pasterski et al. 2021 (ages 4-11, N = 44M + 48F); *Italy*: Zammuner 1987* (toys preferred); *Netherlands*: Zammuner 1987* (toys preferred); *Sweden*: A Servin, Bohlin & Berlin 1999* (5-year-olds, free play toy choice, preschool); A Nelson 2005 (preschool, toys possessed) **MIDDLE EAST** *Israel*: Wilansky-Traynor & Lobel 2008 (during free play, N = 116) **NORTH AMERICA** *Canada*: Idle, Wood & Desmarais 1993 (during free play, N = 10M + 10F); Powlishta, Serbin & Moller 1993 (during free play, N = 28M + 29F); E Wood, Desmarais & Gugula 2002 (during free play, N = 24M + 24F); Fridell, Owen-Anderson et al. 2006 (forced choice, N = 96M + 38F); *United States*: DeLucia 1963 (toy preferences); Fagot & Patterson 1969 (toy preferences); G Fein et al. 1975 (toy preferences); Rheingold & Cook 1975 (preschool); Rekers & Yates 1976 (during free play, N = 60M + 60F); JM Connor et al. 1977; Blakemore et al. 1979; N Eisenberg-Berg et al. 1979*; Serbin et al. 1979 (toy preferences); Seegmiller, Suter et al. 1979 (forced choice); Schau, Kahn et al. 1980 (during free play, N = 26M + 26F); JG Richardson & Simpson 1982 (preschool, letters to Santa); AC Downs 1983 (letters to Santa); Downs 1983 (letters to Santa); N Eisenberg 1983 (toy preferences); N			**OVERVIEW** *Meta-Analysis*: Hines & Davis 2018 (infants, toddlers & children, choices, d = 1.60); Todd, Fischer et al. 2018 (time spent playing, ages 1-8, 16 studies, d = .91)

(*Continued*)

Table 17.5.4.1 (Continued)

Nature of Difference	*Pre-pubertal*				*Wide age range*
	Infant/toddler	*Child*			
	old); Jacklin, Maccoby & Dick 1973 (during free play, N = 20M + 20F); McCandless & Evans 1973* (toddler, feminine toys); Brooks & Lewis 1974 (infant); Fein, Johnson et al. 1975 (toddler, toy preferences during free play, N = 11M + 13F); Fagot 1978 (toddler); Blakemore et al. 1979 (toddler); N Eisenberg-Berg et al. 1979; Langlois & Downs 1980; Liss 1981; O'Brien et al. 1983 (toddler, toy preferences); ME Snow et al. 1983; Weinraub et al. 1984 (toddler); O'Brien & Huston 1985 (toddler); Fagot et al. 1986 (toddler); Robinson & Morris 1986 (toddler, Christmas toy preferences); Roopnarine 1986 (infant, N = 4M + 5F); Caldera et al. 1989 (toddler); Serbin et al. 2001 (toddler); GM Alexander, Wilcox & Farmer 2009* (5-6 month-olds, dolls, N = 17M + 13F); Zosuls, Ruble et al. 2009 (during free play, N = 36M + 36F); JE Laury, Udelson et al. 2015 (ages 6-13 months, visual tracking time)	Eisenberg, Tryon & Cameron 1984 (during free play, N = 26M + 25F); Karpoe & Olney 1983; Liss 1983 (toy preferences); Bradbard & Parkman 1984 (letters to Santa, N = 99M + 102F); DG Perry et al. 1984; Smetana & Letourneau 1984; Bradbard 1985 (Christmas gift requests); Peretti & Sidney 1986 (during free play, N = 75M + 75F); CC Robinson & Morris 1986; WB Gibson 1985; CL Miller 1987; DB Carter & Levy 1988; Almqvist 1989 (Christmas requests); Eisenberg & Shell 1990 (preschool, toys possessed); Berenbaum & Hines 1992 (ages 3-8); Alexander & Hines 1994; Hines & Kaufman 1994; Sandberg & Meyer-Bahlburg 1994 (N = 333M + 355F, ages 6-10, parent reports); SA Berenbaum & Snyder 1995; Fisher-Thompson et al. 1995; BC Freeman 1995 (during play, N = 354M + 470F); Marcon & Freeman 1996 (letters to Santa); Fisher-Thompson & Burke 1998 (forced choice, N = 60M + 60F); CG Rogers, Fagot & Winebarger 1998; Raag 1999 (during free play (N = 57M + 60F); VA Green et al. 2004; McHale, Shanahan et al. 2004 (self-report, N = 97M + 103F); L Ellis, Robb & Burke 2005 (retrospective self-report); Berenbaum et al. 2008:Table 14.1 (preschool, N = 32M + 23F); Goble, Martin et al. 2012:Table 3 (during free play, N = 133M + 131F); CL Martin, Kornienko et al. 2013 (during free play, N = 156M +136F); Weisgram, Fulcher & Dinella 2014:Study 1 (N = 38M + 35F (dolls, tea set, toy pony) **OCEANIA** *Samoan Islands*: NH Bartlett & Vasey 2006 (retrospective self-report by adults) **INTERNATIONAL** *Multiple Countries*: Pastersk, Geffner et al. 2011(forced choice, N = 17M + 26F)			

Table 17.5.4.2 Masculine toy play or preferences

Nature of difference	*Pre-pubertal*				*Wide age range*
	Infant/toddler	*Child*			
More among males	**EUROPE** *Britain*: Lloyd & Smith 1985 (during free play, N = 15M + 15F); A Servin et al. 1999* (toddler, toy choice); A Campbell et al. 2000 (infant); A Serbin et al. 2001 (infant); Wong & Hines 2015 (during free play, N = 56M + 70F); Todd, Barry & Thommessen 2017 (32 month-olds, N = 101, toys for digging); *France*: Le Manet-Idrissi 1996 (during free play, N = 24M + 24F); *Netherlands*: van de Beek, van Goozen et al. 2009 (infant, actual play, N = 63M + 63F); *Sweden*: A Servin, Bohlin & Berlin 1999* (1-3 year-olds, free play toy choice) **NORTH AMERICA** *Canada*: Pomerleau et al. 1990 (toddler); Moller & Serbin 1996 (during free play, N = 28M + 29F); Rotsztein & Zelazo 2000 (during free play, N = 14M + 14F); Serbin et al. 2001 (toddler); E Wood et al. 2002; *United States*: H Benjamin 1932 (toddler); S Goldberg & Lewis 1969 (one-year-old, toy preferences); Jacklin, Maccoby & Dick 1973 (during free play, N = 20M + 20F); McCandless & Evans 1973 (toddler, masculine toys); Brooks & Lewis 1974	**ASIA** *China*: Yu, Winter & Xie 2010 (ages 6-12, N = 486M + 417F); WI Wong & Yeung 2019 (toys, age 5, N = 644) **EUROPE** *Britain*: S Johnson 1987:27 (chess, pool, model airplane); PJ Turner et al. 1993; Benenson et al. 1997; Pasterski et al. 2005:272; Auyeung et al. 2009; D Spencer, Pasterski et al. 2021 (ages 4-11, N = 44M + 48F); *Germany*: Bosinski 2000; *Italy*: Zammuner 1987* (toyed preferred); *Netherlands*: Zammuner 1987* (toyed preferred); *Sweden*: A Servin, Bohlin & Berlin 1999* (5-year-olds, free play toy choice, preschool); A Nelson 2005 (preschool, toys possessed) **LATIN/CARIBBEAN AMERICA** *Venezuela*: Chagnon 1997 (aggressive play, Yanomamo Tribe) **MIDDLE EAST** *Israel*: Wilansky-Traynor & Lobel 2008 (during free play, N = 116) **NORTH AMERICA** *Canada*: WJ Hoffman 1890 (playing with balls, Ojibwa Tribe); Idle, Wood & Desmarais 1993 (during free play, N = 10M + 10F); Powlishta, Serbin & Moller 1993 (during free play, N = 28M + 29F); E Wood, Desmarais & Gugula 2002 (during free play, N = 24M + 24F); Fridell, Owen-Anderson et al. 2006 (forced choice, N = 96M + 38F); *United States*: Borstelmann 1961; DeLucia 1963; Fagot & Patterson 1969 (toy preferences); Rheingold & Cook 1975; Berk & Lewis 1977 (ages 4-8); Rekers & Yates 1976 (during free play, N = 60M + 60F); JM Connor et al. 1977; Blakemore et al. 1979; Eisenberg-Berg et al. 1979; Seegmiller, Suter et al. 1979 (forced choice); Serbin et al. 1979 (toy preferences); Schau, Kahn et al. 1980 (during free play, N = 26M + 26F); Blomberg 1981; MB Liss 1981; Eisenberg et al. 1982 (preschool; transportation & construction toys); JG Richardson & Simpson 1982 (preschool, letters to Santa); AC Downs 1983 (letters to Santa); N Eisenberg 1983 (toy preferences); Karpoe & Olney 1983; Liss 1983; Bradbard & Parkman 1984 (letters to Santa, N = 99M + 102F); N Eisenberg, Tryon & Cameron 1984 (during free play,			**OVERVIEW** *Meta-Analysis*: Hines & Davis 2018 (infants, toddlers & children, choices, d = 1.82); Todd, Fischer et al. 2018 (time spent playing, ages 1-8, 16 studies, d = 1.03)

(*Continued*)

Table 17.5.4.2 (Continued)

Nature of difference	*Pre-pubertal*				*Wide age range*
	Infant/toddler	*Child*			
	(infant); Fagot 1974:556; Fein, Johnson et al. 1975 (toddler, toy preferences during free play, N = 11M + 13F); Rheingold & Cook 1975; JM Connor & Serbin 1977 (toddler); Fagot 1978 (toddler, toy preferences); Blakemore et al. 1979 (toddler); N Eisenberg-Berg et al. 1979 (toddler); Langlois & Downs 1980 (toddler); Liss 1981 (toddler); N Eisenberg et al. 1982 (toddler); O'Brien et al. 1983 (toddler); ME Snow et al. 1983 (infant); Weinraub et al. 1984; O'Brien & Huston 1985 (toddler); Fagot et al. 1986 (toddler); Roopnarine 1986 (infant, N = 4M + 5F); Serbin et al. 2001 (toddler); GM Alexander, Wilcox & Farmer 2009 (toy truck, 5-6 month-olds, N = 17M + 13F); Zosuls, Ruble et al. 2009 (during free play, N = 36M + 36F); JE Lauer, Udelson et al. 2015 (6-13 month-olds, N = 56, looking time)	N = 26M + 25F); Bradbard 1985; Bradbard & Parkman 1984 (Christmas requests); DG Perry et al. 1984; Smetana & Letourneau 1984; Bradbard 1985 (Christmas toy requests); WB Gibson 1985; Peretti & Sydney 1985 (toy preferences); Peretti & Sidney 1986 (during free play, N = 75M + 75F); CC Robinson & Morris 1986; CL Miller 1987; DB Carter & Levy 1988 (preschool; transportation/ construction toys); Almqvist 1989 (Christmas requests); Eisenberg & Shell 1990 (preschool, toys possessed); Martin & Little 1990; Berenbaum & Hines 1992 (ages 3-8); Etaugh & Liss 1992; Lobel & Menashri 1993; Alexander & Hines 1994; Sandberg & Meyer-Bahlburg 1994 (N = 333M + 355F, ages 6-10, parent reports); SA Berenbaum & Snyder 1995; Fisher-Thompson et al. 1995; BC Freeman 1995 (during play, N = 354M + 470F); J Goldstein 1995 (aggressive play); Loy & Hesketh 1995 (Native Americans); Marcon & Freeman 1996 (letters to Santa); Fisher-Thompson & Burke 1998 (forced choice, N = 60M + 60F); CG Rogers, Fagot & Winebarger 1998; Raag 1999 (during free play (N = 57M + 60F); Sen 1999; VA Green et al. 2004; McHale, Shanahan et al. 2004 (self-report, N = 97M + 103F); L Ellis et al. 2005 (retrospective self-report); Ruble et al. 2006; Goble, Martin et al. 2012:Table 3 (during free play, N = 133M + 131F); CL Martin, Kornienko et al. 2013 (during free play, N = 156M +136F) **OCEANIA** *Samoan Islands*: NH Bartlett & Vasey 2006 (retrospective self-report by adults) **INTERNATIONAL** *Multiple Countries*: Pastersk, Geffner et al. 2011(forced choice, N = 17M + 26F)			
Not significant					
More among females					

Table 17.5.4.3a Playing with (or giving attention to) dolls

Nature of difference	*Pre-pubertal*		*Post-pubertal*		
	Infant/toddler	*Child*	*Adolescent*		
More among males					
Not significant					
More among females	**EUROPE** *Britain*: Jadva, Hines & Golombok 2010 (visual preferences for dolls, N = 20M + 20F); Todd, Barry & Thommessen 2017 (32-month-olds, N = 101, dolls); *Finland*: Lamminmaki, Hines et al. 2012 (free play with dolls, 21M + 26F) **NORTH AMERICA** *Canada*: Corter & Jamieson 1977 (during free play, N = 10M + 10F); Serbin, Poulin-Dubois et al. 2001 (12 to 23 month-olds, looking time preference); *United States*: Fagot 1974:556; Fagot 1978:462 (play with dolls more); Roopnarine 1986 (infant, during free play, N = 4M + 5F); Alexander & Saenz 2012:Figure 1 (playing time, N = 47M + 37F); Lauer, Udelson et al. 2015 (6-13 month-olds, looking time) **OCEANIA** *Australia*: Escudero, Robbins & Johnson 2013 (visual preferences for dolls, N = 12M + 12F) **INTERNATIONAL** *Multiple Countries*: Bornstein et al. 1999 (toddler, play with dolls more)	**AFRICA** *South Africa*: Eibl-Eibesfelt 1989 (!Kung tribe, play with dolls more) **ASIA** *China*: Yu, Winter & Xie 2010:811 (play with dolls & stuffed animals more, ages 6-12, N = 486M + 417F) **EUROPE** *Germany*: Scheifler 1913 **NORTH AMERICA** *Canada*: Doering, Zucker et al. 1989 (during free play, N = 15M + 15F); Robert & Heroux 2004 (play with dolls more); *United States*: Acher 1910 (play with dolls more); Lehman & Witty 1930 (play with dolls more); Van Alstyne 1932 (play with dolls more); Honzik 1951; Anastasiow 1965 (N = 60M + 60F); Coates et al. 1975 (play with dolls more); Wolf 1976:27 (play with dolls more); Barkley, Ullman et al. 1977 (free play with dolls, N = 40M + 40F); JM Connor & Serbin 1977 (play with dolls more); Jennings 1977 (play with dolls more); Liss 1981 (play with dolls more); N Eisenberg et al. 1982 (play with dolls more); N Eisenberg 1983 (play with dolls more); Karpo & Olney 1983 (free play with dolls & doll furniture, N = 15M + 15F); Emmott 1985 (play with dolls more); Boldizar 1991 (play with dolls, N = 74M + 71F); JH Goldstein 1994 (young); Sandberg & Meyer-Bahlburg 1994 (play with dolls more); Berenbaum et al. 2008:Table 14.1 (preschool, N = 32M + 23F; play with female play figure, d = 1.24); Karsh et al. 2008 (play with dolls more); Cherney & Dempsey 2010 (free play, N = 19M + 12F); Weisgram, Fulcher & Dinella 2014:Study 1 (N = 38M + 35F (dolls)	**NORTH AMERICA** *United States*: Basset 1929 (play with dolls more); Witty & Lehman 1930 (play with dolls more)		

Two studies of young monkeys gave both sexes the opportunity to play with stuffed dolls along with other types of toys. As shown in Table 17.5.4.3b, the researchers found that female monkeys choose to play with the dolls more than did the males.

Table 17.5.4.3b Playing with (or giving attention to) dolls among non-humans

Nature of difference	*Pre-pubertal*				
		Child			
More among males					
Not significant					
More among females		**PRIMATE** *Rhesus Macaque*: Hassett, Siebert & Wallen 2008 (stuffed dolls); *Vervet Monkey*: GM Alexander & Hines 2002 (stuffed dolls)			

17.5.4.4 Playing with (or Giving Attention to) Movement-Oriented or Construction Toys

Substantial research has documented sex differences in time spent playing with toys that have moving parts (e.g., trucks) or than can be used to simulate construction (e.g., hammers and building blocks). Table 17.5.4.4a, summarizes this evidence. One can see that all findings agree that boys play with these types of toys more than do females.

A couple of studies reported on sex differences in the time spent playing with movement-oriented toys among non-humans (no studies of construction-related toys were located). Both studies involved species of monkeys in the age range equivalent to human children. As shown in Table 17.5.4.4b, these studies found that males spent more time playing with these types of toys than did females.

17.5.4.5 Play with Toys That Are Gender Ambiguous

Several objects of play are ambiguous or roughly neutral regarding being masculine or feminine. These include such things as paint (and paint brushes), puzzles, balls, and board games (Davis & Hines 2020:Figure 2). Research pertaining to sex differences in the tendency to play with these types of toys are summarized in Table 17.5.4.5a. It indicates that findings have been mixed regarding sex differences in the use of these objects in play.

Two studies of non-humans were located having to do with sex differences in the amount of time spent playing with toy balls. As shown in Table 17.5.4.5b, while one study reported that male kittens spent more

Table 17.5.4.4a Playing with (or giving attention to) movement-oriented or construction toys

Nature of difference	*Pre-pubertal*				
	Infant/toddler	*Child*			
More among males	**EUROPE** *Britain*: Jadva, Hines & Golombok 2010 (time spent looking at moving vehicles, N = 20M + 20F); Todd, Barry & Thommessen 2017 (32-month-olds, N = 101, play time with toys for digging); *Finland*: Lamminmaki, Hines et al. 2012 (free play with trains, N = 22M + 26F) **NORTH AMERICA** *Canada*: Corter & Jamieson 1977 (during free play, N = 10M + 10F); Serbin, Poulin-Dubois et al. 2001 (12 to 23 month-olds, looking time preferences); *United States*: Fein et al. 1975 (hammers, trucks, guns); Fagot 1978:462 (transportation toys & building blocks); Caldera et al. 1989 (toddler; transportation & construction toys); Alexander & Saenz 2012:Figure 1 (playing time, toy car, N = 47M + 37F); Lauer, Udelson et al. 2015 (6-13 month-olds, looking time) **OCEANIA** *Australia*: Escudero, Robbins & Johnson 2013 (visual preferences for vehicles, N = 12M + 12F)	**EUROPE** *Britain*: S Johnson 1987:27 (model airplane) **NORTH AMERICA** *Canada*: Doering, Zucker et al. 1989 (during free play, N = 15M + 15F); *United States*: LV Harper & Sanders 1975 (tractors); Karpo & Olney 1983 (free play with vehicles, N = 15M + 15F); Berenbaum & Hines 1992 (ages 3-8); CL Martin et al. 1995 (preschool, transportation & construction toys); Berenbaum et al. 2008:Table 14.1 (preschool, N = 32M + 23F; play with bikes: d = .74; play with blocks: d = 1.05; play with male action figures: d = 1.01; play with toy trucks: d = .92); Cherney & Dempsey 2010 (vehicles, free play, N = 19M + 12F); Weisgram, Fulcher & Dinella 2014:Study 1 (N = 38M + 35F (toy fighter jet & monster trucks)			
Not significant					
More among females					

Table 17.5.4.4b Playing with (or giving attention to) movement-oriented or construction toys among non-humans

Nature of difference	*Pre-pubertal*				
		Child			
More among males		**PRIMATE** *Rhesus Macaque*: Hassett, Siebert & Wallen 2008 (wheeled vehicles); *Vervet Monkey*: GM Alexander & Hines 2002 (toy truck)			
Not significant					
More among females					

Table 17.5.4.5a Play with toys that are gender ambiguous

Nature of difference	*Pre-pubertal*		*Post-pubertal*		
	Infant/toddler	*Child*	*Adolescent*		
More among males	**AFRICA** *South Africa*: Eibl-Eibesfeldt 1989 (!Kung, toddler, such as sticks & rocks) **EUROPE** *Britain*: Todd, Barry & Thommessen 2017 (32-month-olds, N = 101, balls) **NORTH AMERICA** *United States*: Goodenough 1957 (toddler); O'Brien & Huston 1985 (toddler)	**EUROPE** *Britain*: Acher 1910* (making functional tools); S Johnson 1987:27 (chess); Benenson et al. 1997; Blatchford et al. 2003:491 (ball games) **NORTH AMERICA** *United States*: Sutton-Smith et al. 1963; G Mendel 1965 (novelty of play); Berenbaum et al. 2008:Table 14.1* (preschool, N = 32M + 23F; play with balls: d = .66)	**EUROPE** *Britain*: Blatchford 1996 (ball games) **NORTH AMERICA** *United States*: Hildreth 1933 (chess)		
Not significant		**NORTH AMERICA** *United States*: Acher 1910* (use of stones)			
More among females	**NORTH AMERICA** *United States*: Etaugh et al. 1975 (paint)	**NORTH AMERICA** *United States*: Jennings 1977 (puzzles, markers, and clay); Berenbaum et al. 2008:Table 14.1* (preschool, N = 32M + 23F; play with crayons: d = .68; playing with puzzles: d = .62; playing with board games: d = .54)			

time playing with balls than did female kittens, the other study reported no significant sex difference.

Table 17.5.4.5b Playing with (or giving attention to) movement-oriented or construction toys among non-humans

Nature of difference	*Pre-pubertal*				
		Child			
More among males		**FELINE** *Domestic Cat*: P Barrett & Bateson 1978 (balls)			
Not significant		**FELINE** *Domestic Cat*: MJ West 1975 (balls)			
More among females					

17.5.4.6 Trends in Gender-Typical Toy Preferences

Two meta-analyses have assessed trends in sex differences in toy preferences. One meta-analysis covered 16 studies published between 1989 and 2015, thus covering a 25-year time frame. All 16 studies reported *time spent playing* with gender-typical (or gender-atypical) toys by both sexes. The other meta-analysis was based on 75 studies of sex differences in *preferences for* or *choices of toys* that were gender typical (or gender-atypical) covering a 52-year time frame (i.e., 1960–2012).

Results from these two meta-analyses are summarized in Table 17.5.4.6. Both confirmed that there were very strong sex differences in toy preferences (see the earlier tables in this regard). In other words, males prefer movement-oriented or construction toys more and females prefer dolls more. Regarding trends in sex differences, however, these two meta-analyses reached somewhat different conclusions. The meta-analysis of the 16 studies based on time spent playing with sex-typical toys over a 25-year time frame concluded that there had been a significant, but modest, trend toward reduced sex differences. The other meta-analysis of 75 studies covering 52 years, and based more generally on toy preferences and choices, indicated that no significant trend toward either increased or decreased sex differences were apparent.

17.5.5 Sports and Recreational Activities

Many studies of sex differences in activities having to do with sports and related recreational activities. Findings are summarized in the following section.

Table 17.5.4.6 Trends in gender-typical toy preferences

Nature of difference					*Wide age range*
Increasing sex differences					
Not significant					**OVERVIEW** *Meta-Analysis*: JTM Davis & Hines 2020:386 (1960-2012, 113 effect sizes from 75 studies)
Decreasing sex differences					**OVERVIEW** *Meta-Analysis*: Todd, Fischer et al. 2018 (toy preferences, ages 1-8, 1989-2014)

17.5.5.1 Involvement in Athletics and Sports in General

Numerous studies have sought to determine if there are sex differences in participating in sports, including conventional sports (such as basketball, track, and swimming) as well as extreme sports (such as sky diving and mountain climbing). As one can see in Table 17.5.5.1, all of these studies have concluded that males are more likely to be actively involved in sporting activities than females.

17.5.5.2 Involvement in Team Sports

Team sports are ones that involve two or more players competing against two or more other players. Popular examples include games such as basketball, hockey, and baseball. By inspecting Table 17.5.5.2, one can see that, as with physical sports in general (reviewed above), all research findings agree that males engage in team sports to a greater degree than do females.

17.5.5.3 Involvement in Extracurricular Activities

Extracurricular activities usually refer to school affiliated or school sponsored activities, such as singing, dances, plays, and other types of activities that are not a normal part of regular school events. As shown in Table 17.5.5.3, the evidence is not consistent regarding any sex differences in being involved in extracurricular activities, although more studies indicate that females are more involved than are males.

17.5.5.4 Involvement in Male-Typical Sports

Some researchers have divided many popular sports into those that are male-typical (or masculine) and those that are female-typical (feminine). Typically, male-typical sports are the most directly competitive and physically energetic. As one would expect, Table 17.5.5.4 shows that males are more likely than females to be involved in male-typical sports.

Table 17.5.5.1 Involvement in athletics and sports in general

Nature of difference	*Pre-pubertal*		*Post-pubertal*		*Wide age range*
	Infant/toddler	*Child*	*Adolescent*	*Adult*	
More among males	**NORTH AMERICA** *Canada*: Pomerleau et al. 1990 (toddler, possessing sports equipment)	**EUROPE** *Britain*: Pellegrini et al. 2004* (ball games); Brooke et al. 2013 (age 10, wide range of physically active sports, N = 1,600); *Denmark*: Nielsen et al. 2011; *Sweden*: A Nelson 2005 (preschool, possessing sports equipment) **NORTH AMERICA** *United States*: Eccles et al. 2000:341 (better at sports, parental ratings); Zarbatany et al. 2000; Pellegrini et al. 2004* (ball games) **OCEANIA** *Australia*: Ferrar et al. 2012 (especially team sports)	**EUROPE** *Britain*: Viner & Cole 2006:1370; *Finland*: Vilhjalmsson & Thorlindsson 1992 (physical sports); Vilhjalmsson & Kristjansdottir 2003 **NORTH AMERICA** *Canada*: Frederick 1995:68; Mandigo et al. 1999; *United States*: Timmer et al. 1985; Kirshnit et al. 1989 (young); Frydenberg & Lewis 1993; Dufur 1999 (athletics); Bae et al. 2000; RD Larson et al. 2001 (young, among blacks); Wetter & Economos 2004 (undergrad, N = 235); Jago, Anderson et al. 2005; KE Miller et al. 2005:1644; Popp & Peguero 2011:Table 2 **OCEANIA** *Australia*: Garton & Pratt 1991 (N = 1,248)	**EUROPE** *Britain*: Gershuny 2000 (as a percent of leisure time); V Robinson 2008 (extreme sports); Stamatakis & Chaudhury 2008 (physical sports); *Spain*: Palacios, Cena et al. 2012; Hernando et al. 2013 (N = 1,068M + 1,332F); *Multiple European Countries*: Van Tuyckom et al. 2010 **LATIN/CARIBBEAN AMERICA** *St. Kitts*: T Abel et al. 2001 **NORTH AMERICA** *United States*: Schoenborn et al. 1981 (physically active sports); CE Ross & Bird 1994; Denton & Walters 1999; Bahk 2000 (undergrad, N = 107M + 126F); CR Harris et al. 2006; Sax 2008; SA Ham et al. 2009 **OCEANIA** *Australia*: Eime et al. 2015	**AFRIA** *Multiple African Countries*: Guthold et al. 2011 **EUROPE** *Britain*: Stamatakis & Chaudhury 2008 (adolescents and adults); *Ireland*: PD Lunn 2010 (childhood through adulthood); *Multiple European Countries*: Van Tuyckom et al. 2010 **NORTH AMERICA** *United States*: Timmer et al. 1985 (preschool through adulthood); Vaughter et al. 1995 (multiple ages); Deaner et al. 2012 **INTERNATIONAL** *Multiple Countries*: RO Deaner & Smith 2013:12 (50 societies)
Not significant					
More among females					

Table 17.5.5.2 Involvement in team sports

Nature of difference	*Pre-pubertal*		*Post-pubertal*		*Wide age range*
		Child	*Adolescent*	*Adult*	
More among males		**EUROPE** *Denmark*: Nielsen et al. 2011 **NORTH AMERICA** *United States*: Sandberg & Meyer-Bahlburg 1994 (ages 6-10, N = 333M + 355F, basketball, American football, parent reports); Center for Disease Control 1996; SG Trost, Pate et al. 1996 (5th graders, N = 334)	**EUROPE** *Britain*: Blatchford 1996 (soccer) **NORTH AMERICA** *United States*: Kirshnit et al. 1989; M Pratt et al. 1999:S529; Pate et al. 2000 (team sports); RW Larson et al. 2001 (blacks); Chapple et al. 2005:366; Sallis, Zakarian et al. 2012 (N = 1,871, team sports) **OCEANIA** *Australia*: A Slater & Tiggemann 2011 (ages 12-16, N = 714, team sports, self-report); Ferrar et al. 2012	**NORTH AMERICA** *Canada*: Frederick 1995	**EUROPE** *Britain*: Stamatakis & Chaudhury 2008; *Ireland*: Lunn 2010; *Multiple European Countries*: Van Tuyckom et al. 2010 **NORTH AMERICA** *United States*: RO Deaner et al. 2012
Not significant					
More among females					

Table 17.5.5.3 Involvement in extracurricular activities

Nature of difference	*Pre-Adolescent*		*Post-pubertal*	
		Child	*Adolescent*	
More among males			**EUROPE** *Spain*: Hernando et al. 2013 (N = 1,068 + 1,332F)	
Not significant				
More among females		**NORTH AMERICA** *United States*: Centers for Disease Control 1996 (dancing)	**NORTH AMERICA** *United States*: Marini 1978:494; Bae et al. 2000	

Table 17.5.5.4 Involvement in male-typical sports

Nature of difference	*Pre-pubertal*		*Post-pubertal*	
		Child	*Adolescent*	
More among males		**NORTH AMERICA** *United States*: Trost, Pate et al. 1996 (5th graders, physically active sports, self-report)	**EUROPE** *Norway*: Klomsten et al. 2005 (soccer, ice hockey, boxing, martial arts) **NORTH AMERICA** *United States*: Eccles & Harold 1991; Fasting 2003; Pfister 1993	
Not significant				
More among females				

17.5.5.5 Involvement in Female-Typical Sports

As mentioned above, many sports can be classified as masculine or feminine based on the proportion of males or females participate in those particular sports. Normally, feminine (or female-typical) sports tend to involve greater displays of grace and precision, whereas masculine sports tend to emphasize speed and power. To be expected, Table 17.5.5.5 shows that more females tend to participate in female-typical sports than do males.

Table 17.5.5.5 Involvement in female-typical sports.

Nature of difference		*Post-pubertal*	
		Adolescent	
More among males			
Not significant			
More among females		**EUROPE** *Norway*: Matteo 1986 (handball); Koivula 1995 **NORTH AMERICA** *United States*: Eccles & Harold 1991; Fasting 2003; Pfister 1993	

17.5.5.6 Involvement in Sports Emphasizing Direct Competition

Competitive sports are ones in which there are usually clear winners and losers. Table 17.5.5.6 indicates that from early childhood onward, males are more likely to engage in competitive sports than are females. This conclusion is consistent with a literature review conducted by Emmott (1985).

17.5.5.7 Performance Improvement When Competing

Some research has sought to determine if sex differences exist in the extent to which task performance is enhanced by competition. While the relevant research is still quite limited, as shown in Table 17.5.5.7, it suggests that male performance is enhanced more than female performance when both are engaged in activities that are relatively competitive in nature.

17.5.5.8 Playing Chess

A few studies have sought to determine if there is a sex difference in playing chess. Table 17.5.5.8 shows that all studies have concluded that more males than females play chess. This may help to explain why some of the same studies have reported that males are more likely to win at chess, a point documented in the table directly below.

17.5.5.9 Winning at Chess

Several studies have investigated sex differences in winning at chess. One can see in Table 17.5.5.9 that all but one study has found that males are more likely to win than women. Obviously, the fact that males appear to play chess more (documented in the preceding table) could account for why they are also more likely to win. This possibility has been addressed by various researchers (e.g., RW Howard 2014; A Blanch, Aluja & Comado 2015).

Another factor that could help to account for why males are more likely to win at chess is the possibility that females are more likely to be intimidated by male opponents than by female opponents. This possibility was addressed in one experiment in which women were told that their chess opponent was another woman rather than a man. In this case, their probability of winning was not significantly different from those of men.

17.5.6 Gaming Strategies

Some research has compared males and females regarding the types of strategies they use when involved in playing games. Findings are reviewed below.

Table 17.5.5.6 Involvement in sports emphasizing direct competition

Nature of difference	*Pre-pubertal*		*Post-pubertal*		*Wide age range*
		Child	*Adolescent*	*Adult*	
More among males		**ASIA** *Japan*: NHK Public Opinion Research Division 1996* **EUROPE** *Britain*: S Clark & Paechter 2007 (ages 10-11, socker/football); *Germany*: Scheifler 1913 **NORTH AMERICA** *Canada*: AG Miller & Thomas 1972 (experimental game); Frederick 1995*; *United States*: Lehman & Witty 1930*; JP Mckee & Leader 1955 (experimental block building task); Sutton-Smith et al. 1963; Lever 1976; MA Barnett & Andrews 1977 (experimental game); MC Madsen & Shapira 1970 (experimental game); Lever 1978; Moely et al. 1979 (experimental game); DG Freedman 1980; Kirshnit et al. 1989*; C Garcia 1994; Sandberg & Meyer-Bahlburg 1994; Robinson & Bianchi 1997*; Larson et al. 2001	**ASIA** *Japan*: NHK Public Opinion Research Division 1996*; *Former Soviet Union*: Zuzanek 1980 **NORTH AMERICA** *Canada*: Frederick 1995*; *United States:* Lehman & Witty 1930*; Stoke & West 1931; Lund 1944; Garton & Pratt 1987; Gill 1988; Kirshnit et al. 1989*; Mauldin & Meeks 1990; Robinson & Bianchi 1997*; Larson et al. 1998	**EUROPE** *Multiple European Countries*: Scraton et al. 1999 (socker/football) **NORTH AMERICA** *Canada*: Hall & Kimura 1995 (undergrad); *United States*: S Flood & Hellstedt 1991 (undergrad); Deaner et al. 2013:Table 4 **INTERNATIONAL** *Multiple Countries*: Deaner & Smith 2012 (physically competitive)	**NORTH AMERICA** *United States*: Garratt, Weinberger & Johnson 2013 (ages 16+, competitive running, 491M vs. 160F) **OVERVIEW** *Literature Review*: Deaner & Smith 2013
Not significant					
More among females					

Table 17.5.5.7 Performance improvement when competing

Nature of difference	*Pre-pubertal*		*Post-pubertal*	
		Child		*Adult*
More among males		**MIDDLE EAST** *Israel*: Gneezy & Rustichini 2004 (running speed)		**MIDDLE EAST** *Israel*: Gneezy et al. 2003 (solving mazes)
Not significant				
More among females				

Table 17.5.5.8 Playing chess

Nature of difference			*Post-pubertal*		*Wide age range*
				Adult	
More among males				**NORTH AMERICA** *United States*: Charness & Glickman 2006 (N = 256,741)	**EUROPE** *Germany*: Bilalic et al. 2008:Figures 1 & 2 (N = 120,399) **INTERNATIONAL** *Multiple Countries*: RW Howard 2014; A Blanch, Aluja & Comado 2015; Stafford 2018:430 (88% of players were male)
Not significant					
More among females					

Table 17.5.5.9 Winning at chess

Nature of difference			*Post-pubertal*		*Wide age range*
				Adult	
More among males				**NORTH AMERICA** *United States*: Charness & Gerchak 1996; RW Howard 2005 (qualifying for championship matches)	**EUROPE** *Germany*: Bilalic et al. 2008:Figure 2 (N = 100M + 100F) **INTERNATIONAL** *Multiple Countries*: Howard 2005 (grand masters); Chabris & Glickman 2006 (grand masters, 885M vs. 9F); RW Howard 2014; A Blanch, Aluja & Comado 2015
Not significant				**EUROPE** *Italy*: Maass et al. 2008 (when women were told their opponent was another woman rather than a man)	
More among females					

17.5.6.1 Winner-Oriented Strategies

A few studies have compared males and females regarding having a winner-oriented strategy (as opposed to simply playing for fun or exercise). Research undertaken to assess sex differences in this regard are summarized in Table 17.5.6.1, all which indicate that males seem to devise game strategies around winning to a greater degree than do females.

Table 17.5.6.1 Winner-oriented strategies

Nature of difference	*Pre-pubertal*		*Post-pubertal*	
	Child	*Adolescent*	*Adult*	
More among males	**NORTH AMERICA** *United States*: Lever 1976	**NORTH AMERICA** *United States*: GP Knight & Kagan 1981	**NORTH AMERICA** *United States*: Vinacke 1969:301 (undergrad, games of "chicken"); Hottes & Kahn 1974 (young)	
Not significant				
More among females				

17.5.6.2 Exploitive (versus Cooperative) Strategies

Some researchers have devised games that allow subjects to either reciprocate or exploit any cooperation exhibited by one's opponent. As shown in Table 17.5.6.2, these studies have reached conflicting conclusions with respect to any sex difference in the use of exploitive strategies.

Table 17.5.6.2 Exploitative (versus cooperative) strategies

Nature of difference	*Pre-pubertal*	*Post-pubertal*	
	Child	*Adult*	
More among males	**NORTH AMERICA** *United States*: Tedeschi et al. 1969a (prisoner's dilemma game)	**NORTH AMERICA** *United States*: Vinacke 1959 (exploitative gaming strategies); JR Bond & Vinacke 1961 (young); Vinacke 1969:305	
Not significant			
More among females	**NORTH AMERICA** *United States*: Lindskold et al. 1970 (prisoner's dilemma game); Rapoport & Chammah 1965 (prisoner's dilemma game)		

17.5.7 Non-interactive Mass Media

Non-interactive mass media are those in which there are performers or providers of information, on the one hand, and listeners or viewers, on the other hand. How do the sexes compare regarding their viewing and preferring such mass media? Findings are reviewed in the following section.

17.5.7.1 Reading in General

A couple of studies compared the sexes regarding the amount of time spent reading. Table 17.5.7.1 shows that both studies concluded that males read more than females.

Table 17.5.7.1 Reading in general

Nature of difference			*Post-pubertal*		
			Adolescent	*Adult*	
More among males			**NORTH AMERICA** *United States*: BL Johnson 1932 (about science)	**NORTH AMERICA** *United States*: Austin et al. 1995 (undergrad, for pleasure)	
Not significant					
More among females					

17.5.7.2 Watching Television

Numerous studies of sex differences in time spent watching television have been published. As shown in Table 17.5.7.2, inconsistent conclusions have been reached, although a majority of the findings point toward males watching more than do females.

17.5.7.3 Watching or Interest in Watching Movies

In one study, individuals of both sexes were asked to rate their interest in watching movies. As shown in Table 17.5.7.3, the study found that among research participants who were between 18 and 44 years of age, females expressed a greater interest, but that from ages 45 and older, males gave higher ratings.

17.5.7.4 Listening to Music

In Table 17.5.7.4, studies are cited having to do with sex differences in time spent listening to music. One can see that in all cases, females did so more.

Table 17.5.7.2 Watching television

Nature of difference	*Pre-pubertal*		*Post-pubertal*		*Wide age range*
		Child	*Adolescent*	*Adult*	
More among males		**ASIA** *Japan*: NHK Public Opinion Research Division 1991* **NORTH AMERICA** *United States*: Eron 1963 (aggressive programs); Larson et al. 1989*; Rosengren & Windahl 1989*; Huston et al. 1990 (preschool, especially action-adventure and sports); Meeks & Mauldin 1990; Trost, Pate et al. 1996 (5th graders, self-report); Larson et al. 2001*	**ASIA** *Japan*: NHK Public Opinion Research Division 1991* **EUROPE** *Latvia*: Eglite & Zarins 1993 **NORTH AMERICA** *Canada*: Frederick 1995; *United States*: Larson et al. 1989*; Rosengren & Windahl 1989*; Huston & Wright 1997 (action-adventure); DR Anderson et al. 2001 (violent content); Larson et al. 2001*	**EUROPE** *Sweden*: Ahlin 1993 (sporting events) **NORTH AMERICA** *United States*: JP Robinson 1971 (news); Astin et al. 1995 (undergrad); Verba et al. 1997:1055* (public affairs TV programs); Stanley & Niemi 1998* (TV news); Kanazawa 2002 (news and documentaries)	**NORTH AMERICA** *United States*: Crespo et al. 2001:363 (per day, children & adolescents); DF Roberts 2000:11 (ages 8-18)
Not significant		**NORTH AMERICA** *United States*: Long & Henderson 1970; Timmer et al. 1985; JC Wright & Huston 1995 (educational programs, Sesame Street); Robinson & Bianchi 1997*	**NORTH AMERICA** *United States*: JP Robinson 1971:404 (news broadcasts); DR Anderson & Field 1983 (educational programming); Robinson & Bianchi 1997*; R Lowry et al. 2002; Duckworth & Seligman 2006:204 (d = .18, M>F, N = 140)	**NORTH AMERICA** *United States*: Verba et al. 1997:1055* (TV news)	
More among females			**EUROPE** *Spain*: Hernando et al. 2013 (N = 1,068 + 1,332F)	**NORTH AMERICA** *United States*: Stanley & Niemi 1998* (TV in general); Stefanone, Yue & Toh 2018:Table 3	

Table 17.5.7.3 Watching or interests in watching movies

Nature of difference	*Post-pubertal*	
	Adult	
More among males	**NORTH AMERICA** *United States*: Bowder & Offer 1994:738* (watching movies, after age 45)	
Not significant		
More among females	**NORTH AMERICA** *United States*: Bowder & Offer 1994:738* (watching movies, ages 18-44)	

Table 17.5.7.4 Listening to music

Nature of difference	*Pre-pubertal*	*Post-pubertal*		*Wide age range*
	Child	*Adolescent*	*Adult*	
More among males				
Not significant				
More among females	**NORTH AMERICA** *United States*: Lyle & Hoffman 1972*	**NORTH AMERICA** *United States*: Lyle & Hoffman 1972*	**ASIA** *Japan*: Ratnasingam & Ellis 2012	**NORTH AMERICA** *United States*: DF Roberts 2000:12 (ages 8-18)

17.5.7.5 Listening to Talk Radio

Table 17.5.7.5 cites findings regarding sex differences in the time spent listening to talk radio. One can see that the findings have been mixed.

Table 17.5.7.5 Listening to talk radio

Nature of difference	*Post-pubertal*	
	Adult	
More among males	**NORTH AMERICA** *United States*: R Davis & Owen 1998	
Not significant		
More among females	**NORTH AMERICA** *United States*: JS Levin, Taylor & Chatters 1994:S141 (religious programs, elderly)	

17.5.8 Non-interactive Mass Media Genre Viewed or Preferred

Non-interactive mass media primarily have to do with books, magazines, radio, television, and movies. Findings regarding sex differences in accessing (or expressing interests in accessing) such media of a particular type (genre) are reviewed below.

17.5.8.1 Watching or Preferring Adventure or Exploration Programs

Two studies asked children to rate their interests in reading about adventure and exploration. Table 17.5.8.1 shows that both studies concluded that boys expressed more of an interest than did females.

Table 17.5.8.1 Watching or preferring adventure or exploration programs

Nature of difference	*Pre-pubertal*				
		Child			
More among males		**NORTH AMERICA** *United States*: AM Mitchell 1929; Baumgarter & Tramer 1945			
Not significant					
More among females					

17.5.8.2 Watching or Preferring High Action Programs

High action mass media usually involved a lot of fast-moving activity, such as car chases, conflict with dangerous weapons, and violence. As shown in Table 17.5.8.2, all relevant studies of sex differences in preferences for (or the actual watching of) these types of programs have concluded that males do so more than females.

Table 17.5.8.2 Watching or preferring high action programs

Nature of difference	*Pre-pubertal*		*Post-pubertal*		
		Child	*Adolescent*	*Adult*	
More among males		**NORTH AMERICA** *United States*: JH Block & Block 1980; VM Watson 1990; Comstock 1991 (violent cartoons) **OCEANIA** *Australia*: Edgar 1977 (violence)	**NORTH AMERICA** *United States*: AM Mitchell 1929a (violence); McLeod et al. 1972 (violence)	**NORTH AMERICA** *United States*: Fenigstein 1979 (watching violent movies); SC Banerjee et al. 2008 **OCEANIA** *Hawaii*: DC Blanchard et al. 1986 (young, violence)	
Not significant					
More among females					

17.5.8.3 Watching or Preferring Humorous or Comedic Programs

Research findings vary regarding sex differences in preferences for humorous mass entertainment. One can see in Table 17.5.8.3 that the findings have been quite inconsistent. Much of the inconsistencies are likely due to the exact type of humor that is involved.

Table 17.5.8.3 Watching or preferring humorous or comedic programs

Nature of difference	*Pre-pubertal*		*Post-pubertal*		
		Child	*Adolescent*	*Adult*	
More among males		**NORTH AMERICA** *United States*: Comstock 1991* (violent cartoons)	**NORTH AMERICA** *United States*: Abbott 1927		
Not significant				**EUROPE** *Britain*: Lowis & Nieuwoudt 1995; Lowis 2002 (undergrad); Lowis 2003 (undergrad); *Belgium*: Saroglou & Ansiaux 2004 (sick humor) **NORTH AMERICA** *United States*: Landis & Ross 1933* (sexual humor); Malpass & Fitzpatrick 1959 (sexual humor); Groch 1974* (sexual, aggressive humor); Terry & Ertel 1974* (sexual humor); Brodzinsky et al. 1981* (sexual humor); Mundorf et al. 1988; AM Johnson 1992 (sick humor); Opplinger & Zillmann 1997 (sick humor); Herzog & Karafa 1998 (sick humor); Herzog & Anderson 2000 (sick humor); Azim et al. 2005 (perceived funniness, ratings of 30 cartoons)	
More among females		**NORTH AMERICA** *United States*: Comstock 1991* (family-based cartoons such as "Flintstones")		**NORTH AMERICA** *United States*: Landis & Ross 1933* (absurd humor); Groch 1974* (absurd humor); Terry & Ertel 1974* (absurd humor); Brodzinsky et al. 1981* (absurd humor)	

17.5.8.4 Watching Pornography

Substantial research has been conducted to assess sex differences in tendencies to view pornography or sexually explicit photographs, movies, and videos. The relevant studies also included self-reports of time spent viewing pornography. As shown in Table 17.5.8.4, all studies agree that this activity is more common among males than among females.

Table 17.5.8.4 Watching pornography

Nature of difference			*Post-pubertal*		*Wide age range*
			Adolescent	*Adult*	
More among males			**AFRICA** *Ethiopia*: Woldeamanuel, Anteneh et al. 2020 (ages 14-19) **ASIA** *Taiwan*: AS Chen, Leung et al. 2013 **EUROPE** *Belgium*: Maes & Vanderbosch 2022 (N = 522); *Croatia*: Wright & Štulhofer, 2019 (age 16, N = 875); *Czech Republic*: Sveikova & Daneback 2014 (ages 11-17, N = 2,950); *Greece*: Andric, Sakou et al. 2021* (ages 14-17); *Iceland*: Andric, Sakou et al. 2021* (ages 14-17); *Netherlands*: *Netherlands*: Andric, Sakou et al. 2021* (ages 14-17); Pirrone, Zandervan-Zwynenburg et al. 2021 (N = 630); *Poland*: Andric, Sakou et al. 2021* (ages 14-17); *Romania*: Andric, Sakou et al. 2021* (ages 14-17); *Spain*: Farre, Montejo et al. 2020 (N = 1,500); Andric, Sakou et al. 2021* (ages 14-17); Rodriguez-Castro, Martinnez-Roman et al. 2021 (458M + 535F); *Sweden*: Hammaren & Johansson 2001 (N = 1,331); Donevan, Jonsson et al. 2021; *Multiple European Countries*: Stanley, Barter et al. 2016 **MIDDLE EAST** *Israel*: Mesch 2009 (N = 998); Efrati & Amichai-Hamburger 2020 (ages 14-18, N = 788M + 1,324F) **NORTH AMERICA** *Canada*: Bőthe, Vaillancourt-Morel et al. 2020 (N = 2,816);*United States*: Ybarra & Mitchell 2005; Wolak, Mitchelle & Finkelhor 2007; Carrol, Padilla-Walker et al. 2008 (undergrad, N = 813, 87%M vs. 31%F); Sabina, Wolak et al. 2008 (N = 563); Astle, Leonhardt & Willoghby 2020:Table 3 (ages 18-19, N = 2,556)	**ASIA** *China*: Janghorbani & Lam 2003 **EUROPE** *Austria*: Komlenac & Margarethe-Hachleithner 2022:Table 1 (medical students, N = 644); *Britain*: HJ Eysenck 1976:62; *Czech Republic*: Bártová, Androvičová et al. 2020;*Germany*: G Schmidt & Sigusch 1970; Sigusch et al. 1970; *Netherlands*: Hald et al. 2013 (N = 4,600, 88%M vs. 45%F, in the past year); *Sweden*: Ross, Månsson & Daneback 2012 **NORTH AMERICA** *Canada*: A Cooper et al. 1999 (on internet); Boies 2002 (undergrad, N = 760); WH George et al. 2006 (showing erotic material to others); *United States*: E Hess & Polt 1960 (undergrad; nude photos of opposite sex); H Abelson et al. 1971; Reed & Reed 1972; W Griffitt 1973; D Byrne et al. 1974; MW Alexander & Judd 1986 (undergrad); Padget et al. 1989 (undergrad); Demare, Lips & Briere 1993 (undergrad); Senn & Radtke 1990; Mosher & MacIan 1994:108 (undergrad); AC Gunther 1995; Lippa & Arad 1997:196 (undergrad); Byrne & Osland 2000; Weiser 2000:174 (undergrad, online); Wasserman & Richmond-Abbott 2005:263 (use the internet to access sexually-oriented websites); Lykins et al. 2008 (undergrad, experimental, time spent watching); EM Morgan 2011 (young, online); C Sun, Bridges et al. 2016 (undergrad, N = 1,800) **OCEANIA** *Indonesia*: Hald & Mulya 2013 (N = 556, undergrad, 94.6%M vs. 74.4%F) **OVERVIEW** *Meta-Analysis*: M Allen, Emmers-Sommer et al. 2007 (sexually explicit mass media)	**EUROPE** *Denmark*: Hald 2006:Table 2 (ages 18-30, N = 316M + 275F); *Netherlands*: J Peter & Valkenburg 2011 (adolescents & adults, internet); Hald, Kuyper et al. 2013 (ages 15-25, 88% vs. 45%); *Sweden*: Löfgren-Mårtenson & Månsson 2010 (ages 14-20, N = 37M + 36F) **NORTH AMERICA** *United States*: Regnerus, Gordon & Price 2016 (ages 18-39; 46%M vs. 16%F); Rothman, Beckmeyer et al. 2021 (ages 14-24) **INTERNATIONAL** *Multiple Countries*: Weiss 2001; Rowland & Uribe 2020 **OVERVIEW** *Literature Review*: Peter & Valkenburg 2016; Alexandraki, Stavropoulos et al. 2018:51; *Meta-Analysis*: JL Petersen & Hyde 2010:Table 1 (N = 582,863M + 736,944F)
Not significant					
More among females					

17.5.8.5 Watching or Preferring Quiz or Game Show Programs

One study of sex differences in preferences for watching quiz and game shows was located. Table 17.5.8.5 revealed that among children, girls considered quiz and game shows more appealing than did boys.

Table 17.5.8.5 Watching or preferring quiz or games show programs

Nature of difference	*Pre-pubertal*				
		Child			
More among males					
Not significant					
More among females		**EUROPE** *Belgium*: K Roe 1998			

17.5.8.6 Watching or Preferring Romantic Programs

Substantial research has sought to determine if there are sex differences in watching movie or other types of mass media programs with romantic themes and plots, particularly in the form of so-called *soap operas*. As shown in Table 17.5.8.6, all studies have concluded that females watch or prefer watching programs that have romantic drama themes more than do males.

17.5.8.7 Watching or Preferring Sad Programs

In one study, both sexes were asked how much they enjoyed watching sad movies (e.g., those with tragic endings). Table 17.5.8.7 shows that females provided more affirmative answers than did males.

17.5.8.8 Watching or Preferring Science or Educational Programs

Limited research on sex differences in preferences for science-related mass media programs were found. As shown in Table 17.5.8.8, the findings indicated that males enjoy these programs more than do females.

17.5.8.9 Watching Sports Programs

Several studies were located in which participants were asked questions having to do with their watching sports programs, being sports fans, or enjoying watching sports. As shown in Table 17.5.8.9, all of these studies concluded that males were more avid consumers of sports programs and news about sports than were females.

Table 17.5.8.6 Watching or preferring romantic programs

Nature of difference	*Pre-pubertal*		*Post-pubertal*		*Wide age range*
		Child	*Adolescent*	*Adult*	
More among males					
Not significant					
More among females		**EUROPE** *Multiple European Countries*: Garitaonandia et al. 2001 (soap operas)	**EUROPE** *Britain*: HM Gibson & Francis 1993; HM Gibson & Francis 2006 (ages 11-15, soap operas) **NORTH AMERICA** *United States*: AM Mitchell 1929; Seagoe 1931 (romantic); JA Hicks & Hays 1938 (young, romantic); A Alexander 1985; LM Ward & Rivadeneyra 1999:247 (romantic)	**ASIA** *Multiple Asian Countries*: Ratnasingam & Ellis 2011 (undergrad, soap operas, 4 countries) **NORTH AMERICA** *United States*: N Katzman 1972 (soap operas); MG Cantor 1979 (undergrad); Buerkel-Rothfuss & Mayes 1981 (undergrad); Cantor & Pingree 1983 (undergrad); Skill & Cassata 1983 (undergrad); A Alexander 1985 (undergrad); Carveth & Alexander 1985 (undergrad); Lemish 1985 (undergrad); AM Rubin 1985 (soap operas, undergrad, N = 1,023); Perse 1986 (undergrad); Ang 1990 (melodramas); Fischoff, Antonio & Lewis 1998 (romantic); BS Greenberg & Woods 1999 (soap operas); LM Ward & Rivadeneyra 1999:247; Kanazawa 2002	**NORTH AMERICA** *United States*: Condry 1989

Table 17.5.8.7 Watching or preferring sad programs

Nature of difference			*Post-pubertal*		
				Adult	
More among males					
Not significant					
More among females				**NORTH AMERICA** *United States*: Choti et al. 1987; MB Oliver 1993 (sad movies); MB Oliver et al. 2000 (sad movies)	

Table 17.5.8.8 Watching or preferring science or educational programs

Nature of difference	*Pre-pubertal*		*Post-pubertal*		
		Child	*Adolescent*		
More among males		**EUROPE** *Belgium*: K Roe 1998 (science and technology)	**NORTH AMERICA** *United States*: S Johnson 1987:27 (science fiction)		
Not significant					
More among females					

Table 17.5.8.9 Watching sports programs

Nature of difference	*Pre-pubertal*		*Post-pubertal*		
		Child	*Adolescent*	*Adult*	
More among males		**EUROPE** *Belgium*: K Roe 1998; *Multiple European Countries*: Garitaoandia et al. 2001 **NORTH AMERICA** *United States*: Huston et al. 1990	**MIDDLE EAST** *Israel*: Lemish 1998 (wrestling) **NORTH AMERICA** *United States*: Gantz 1981; Lemish 1998 (wrestling); DF Roberts 1999	**NORTH AMERICA** *United States*: Johnson 1932 (competitive sports); Thorndike & Henry 1940 (competitive sports); Gantz 1981; Gantz & Wenner 1991; Perse 1992 (reads sports news); McCauley 1995:236 (undergrad) Sargent et al. 1998 (with direct combative elements) **OCEANIA** *Australia*: MJ Melnick & Wann 2011 (undergrad, N = 163)	
Not significant					
More among females					

17.5.8.10 Watching or Preferring Programs with Scary Content

A few studies were located having to do with sex differences in watching movies of different genre. As one can see in Table 17.5.8.10, males appear to have more of a preference for scary movies while females watch more sad movies.

Table 17.5.8.10 Watching or preferring programs with scary content

Nature of difference	*Post-pubertal*	
	Adult	
More among males	**NORTH AMERICA** *United States*: GG Sparks 1986 (scary movies); Tamborini et al. 1987 (scary movies)	
Not significant		
More among females		

17.5.8.11 Watching or Preferring Programs with Violence

One study conducted in two countries assessed the sex differences in watching violence in the mass media. As shown in Table 17.5.8.11, it concluded that males do so more than females.

Table 17.5.8.11 Watching or preferring programs with violence

Nature of difference	*Pre-pubertal*		
	Child		
More among males	**EUROPE** *Finland*: Huesman, Lagerspetz et al. 1984* **NORTH AMERICA** *United States*: Huesman, Lagerspetz et al. 1984*		
Not significant			
More among females			

17.5.9 Interactive Mass Media

Communication that has the capability of engaging participants in two-way exchanges are those such as video games and the internet. This subsection examines sex differences in the use of these types of communication mass media.

17.5.9.1 Using Computers in General

According to most studies, summarized in Table 17.5.9.1, males use computers more than do females. Nevertheless, there are many exceptions, especially since the mid-1990s. Studies published since this time have reported inconsistent results.

Table 17.5.9.1 Using computers in general

Nature of difference			*Post-pubertal*		*Wide age range*
			Adolescent	*Adult*	
More among males			**ASIA** *Singapore*: Teo & Lim 2000 **EUROPE** *Britain*: Griffiths 1997 (young); D Kadijevich 2000; A Colley & Comber 2003* (young); *Germany*: Lehmann 1989; Bannert & Arbinger 1996 (computer) **LATIN/CARIBBEAN AMERICA** *Belize*: RL Munroe & Munroe 1994a (Amerindians); RL Munroe et al. 2000* (Amerindians) **NORTH AMERICA** *United States*: RE Anderson et al. 1984; M Chen 1986; VA Clarke & Chamber 1989; T Levin & Gordon 1989; Badagliacco 1990; L Shashaani 1994; Shashaani 1997:43	**ASIA** *Japan*: Ono & Zavodny 2003; Ono & Zavody 2007*; *South Korea*: Ono & Zavody 2007* **EUROPE** *Britain*: Helsper 2010; *Scotland*: Durndell 1991 (undergrad) **NORTH AMERICA** *United States*: Arch & Cummins 1989 (undergrad); VA Clarke & Chambers 1989 (undergrad); SW Williams et al. 1993 (undergrad); Kaplan 1994 (at work); Bikson & Panis 1995; EM Rogers 1995; Whitley 1996:281* (undergrad, hours spent on computers); Durndell & Thomson 1997; Shashaani 1997 (undergrad); Clemente 1998; Coffin & MacIntyre 1999; Kersteen et al. 1999 (computer programming); Bimber 2000; Odell et al. 2000 (undergrad); Weiser 2000* (for entertainment and leisure); Hoffman et al. 2001; JE Katz et al. 2001; Mitra et al. 2001 (undergrad); Norris 2001; Schumacher & Morahan-Martin 2001; Ono & Zavodny 2003* (in 1990s) **INTERNATIONAL** *Multiple Countries*: LA Jackson et al. 2001* (undergrad, all purposes); Dholakia 2006:232 (also use it more hours per week)	**EUROPE** *Germany*: Fauser & Schreiber 1989; Frey 1989 **NORTH AMERICA** *United States*: Coomber et al. 1997
Not significant			**EUROPE** *Britain*: A Colley & Comber 2003* (older); *Scotland*: Durndell & Thompson 1997 (computer)	**ASIA** *China*: B Chen, Liu et al. 2017 (undergrad, smart phones); *Singapore*: Ono & Zavody 2007*; *Taiwan*: Fan & Li 2005 **EUROPE** *Sweden*: Ono & Zavody 2007* **NORTH AMERICA** *United States*: Bikson & Panis 1995 (in 1993); Gefen & Straub 1997 (use of email); LH Shaw & Gant 2002; Ono & Zavodny 2003* (in year 2001); Ono & Zavody 2007*	
More among females				**NORTH AMERICA** *United States*: Whitley 1996:281* (undergrad, ownership of a computer); Weiser 2000* (for interpersonal communication and academic help, undergrad); LA Jackson et al. 2001* (undergrad, communication purposes); Ono & Zavodny 2003* (in 2000-2001)	

17.5.9.2 Accessing the Internet

Research findings specifically concerning sex differences in accessing the internet (as opposed to using computers more generally) appear in Table 17.5.9.2. As one can see, most studies suggest that males access the internet to a greater degree than females.

Table 17.5.9.2 Accessing the internet

Nature of difference			*Post-pubertal*		
			Adolescent	*Adult*	
More among males			**ASIA** *China*: R Zhang 2015:17 (self-rated internet use); *Japan*: T Sato 2006 (addictive internet use, undergrad); *South Korea*: Heo, Oh et al. 2014 (addictive internet use, 13-18, N = 57,857) **MIDDLE EAST** *Israel*: Nachmias et al. 2000 (use internet, 56%M vs. 38%F) **NORTH AMERICA** *United States*: EF Gross 2004:640 (time spent on the internet) **INTERNATIONAL** *Multiple Countries*: Bartel-Sheehan 1999* (internet); S Levy 1999* (internet)	**ASIA** *Russia*: Palesh 2004 (undergrad students, use internet, particularly for entertainment); *South Korea*: Mok, Choi et al. 2014:Table 1* (undergrad, internet) **NORTH AMERICA** *United States*: JL Greenberg, Lewis & Dodd 1999 (addictive internet use, undergrad, N = 129); Wasserman & Richmond-Abbott 2005:263* (for accessing sexually-oriented websites, financial information, and news) **INTERNATIONAL** *Multiple Countries*: Bartel-Sheehan 1999* (internet); S Levy 1999* (internet)	
Not significant				**ASIA** *Multiple Asian Countries*: Ratnasingam & Ellis 2012 (undergrad, 4 countries)	
More among females			**MIDDLE EAST** *Turkey*: Erdur-Baker 2010 (internet use)	**NORTH AMERICA** *United States*: Wasserman & Richmond-Abbott 2005:263* (for accessing religious websites); Gasser et al. 2007:25 (for online career searches, undergrad students)	

17.5.9.3 Using Smartphones

Table 17.5.9.3 cites two studies having to do with sex differences in smartphone use. Both studies indicate that females did so more than males.

17.5.9.4 Playing Video/Computer Games

Numerous studies have compared the sexes regarding time spent playing video games. As shown in Table 17.5.9.4, nearly all the available studies have concluded that males devote more time to this activity than do females.

Table 17.5.9.3 Using smartphones

Nature of difference				*Post-pubertal*	
				Adult	
More among males					
Not significant					
More among females				**ASIA** *South Korea*: Mok, Choi et al. 2014:Table 1* (undergrad) **MIDDLE EAST** *Multiple Middle East Countries*: Albursan et al. 2019 (undergrad)	

The only exceptional findings involved comparisons of male and female engineering students. At least one research team suggested that most video games challenge the visual-spatial skills of players, and that, because males tend to have better spatial reasoning skills, they are more drawn toward video games (Lucas & Sherry 2004). Such a view would coincide with the finding that when males and females are more or less equal in visual-spatial abilities (as would be the case among engineering students), the sex difference in time spent playing video games would largely disappear.

17.6 Aggression and the Use of Force

Aggression is not an easy concept to precisely define. In general, the term refers to behavior that can often cause physical injury or pain to others, although other times it merely results in emotional harm. Overall, it refers to a wide range of behaviors that are not welcomed by those on the receiving end of the behavior.

17.6.1 Physical Aggression

Large numbers of studies have been conducted on sex differences in forms of physical aggression. Aggression that seems to be sexually motivated or that is strictly defensive in nature will be considered separately.

17.6.1.1 Physical Aggression in General

Offensive physical aggression involves attacking, hitting, and/or restraining another individual except for aggression that is strictly defensive in nature. Also, while it is not always easy to distinguish playful physical aggression with serious forms of the same behavior, the focus of the following series of tables does not include playful physical aggression.

Injuries resulting from physical aggression range from momentary feelings of pain to serious injuries and even death. To measure physical aggression, a variety of operational measures have been used including self-

Table 17.5.9.4 Playing video/computer games

Nature of difference	*Pre-pubertal*		*Post-pubertal*		*Wide age range*
		Child	*Adolescent*	*Adult*	
More among males		**EUROPE** *Britain*: Griffiths 1991; Yelland & Lloyd 2001 **NORTH AMERICA** *United States*: Funk 1993 (games of a violent nature); JH Goldstein 1994 (young); Inkpen et al. 1994 (computer games); Van Schie & Weegman 1997 (video games); Selwyn 1998 (computer games); JC Wright et al. 2001*; Bickham et al. 2003; FC Blumbert & Sokol 2004:155 (self-reported video game playing, N = 35M + 23F); ID Cherney & London 2006 (computer games, ages 5-13)	**EUROPE** *Britain*: Griffiths 1997 (young, N = 147); Colley 2003; *Netherlands*: de Bruyn & Cillessen 2008 (age 13, N = 860) **NORTH AMERICA** *United States*: SJ Kaplan 1983; Morlock et al. 1985; Dorval & Pepin 1986 (video); PM Greenfield et al. 1994; Subrahmanyam & Greenfield 1994 (video games); CA Phillips, Rolls et al. 1995(video games, ages 11-16, N = 429M + 387F); Funk & Buchman 1996 (computer games); JC Wright et al. 2001*; Jurica et al. 2002 (video arcade games); Bickham et al. 2003; EF Gross 2004:640; Jago, Anderson et al. 2005 (electronic gaming); Terlecki & Newcombe 2005; CK Olsen, Kutner et al. 2007:80 (N = 589M + 665F); CJ Ferguson, Olson et al. 2014:773	**ASIA** *China*: Li & Kirkup 2017* (internet game playing) **EUROPE** *Britain*: Li & Kirkup 2017* (internet game playing); *Germany*: Quaiser-Pohl et al. 2006 (action-filled computer games) **NORTH AMERICA** *United States*: Alington et al. 1992; DJ Law et al. 1993 (undergrad, N = 82M + 82F); Goldstein 1994; Austin et al. 1995 (undergrad); Peters et al. 1995; Astur et al. 1998:188; JL Greenberg, Lewis & Dodd 1999 (addiction to video games, self-reported, undergrad, N = 129); Weiser 2000:174 (undergrad); Lucas & Sherry 2004:513 (undergrad, 231M + 213F); Ahuja et al. 2006:286; Ogletree & Drake 2007:539 (undergrad, N = 79M + 127F); Winn & Heeter 2009 (undergrad, N = 85M + 190F); Terlecki, Brown et al. 2011 (undergrad)	**EUROPE** *Germany*: Hartmann & Klimmt 2006 **NORTH AMERICA** *United States*: DF Roberts 2000:11 (ages 8-18); Woodard & Gridina 2000 (ages 6-17); JC Wright, Huston et al. 2001:43 (children & adolescents, video sports games); Nippold et al. 2005 (older children and adolescents)
Not significant				**EUROPE** *Multiple Countries*: Sorby, Leopold & Gorska 1999 (among engineering students)	
More among females					

reports, particularly in studying adolescents and adults, as well as observations by teachers and parents, in the case of children. In addition to studies based on self-reports and reports by parents and teachers, a number of studies have been conducted in laboratory settings in which individuals are provoked into behaving aggressively toward others (e.g., AH Buss & Brock 1963). Still other studies have involved ethnographic observations by anthropologists (e.g., Whiting & Edwards 1973; Munroe et al. 2000).

Inspection of Table 17.6.1.1a reveals that the majority of studies have concluded that prior to puberty, males are more likely to be physically aggressive than females. Most of the studies that have concluded otherwise have all suggested that the differences simply failed to be statistically significant (often due to relatively small sample size or short observation periods).

It should be mentioned that gender variations in physical aggression also appear to depend on the gender of one's opponent. For instance, in a Russian study of 6- and 7-year-olds, children were allowed to play together in groups of two (Butovskaya & Kozintsev 1999). The greatest amount of physical aggression was observed when two boys were paired together and the least amount when two girls were paired. When one boy and one girl were paired, usually intermediate levels of physical aggression were observed (also see Munroe et al. 2000:18).

Table 17.6.1.1b summarizes research findings on sex differences in physical aggression among adolescents. One can see that the vast majority of studies agree that males are more physically aggressive than females.

Table 17.6.1.1c summarizes findings on sex difference in physical aggression among adults (and in samples of wide age ranges). One can see that, while there are exceptions, most studies indicate that males are more likely to be physically aggressive than females. As mentioned earlier, sex differences in physical aggression tend to differ the most when individuals of the same sex are interacting (Walters et al. 1957).

Regarding physical aggression among non-humans, just a few studies of sex differences *prior to puberty* were located. This is because most instances of physical aggression before puberty tend to be playful in nature, and will be reviewed as such later in this chapter. The few instances of non-playful aggression among non-humans are cited in Table 17.6.1.1d. One can see that all the studies of primates have concluded that males are more prone toward physical aggression than females. However, one study of spotted hyenas concluded that there was no significant sex difference.

Numerous studies have investigated sex differences in post-pubertal physical aggression among a variety of non-human species. Note that infanticidal behavior, specifically, is excluded here because it is a special form of aggression that has parallels among humans (as a form of criminal behavior). Therefore, sex differences in infanticidal behavior will be considered in Chapter 19. Also, playful forms of aggression were not included in the present context.

Table 17.6.1.1a Physical aggression in general before puberty

Nature of difference	*Pre-pubertal*	
	Infant/toddler	*Child*
More among males	**EUROPE** *Britain*: Smith & Green 1975 (toddler); Alink et al. 2006 (toddlers, d = .30-.37) **NORTH AMERICA** *Canada*: Tremblay et al. 1999 (infant); Baillargeon et al. 2007:17-20 17-29 month-olds, N = 2,940); *United States*: Caille 1933 (toddler); Dawe 1934 (toddler); Hattwick 1937* (toddler); Pintler et al. 1946 (toddler); J Walters et al. 1957 (toddler); Pedersen & Bell 1970* (toddler); McIntyre 1972 (toddler); Langlois et al. 1973 (toddler, direct observation); Fagot & Hagan 1985 (toddler); Zahn-Waxler et al. 1992 (infant); Tout et al. 1998:1253* (toddler); Baillargeon et al. 2007 (infants); van Zeijl et al. 2007 (toddler) **OVERVIEW** *Meta-Analysis*: Baillargeon et al. 2007 (toddlers)	**AFRICA** *Kenya*: Ember 1973:431 (rural); RL Munroe et al. 2000* **ASIA** *China*: Ekblad & Olweus 1986; Wong & Yeung 2019 (age 5, N = 644); *Nepal*: RL Munroe et al. 2000*; *Russia*: CH Hart et al. 1998; Butovskaya & Kozintsev 1999:129 (ages 6-7); Butovskaya & Demianovitsch 2002 (ages 3-6, N = 217) **EUROPE** *Britain*: JD Cummings 1944 (teacher ratings); Blurton Jones & Konner 1973; PK Smith & Green 1975; Archer et al. 1988; MJ Boulton 1993; Hinde et al. 1993; Ahmad & Smith 1994 (while bullying); Hinde et al. 1993; WM Craig 1998 (school age); Potegal & Archer 2004 (when angry or emotionally upset); K Tapper Boulton 2004 (ages 3-6, self & peer reports); D Spencer, Pasterski et al. 2017 (ages 4-11, N = 38M + 43F, d = .41); *Finland*: Bjorkqvist et al. 1992; Pulkkinen & Pitkanen 1993* (self-report); Linderman, Harakka & Keltikangas-Jarvinen 1997; Keltikangas-Jarvinen & Pakaslahi 1999 (self-report); *Netherlands*: Bartels, Hudziak et al. 2003:613 (twins, ratings provided by both parents); van Lier et al. 2005* (N = 147M + 142F); Endendijk, Groeneveld et al. 2017:307; *Spain*: Sanchez-Martin et al. 2000; Monks et al. 2002:466 (3-fold difference); Sanchez-Martin et al 2010; *Sweden*: Lagerspetz et al. 1988 (older children); Bjorkquist et al. 1992 (school age); *Switzerland*: Nivette, Eisner et al. 2014:Figure 2 (ages 7-13, large proportion of immigrants) **LATIN/CARIBBEAN AMERICA** *Belize*: RL Munroe & Munroe 1994a (Amer-Indians); RL Munroe et al. 2000* (Amer-Indians) **NORTH AMERICA** *Canada*: Ankeney & Goodman 1976; van Lier et al. 2005* (N = 236M + 209F); Cote, Vaillancourt et al. 2006 (ages 2-11, N = 10,658, parental reports); KH Lee, Baillargeon et al. 2007 (ages 5-11); *United States*: Caille 1933 (peer-rated); Dawe 1934 (preschool); Jersild & Markey 1935; Hattwick 1937:350; Sheehy 1938; RR Sears et al. 1946; Muste & Sharpe 1947; Hattwick 1953*; AE Siegel 1956; Feshbach 1956 (teacher rating); Witryol & Calkins 1958 (peer-rated); Durrett 1959; Hartup & Himino 1959; Jegard & Walters 1960; Bandura et al. 1961; McCandless et al. 1961 (young); RR Sears 1961*; Bandura et al. 1963 (after observing an aggressive adult model); Bandura & Walters 1963; Beller & Neubauer 1963:423 (parental rating); Bandura 1965; RR Sears et al. 1965 (peer-rated); AH Buss 1966; LR Ferguson & Maccoby 1966 (peer report); RJ Green & Stacey 1967; JS Hatfield et al. 1967:367 (peer rated), one-tailed test); Semler et al. 1967 (peer report); Semler & Eron 1967 (peer report); Vernon et al. 1967; Walker 1967 (self-report); Klaus & Gray 1968 (retaliatory); JD Nelson et al. 1969 (young); Pedersen & Bell 1970*; Rau et al. 1970 (among emotionally disturbed children); Baumrind 1971 (young); Hapkiewicz & Roden 1971 (after watching violent cartoons); MF Martin et al. 1971 (young, after observing an aggressive model); J Roberts & Baird 1972; JM McGuire 1973 (young); Omark et al. 1973 (direct observation); Serbin et al. 1973 (teacher rating); Hartup 1974 (young); E Maccoby & Jacklin 1975; ME Rice & Grusec 1975; Hold 1976; Harden & Jocob 1978; Morisette 1978 (parent reports); JW Pearce 1978; Puleo 1978 (young, modeled aggression); Strayer & Strayer 1978 (direct observation); Abramovitch et al. 1979 (young, direct observation); Bankart & Anderson 1979 (young); DE Barrett 1979; Brodzinsky et al. 1979; Deluty 1979 (self-reports, 6 to 12 years.); Langlois & Downs 1979 (young, direct observation); Bullock & Merrill 1980; Matthews & Angulo 1980; JL Singer et al. 1980 (young, direct observation); Tieger 1980; Crawther et al. 1981 (parent report); Sawin

(*Continued*)

Table 17.6.1.1a (Continued)

Nature of difference	*Pre-pubertal*	
	Infant/toddler	*Child*
		1981 (after viewing TV violence); Deluty 1983 (4th through 6th grades); Pitcher & Schultz 1983:91; Acker & Marton 1984; Cairns & Cairns 1984; JL Singer et al. 1984; J Hyde 1984; Cummings et al. 1985; Deluty 1985 (4th through 6th grades); Handal & Hopper 1985; Yul et al. 1985; Cooper & Mackie 1986; Eagly & Steffen 1986; Shantz 1986 (young); WR Charlesworth & Dzur 1987; Ghodsian-Carpey & Baker 1987:183 (young, opposite-sex twins); Silvern & Williamson 1987 (young, after playing video games); Lagerspetz et al. 1988 (older children); Maccoby & Jacklin 1988; Lancelotta & Vaughn 1989; Renken et al. 1989 (young); Olweus 1991 (reported by teachers); Finkelstein et al. 1994; Boyatzis et al. 1995; NR Crick & Grotpeter 1995; JE Wall & Holden 1994 (blacks); Crick & Grotpeter 1995; Eme & Kavanaugh 1995; DL Clay et al. 1996 (self-report); NR Crick 1996; NR Crick & Dodge 1996; NR Crick & Grotpeter 1996; McNeilly-Choque et al. 1996; Buntaine & Costenbader 1997; NR Crick et al. 1997; Tout et al. 1998:1253*; NR Crick et al. 1999* (teacher's reports); Walker, Richardson & Green 2000 (direct aggression); Hudley et al. 2001; Broidy et al. 2003; A Russel et al. 2003*; Bonica et al. 2003 (teacher's reports); Sebanc 2003; Ostrov et al. 2004; Ostrov & Keating 2004; Hampel & Petermann 2005 (in response to frustration); J Martin & Ross 2005; Zakriski 2005:849; McIntyre, Barnett et al. 2007 (unprovoked attack in a computer game); D Spencer et al. 2017 (childhood) **MIDDLE EAST** *Israel*: Spiro 1958:247 (kibbutz) **OCEANIA** *Australia*: LD Owens & MacMullin 1995; A Russel et al. 2003*; *New Zealand*: LD Owens 1996 (childhood); *Samoa*: RL Munroe et al. 2000* **INTERNATIONAL** *Multiple Countries*: Rohner 1976:63* (10/14 cultures); Osterman et al. 1994 (several Western countries); RL Monroe et al. 2000 **OVERVIEW** *Meta-Analysis*: JS Hyde 1984 (ages 4-5, d = .86; ages 9-12, d = .54); BA Bettencourt & Miller 1996
Not significant	**LATIN/CARIBBEAN AMERICA** *Brazil*: C Frey & Hoppe-Graff 1994 **NORTH AMERICA** *United States*: Jersild & Markey 1935 (toddler); Muste & Sharpe 1947 (toddler); McKee & Leader 1955 (toddler); Fagot & Patterson 1969 (toddler)	**AFRICA** *Kenya*: Munroe 2003 (Gusii Tribe) **NORTH AMERICA** *Canada*: Santesso et al. 2006:319 (age 10, M>F, N = 40); *United States*: RR Sears et al. 1957 (mother's reports); JS Hatfield et al. 1967:376* (2-tailed significance test, direct observation); Grusec 1972 (age 9); Manosevitz et al. 1973 (young, parent report); Pearce 1978 (young); Samek 1978 (undergrad, self-report); Arms 1979 (undergrad, self-report); Klesges et al. 1979 (undergrad, self-report); Forman 1980; Cairns & Cairns 1984; Huesmann et al. 1992; Buckner & Fivush 1998:417; NR Crick et al. 1999* (teacher reports); Ostrov et al. 2004 (age 3, physical aggression, M>F) **INTERNATIONAL** *Multiple Countries*: Rohner 1976:63* (4/14 cultures); Ramirez et al. 2001 (undergrad, self-reports based on hypothetical scenarios)
More among females	**NORTH AMERICA** *United States*: Crowther et al. 1981 (toddler, parental report)	**NORTH AMERICA** *United States*: Madsen 1968 (young)

Table 17.6.1.1b Physical aggression in general among adolescents

Nature of difference	*Post-pubertal*
	Adolescent
More among males	**ASIA** *China*: WCW Wong et al. 2004:472; *Malaysia*: Abdullah et al. 2015:67 (self-report); *Russia*: Butovskaya, Timentschik & Burkova 2007:Table 1 (both self-rated and peer rated, N = 101M + 111F); Butovskaya et al. 2013; *Taiwan*: Wang & Jensen 2003:73 (physical fights) **EUROPE** *Britain*: Austin et al. 2002:1119 (self-reports); Losel & Bender 2003; *Denmark*: Lagerspetz et al. 1988; PJ Cook & Laub 1998; *Italy*: Tomada & Schneider 1997:604; *Estonia*: Merenakk et al. 2003:1510 (teacher rating); Peets & Kikas 2006 (young); *Finland*: Lagerspetz, Bjorquvist & Peltonen 1988 (direct physical aggression, ages 11-12, N = 167); Pulkkinen & Pitkanen 1993* (self-report); Linderman, Harakka & Keltikangas-Jarvinen 1997 (self-report); *France*: Pfister & Sabatier 1994 (in sports); *Germany*: Scheithauer et al. 2006 (5th-10th graders); Kuepper & Hennig 2007; *Iceland*: Kristjansson et al. 2013:1057 (self-report); JE James & Kristjansson 2015:Table 1 (violence); *Netherlands*: Dekovic 2003; Hudziak et al. 2003; van Beijsterveldt et al. 2003; Cohen-Bendahan et al. 2005 (young); Hampel & Petermann 2005 (in response to frustration); van der Ende & Verhulst 2005 (self-report & parental reports); Engles et al. 2006:954 (adolescents); Sijtesma et al. 2010:496 (adolescents); Platje, Popme et al. 2015:Table 1 (N = 144M + 115F); *Slovakia*: Baumgartner 1995; Petel, Geckova et al. 2012:1124 (self-reported fighting, 20.2%M vs. 6.1%F, N = 3,674); *Switzerland*: Kuntsche & Klingemann 2004:387 (fighting with peers) **LATIN/CARIBBEAN AMERICA** *Brazil*: Carlini-Catrim et al. 2000:Table 2 (ages 15-18, self-report); da Silva et al. 2009 (adolescent) **MIDDLE EAST** *Israel*: MA Hoffman et al. 1993 (in response to stress); Harel et al. 1997; Sherer & Karnieli-Miller 2004; *Turkey*: Dogan et al. 2008; Ulubas et al. 2018:216 **NORTH AMERICA** *Canada*: Bosacki 2003:149 (age 11); Dinsdale et al. 2011:390; *United States*: Tryon 1939; Lansky et al. 1961; Sears 1961; A Buss 1966; Titley & Viney 1969; Shortell & Biller 1970 (young); Whitney & Smith 1993; Brodzinsky et al. 1979 (peer report); Doolittle 1980; RD Parke & Slaby 1983 (self-report); RJ Johnson & Kaplan 1988; Buss & Perry 1992; Center for Disease Control 1992 (12%M vs. 4%F, adolescents involved in physical fights); Fling et al. 1992; Bachman, Johnson & O'Malley 1993 (21%M vs. 5%F cause harm to others requiring medical treatment); Whitney & Smith 1993 (adolescents); Cotton et al. 1994 (among African-Americans, N = 222M + 214F); Durant et al. 1994 (among African-Americans); Hausman et al. 1994; Hobfoll et al. 1994 (as a coping strategy); Langhinrichsen-Rohling & Neidig 1995; Valois et al. 1995 (violent); DL Clay et al. 1996* (self-report aggression); Farrell & Bruce 1997 (adolescents); KM Fitzpatrick 1997; Rys & Bear 1997; Crane-Ross et al. 1998; Kingery et al. 1998 (adolescents, in school); Brener, Simon et al. 1999:442 (HS students); Carlo et al. 1999; Deschenes & Esbensen 1999:81 (N = 2,792M + 3,030F); RW Blum et al. 2000 (adolescents, self-reports); Lahey et al. 2000 (ages 9-17, parental reports); R Bachman & Peralta 2002:12; CP Flynn 2002:141*; Reppucci et al. 2002 (violent); Wiseman 2002; Barnow et al. 2005; KE Miller et al. 2005:1644 (physical fights); Zakriski et al. 2005:849; Udry & Chantala 2006:801 (fighting, self-report, in past six months); Martino et al. 2008 (adolescents); MA Watson & Cunningham et al. 2009:Table 1 (HS students); Ferguson & Meehan 2010:297 (physical fights); Ragatz et al. 2011 (adolescents); Niv, Ashrafulla et al. 2015 (adolescence) **OCEANIA** *Australia*: LD Owens & MacMullin 1995; *Guam*: Pinhey et al. 2002; *New Zealand*: Woodward & Fergusson 2000 (adolescents, physical assaults); Moffitt et al. 2001:128; McNaughton Reyes, Foshee

(*Continued*)

Table 17.6.1.1b (Continued)

Nature of difference	*Post-pubertal*
	Adolescent
	2019:Table 1* (grades 8-10, severe, 22%M vs. 16%F, N = 1,420; self-report) **INTERNATIONAL** *Multiple Countries*: Butovskaya, Burkova et al. 2019 (Buss-Perry scale, N = 1,296); de Looze, Elgar et al. 2019 (36 countries, age 15, N = 71,255); Nivette, Sutherland et al. 2019:87 (fighting within the past year, ages 12-15, N = 247,909)
Not significant	**ASIA** *Japan*: Tachibana & Hasegawa 1986 **EUROPE** *Netherlands*: Platje, Popma et al. 2015 (N = 144M + 115F, self-report) **NORTH AMERICA** *United States*: Hurlock 1927; Leifer & Roberts 1972; Lipschitz et al. 2000:352 (physical assault, among psychiatric patients, self-reports, N = 95)
More among females	**EUROPE** *Multiple European Countries*: Kapi et al. 2007:1178 (self-report) **NORTH AMERICA** *United States*: McNaughton Reyes, Foshee 2019:Table 1* (8-10th graders, moderate, 28%M vs. 33%F, N = 1,420; self-report)

Table 17.6.1.1e shows that the majority of studies indicate that males are more physically aggressive than females, although there may be circumstances (e.g., fighting over food) and species (e.g., bush babies, howler monkeys) that constitute general exceptions.

Also, it is important to note that several subsequent tables on aggression under experimental conditions will be presented. Overall, studies in most species have concluded that males are more prone than females to exhibit fighting and other forms of physical aggression, but there are certainly exceptions.

Over the years, many scientists have offered generalizations about sex differences in physical aggression, both for humans and for other species. The statements that were located are summarized in Table 17.6.1.1f. By comparing these statements to the findings in the preceding four tables, one finds that emphatic statements are common, even though a summary of the evidence usually includes exceptional findings. In other words, despite assertions to the effect that males are more physically aggressive than females, the preceding four tables show that there are quite a few exceptions to this generalization, both in humans and in other species. The implication is that scientists should be more guarded in generalizing about sex differences in physical aggression. Nevertheless, when factors such as the sex of the target (e.g., males verses females), the nature of the provocation, and the severity of the injuries inflicted are taken into account, it could be that the generalization that males are more physically aggressive in most species (including humans) could be ultimately upheld.

Table 17.6.1.1c Physical aggression in general among adults and wide age range samples

Nature of difference	*Post-pubertal*	*Wide age range*
	Adult	
More among males	**ASIA** *China*: Yang et al. 2009:53 (undergrad, N = 118M + 103F, self-report); *India*: Prasad 1980 (undergrad); Ujjwala Rani & Ramavani 1989; *Japan*: Nakano 2001; Ramirez et al. 2001* (undergrad, self-report); *Nepal*: Mehta et al. 2014 (undergrad) **EUROPE** *Austria*: Voracek & Stieger 2009:385* (self-report, in the first of two samples); Voracek & Schicker 2010; *Britain*: J Archer & Parker 1994; J Archer et al. 1995; E Cashdan 1998 (self-report); J Archer & Haigh 1999; JL Ireland 2001 (prisoners, in response to bullying); Austin et al. 2002:1119 (self-report); Archer 2007:566 (among prisoners, self-report); Archer & Benson 2007 (self-reported responses to hypothetical scenarios); Coyne et al. 2007 (undergrad, self-report); CP Cross 2010 (impulsive same-sex aggression); *France*: Coulomb-Cabagno & Rascle 2006 (in soccer); *Germany*: Muller et al. 1995; Kuepper & Hennig 2007 (computer-simulated, N = 98M + 73F); *Italy*: Amore et al. 2008 (among psychiatric patients); *Netherlands*: Meesters et al. 1996:842 (direct aggression, undergrad); *Scotland*: Edmunds 1977 (undergrad); *Spain*: Ramirez et al. 2001* (undergrad, self-report); Condon et al. 2006 (three different aggression measures) **LATIN/CARIBBEAN AMERICA** *Argentina*: NJ Hines & Fry 1994 **MIDDLE EAST** *Turkey*: Dogan et al. 2008; Ozener 2012:171 (self-reports, N = 470) **NORTH AMERICA** *Canada*: Jaffe et al. 1974 (undergrad, following sexual arousal); Russell 1981 (undergrad); Bland & Orn 1986; Graham & Wells 2001 (self-report); AA Bailey & Hurd 2004 (undergrad, N = 149M + 149F); AA Bailey & Hurd 2005:Table 1 (undergrad); Carre & McCormick 2008; E Hampson et al. 2008 (self-report, N = 87M + 77F); *United States*: Buss & Durkee 1957 (undergrad, self-report); EM Bennett & Cohen 1959 (self-report); Buss 1961 (undergrad); Sarason 1961 (undergrad); R Epstein 1965 (young); Papageorgis & McCann 1965 (self-report); Sarason et al. 1965 (self-report); Wyer et al. 1965 (undergrad, self-report); AH Buss 1966a, AH Buss 1966b (undergrad); SP Taylor & Epstein 1967 (undergrad); Doob & Gross 1968; Fischer et al. 1969 (undergrad); LA Gottschalk & Gleser 1969 (self-report); Shuck et al. 1971 (undergrad, after hearing an account of violence); Broverman et al. 1972 (self-report); Gentry 1972 (undergrad, self-report); KS Larsen et al. 1972 (undergrad, administer electric shock experiment); Mehrabian & Epstein 1972 (experiment); Brissett & Nowicki 1973 (self-report); Chase & Mills 1973; MB Harris 1973; Joesting & Joesting 1973 (undergrad, blacks, self-report); Scharff & Schlottmann 1973 (undergrad); Bem 1974 (undergrad, self-report); Unger et al. 1974; MB Harris & Samerotte 1975; JL Fisher & Harris 1976 (undergrad); Lando et al. 1977 (undergrad); Gaebelein 1977 (undergrad); Siegman & Dintzer 1977 (undergrad); Bem 1978 (undergrad); Huesmann et al. 1978 (self-report); Lefkowitz et al. 1978 (undergrad, self-report); Spence & Helmreich 1978 (young; self-report); Tucker 1978 (undergrad); Finchum & Freitag 1979 (undergrad, self-report); Holinger 1980 (violent, causing death); RW Rogers 1980 (undergrad); Doyle & Biaggio 1981 (undergrad); SMS Ahmed 1982 (undergrad); Ruble 1983 (self-report); T Smith 1984; Forsstrom-Cohene & Rosenbaum 1985 (undergrad); Schill et al. 1985 (undergrad); Reinisch & Sanders 1986 (undergrad, hypothetical scenarios); IL Reiss 1986 (undergrad, in response to sexual jealousy); DR Richardson et al. 1986 (undergrad, retaliatory); McCann et al. 1987 (undergrad); Gergen 1990 (undergrad); Schill et al. 1990 (undergrad); JW Swanson et al. 1990 (physical violence); Gladue 1991a (undergrad, self-report); Gladue 1991b (undergrad); Scherwitz et al. 1991; Buss & Perry 1992 (undergrad); A Campbell et al. 1992 (young, to gain compliance); MB Harris 1992 (undergrad); Berkowitz 1993; Kopper 1993* (direct hostility); A Campbell et al. 1993 (young); Campbell & Muncer 1994 (to gain compliance); Bjorkqvist et al. 1994b; North et al. 1994 (among homeless adults); Stoney	**AFRICA** *Tanzania*: Butovskaya, Burkova et al. 2010:27* (Hadza tribe, child & adolescent) **EUROPE** *Belgium*: Bruffaerts et al. 2004 (violence problems, among psychiatric patients); *Britain*: Maughan, Rowe et al. 2004:615 (ages 5-15); *Sweden*: Tuvblad, Eley & Lichtenstein 2005:219 **LATIN/CARIBBEAN AMERICA** *Multiple South American Countries*: Orpinas 1999 **NORTH AMERICA** *United States*: RR Sears 1961* (peer-rated); JA Gray 1971a:29; Vanfossen 1979 (between the sexes); E Maccoby & Jacklin 1980; McGue et al. 1993; Dykeman et al. 1996 (ages 10-19); MB Harris & Miller 2000:845; GM Alexander & Peterson 2004:413 (self-report); RC Kessler et al. 2006 (intermittent explosive disorder); Goldstick, Roche et al. 2021 (ages 14-20, N = 409, 97% black, 37%M vs. 27%F, self-reported violence) **OCEANIA** *Australia*: LD Owens & MacMullin 1995 (childhood & adolescence) **INTERNATIONAL** *Multiple Countries*: Rohner 1976:65* (childhood & adolescents, 101/101 countries); Butovskaya, Burkova et al. 2019 (children & adolescents, N = 1,296) **OVERVIEW** *Literature Review*: Eme 1979 (physical violence); Maccoby & Jacklin 1980; Björkqvist 1994 (physical aggression); Loeber & Hay 1997; Segall et al. 1997; Munroe et al. 2000;

(*Continued*)

Table 17.6.1.1c (Continued)

Nature of difference	*Post-pubertal*	*Wide age range*
	Adult	
	& Engebretson 1994; JW White & Kowalski 1994; Bushman 1995 (undergrad); Giancola & Zeichner 1995 (undergrad, after consuming alcohol); Gladue & Bailey 1995 (self-report); MB Harris 1995 (Anglo and Hispanic, self-report); Hoglund & Nicholson 1995; McCauley 1995:237 (hit others when angry, undergrad); Felsten 1996; Gran et al. 1996 (undergrad); MB Harris & Knight-Bohnhoff 1996a (military base); MB Harris & Knight-Bohnhoff 1996b:37 (undergrad, hypothetical scenarios); Felson 1996 (more likely to attack & injure their adversaries); GB West et al. 1996:318 (undergrad, self-report); TY Williams et al. 1996 (among convicted offenders); IH Bernstein & Gesn 1997 (Buss-Perry scale); Bushman & Anderson 1998; Green 1998 (to gain compliance); Bushman et al. 1999 (young); DR Richardson & Green 1999 (undergrad, 56M + 57F, self-report); Sugihara & Warner 1999:204 (undergrad, self-rated, Mexican Americans); JT Spence & Buckner 2000:49 (self-report); FB Bryant & Smith 2001 (Buss-Perry aggression scale); Xie, Cairns, & Cairns 2002 (self-report); Zeichner et al. 2003 (administer intense electric shock in an experiment); Benderlioglu & Nelson 2004; Graham et al. 2004 (self-report); Verona 2005:427 (self-report); Storch et al. 2004 (self-report); von Collani & Werner 2005 (self-report); Berg & DeLisi 2006:637 (among prisoners); LA Burton, Hafetz & Henninger 2007:46 (undergrad, N = 41M + 93F); Lento-Zwolinski 2007:413 (undergrad, N = 61M + 221F, self-report); Tiesman, Peek-Asa et al. 2007 (military personnel); Cross & Campbell 2012 (toward known members of the opposite sex); Van Dorn, Volavka & Johnson 2012:Table 3 (violence); Van Dorn et al. 2012 (violence); Assari, Caldwell & Zimmerman 2014:Table 2 (ages 21-23, N = 257); D Peterson & Morgan 2014:Table 1 (violence); Gorka et al. 2015; Hoskin & Meldrum 2018:295 (physical fighting in the past, undergrad, N = 117M + 170F); Hoskin & Ellis 2021:Table 1 (self-reported violence proneness, N = 324) **OCEANIA** *Australia*: Homel & Clark 1994 (pubs); *New Zealand*: Mellsop & Smith 2007 (psychiatric diagnosis) **INTERNATIONAL** *Multiple Countries*: Rohner 1976:65* (6/26 countries); Nivette, Sutherland et al. 2019 (63 countries, N = 247,909) **OVERVIEW** *Meta-Analysis*: Hyde 1984 (college age, d = .27)	Baxendale et al. 2012; *Meta-Analysis*: Hyde 1984 (d = .50); Eagly & Steffen 1986 (adolescent & adult, d = .29); Hyde 1986 (143 studies, d = .50); Basow 1992:103 (d = .50 for all ages; for adults d = .29); Bettencourt & Miller 1996* (overall d = .23; unprovoked d = .43); GP Knight et al. 2002 (physical aggression); J Archer 2004 (direct observation: d = .53; self-report: d = .42; peer report: d = .57; teacher report: d = .40; greatest sex difference for ages 18-22); A Campbell 2006; Card, Stucky et al. 2008 (direct aggression, d = .29)
Not significant	**ASIA** *China*: Yamauchi & Li 1995* (undergrad); *India*: Ujjwala Rani & Ramavani 1989; *Japan*: Yamauchi & Li 1995* (undergrad) **EUROPE** *Austria*: Voracek & Stieger 2009:385* (self-report, in the second of two samples); *Germany*: Kuepper & Hennig 2007* (self-report, N = 98M + 73F); *Scotland*: Edmunds & Kendrick 1980 **NORTH AMERICA** *United States*: Deaux 1971; Klesges et al. 1979 (undergrad); Sadowski & Wenzel 1982 (undergrad); Schill et al. 1987 (undergrad); Stets 1990 (among married couples); TJ Allen et al. 1996; DA Hines & Saudino 2003 (self-report) **INTERNATIONAL** *Multiple Countries*: Rohner 1976:65* (20/26 countries); Aluja, Rossier et al. 2020:Figure 1* (aggressiveness, averages for 18 countries, ages 31-45)	**AFRICA** *Tanzania*: Butovskaya, Burkova et al. 2010:27* (Iroqw tribe, child & adolescent) **ASIA** *China*: Wu et al. 2000 **NORTH AMERICA** *United States*: Collins 1973 (3rd, 6th, & 10th graders); Cairns et al. 1989 (4th-10th graders); Bettencourt & Miller 1996* (provoked d = .06, M>F)
More among females	**NORTH AMERICA** *United States*: KM Ryan 1998 (undergrad, excluding sexual aggression)	**AFRICA** *Tanzania*: Butovskaya, Burkova et al. 2010:27* (Datoga tribe, child & adolescent)

Table 17.6.1.1d Physical aggression in general among pre-pubertal non-humans

Nature of difference	*Pre-pubertal*	
	Infant/toddler	*Child*
More among males	**PRIMATE** *Rhesus Macaque*: Harlow & Zimmerman 1973; IS Bernstein & Ehardt 1985*	**PRIMATE** *Rhesus Macaque*: Chamove et al. 1967; Hinde & Spencer-Booth 1967; IS Bernstein & Ehardt 1985*; Reinhardt 1987; Lovejoy & Wallen 1988
Not significant	**CANINE** *Spotted Hyena*: Drea et al. 1996	
More among females		

17.6.1.2 Trends in Sex Differences in Physical Aggression

Two meta-analyses not only assessed sex differences in physical aggression but also examined the possibility of trends in this regard over time. Table 17.6.1.2 shows that one meta-analysis indicated that there appeared to be a slight downward trend in such sex differences between 1950 and 1980. However, the other meta-analysis concluded that from 1966 through 1983, no significant trends were detectable.

17.6.1.3 Physical Aggression Associated with Drug or Alcohol Consumption

Some research has sought to determine if there are sex differences in responses to various drugs, particularly alcohol. As shown in Table 17.6.1.3, all but one study concluded that males exhibit greater aggression after consuming various drugs than is the case for females.

17.6.1.4 Physical Aggression among the Mentally Ill

Several studies have sought to determine if male or female mental patients are more likely to behave in a physically aggressive manner. It is important to note that these mental patients cannot be considered close to representative of the populations from which they came. Also, in some cases, the display of aggression may have been one of the main reasons they were considered mentally ill. Table 17.6.1.4 shows that the findings are roughly equally divided between those indicating that males are more physically aggressive and those indicating there were non-significant sex differences.

17.6.1.5 Physically Aggressive Responses under Experimental Conditions

Over the years, many experiments have been conducted to assess sex differences in aggressive responses to various type of factors, usually of a

Table 17.6.1.1e Physical aggression in general among post-pubertal non-humans

Nature of difference	*Post-pubertal*		*Wide age range*
	Adolescent	*Adult*	
More among males	**FISH** *Brown Trout*: JI Johnson et al. 2001 **PRIMATE** *Chimpanzee*: Hebb 1946; *Rhesus Macaque*: Teas et al. 1982* (free-ranging, mainly threats); *Stumptail Macaque*: Nieuwenhuijsen et al. 1988a (same-sex) **CANINE** *Multiple Species*: Bekoff 1974* **PRIMATE** *Baboon*: DeVore 1963 (play fighting); *Chimpanzee*: Nadler & Braggio 1974*; Savage & Malick 1977 (captive); Braggio et al. 1978; *Gorilla*: HE Freeman & Alcock 1973*; Kummer 1968* (play fighting); NW Owens 1975b* (play fighting); *Barbary Macaque*: MacRoberts 1970; *Bonnet Macaque*: Simonds 1974*; *Marmoset*: DH Abbot 1978; *Japanese Macaque*: Modhal & Eaton 1977; Hayaki 1983; GG Eaton et al. 1986*; GG Eaton et al. 1990; *Orangutan*: HE Freeman & Alcock 1973*; Nadler & Braggio 1974*; *Pigtail Macaque*: Zehr 1998; *Rhesus Macaque*: H Harlow 1965*; Seay 1966; Goy & Phoenix 1971; Loy & Loy 1974; Gard & Meier 1977; *Squirrel Monkey*: Biben 1986 (captive); *Talapoin Monkey*: Wolfheim 1977*; *Vervet Monkey*: Bramblett 1978; Raleigh et al. 1979*; *Multiple Primate Species*: H Kummer 1974 **RODENT** *Hamster*: Goldman & Swanson 1975; *Marmot*: Nowicki & Armitage 1979; *Rat*: Seward 1945*; Poole & Fish 1976*; Beatty et al. 1981; Meaney & Stewart 1981a; Thor & Holloway 1983*;	**CANINE** *Domestic Dog*: Konno, Inoue-Murayama & Hasegawa 2011:Table 2 (owner-rated, N = 171) **FISH** *Cichlid*: Holder, Barlow & Francis 1991 (Midas cichlid, aggression against mirror image, N = 132M + 130F); *Stickleback*: Whoriskey 1991 **MARSUPIAL** *Opossum*: BH Fadem et al. 1989 (male territorial intruder) **PRIMATE** *Chimpanzee*: King, Weiss & Sisco 2015; *Japanese Macaque*: Sugiyama 1960; BK Alexander 1970; Nieuwenhuijsen et al. 1988c:362*; *Rhesus Macaque*: Altmann 1968; Angermeir et al. 1968 (intra-sex); Southwick 1969; Drickamer 1975 (in the wild); Teas et al. 1978 (in the wild); Eaton et al. 1981 (young); Teas et al. 1982* (free-ranging, mainly threats); *Stumptail Macaque*: Bertrand 1969 **PROBOSID** *African Elephant*: Hall-Martin 1987; JH Poole 1989; *Asiatic Elephant*: Seltmann, Helle et al. 2019 (N = 107M + 105F) **RODENT** *Hamster*: Gibber et al. 1984 (attacking infants); *Meadow Vole*: Boonstra & Boag 1992; *Mouse*: Tollman & King 1956; DA Edwards 1969; Lagerspetz 1969; Valzelli 1969; Palanza et al. 1994;	**FISH** *Salmon*: Keenleyside & Dupuis 1988; Chebanov 1990 **CANINE** *Wolf*: Traylor 1982 (captive) **MARSUPIAL** *Kangaroo*: Croft & Snaith 1991; *Opossum*: Fadem & Corbett 1997; *Wallaby*: DM Watson 1993 **MUSTELID** *Ferret*: Stockman et al. 1986 **PINNIPED** *Harbor Seal*: Renouf & Lawson 1987; *Mongoose*: Wemmer & Flemming 1974; *Sea Lion*: Farentinos 1971; Gentry 1974 **PRIMATE** *Assamese Macaque*: MA Cooper & Bernstein 2002:Figure 2 (including counter-attacks); *Baboon*: Kummer 1968* (field study); NW Owens 1975a&b (free-living); Chalmers 1980; Bramblett & Coehlo 1987*; *Barbary Macaque*: Burton 1972; Caine & Mitchell 1979; *Bonnet Macaque*: Simonds 1965; Simonds 1974*; Simonds 1977; *Chimpanzee*: Van Lawick-Goodall 1968; NE King et al. 1980 (captive); Goodall 1986:Table 12.2; Markus & Croft 1995 (young); Mendoza-Granados & Sommer 1995; *Golden Lion Tamarin*: Kleiman 1979; *Gorilla*: A Meder 1990 (young, captive); *Japanese Macaque*: Koyama 1985; Nieuwenhuijsen et al. 1988c:363*; Imakawa 1990 (free-living); *Langur*: Dolhinow & Bishop 1970; Poirier 1970; SB Hrdy 1977; *Lemur*: SL Meredith 2018:Table 2; *Orangutan*: Maple 1980; *Patas Monkey*: Bramblett 1973; *Pigtail Macaque*: IS Bernstein 1966; IS Bernstein 1970; IS Bernstien 1972; *Rhesus Macaque*: Symons 1978*; *Silver Leaf Monkey*: IS Bernstein 1968; *Squirrel Monkey*: Baldwin 1969; Baldwin & Baldwin 1974; *Stumptail Macaque*: Bertrand 1969; *Syke's Monkey*: Bramblett & Coehlo 1987*; *Vervet Monkey*: Fedigan 1972; Bramblett &

	Thor & Holloway 1984; WW Beatty 1984; CL Moore & Power 1992; LK Smith et al. 1998; *Squirrel*: Holmes 1995; Pasztor et al. 2001 **SWINE** *Pig:* MA Berry & Signoret 1984 **UNGULATE** *Big Horn Sheep*: Hass & Jenni 1993; *Cattle*: Reinhardt & Reinhardt 1982a*; *Lamb*: Sachs & Harris 1978	Ferrari et al. 1996:551; *Prairie Vole*: Bales & Carter 2003:Figure 1 (N = 20M + 20F); *Rat*: JP Seward 1945; SA Barnett 1955; Pynoos et al. 1996 (after receiving a foot shock) **UNGULATE** *Big Horn Sheep*: Berger 1980; *Domestic Horse*: Boyd & Houpt 1994	Coehlo 1987* **RODENT** *Marmot*: Jamieson & Armitage 1987; *Rat*: Poole & Fish 1976*; Meaney & Stewart 1981b*; Thor & Holloway 1986; Hole 1988; Pellis & Pellis 1990; Pellis & McKenna 1992; *Squirrel*: Waterman 1988; Nunes et al. 1999 (free-living) **UNGULATE** *Cattle*: Brownlee 1954; Reinhardt & Reinhardt 1982a*; Reinhardt 1983; *Black-Tail Deer*: Miller 1975; *Mule Deer*: Linsdale & Tomich 1953
Not significant	**PRIMATE** *Rhesus Macaque*: Reinhardt 1987* (dominance rank controlled) **PRIMATE** *Vervet Monkey*: Raleigh et al. 1979* **RODENT** *Rat*: Reinhart et al. 2004	**PRIMATE** *Rhesus Macaque*: Reinhardt 1987* (dominance rank statistically controlled) **RODENT** *Mouse*: Fredericson 1950* (surrounding food possession); Fredericson 1952 (over access to food); Gandelman 1972* (after injecting testosterone into the females)	**FELINE** *Cat*: Caro 1981; Bradshaw 1992 (domestic) **PINNIPED** *Seal*: Harcourt 1991 **PRIMATE** *Gorilla*: SG Brown 1988; *Marmoset*: HO Box 1977 (captive); Stevenson & Poole 1982; *Japanese Macaque*: Pavelka 1993 **PROSIMIAN** *Ring-Tailed Lemur*: Gould 1990 (free-ranging) **RODENT** *Mouse*: VA Davies & Kemble 1983; Pellis et al. 2000
More among females	**PRIMATE** *Japanese Macaque*: TW Clark 1978* (initiated more attacks) **RODENT** *Golden Hamster*: L Goldman & Swanson 1975	**CANINE** *Spotted Hyena*: East et al. 2003 (fighting over food) **FISH** *Cichlid*: Budaev, Zworykin & Mochek 1999 (N = 23M + 23F) **PRIMATE** *Japanese Macaque*: TW Clark 1978* (initiated more attacks); *Orangutan*: Zucker et al. 1986 (captive) *Rhesus Macaque*: Chance 1956 (among a captive colony); IS Bernstein et al. 1993:209	**PRIMATE** *Bush Baby*: Ehrlich 1977; *Howler Monkey*: Glander 1975; *Rhesus Macaque*: Teas et al. 1982* (instigated more aggression); Tomaszycki et al. 2001

Table 17.6.1.1f Physical aggression in general among all species (including humans), overview generalizations

Nature of difference					*Wide (or Unspecified) Age Range*
More among males					**VERTEBRATES** *Generalization*: Collins 1944 ("in all classes of vertebrates, the male, as a rule, is the more aggressive sex"); JP Scott 1975 ("There is a widespread tendency for vertebrate animals to show greater aggressiveness in the male") **MAMMALS** *Generalization*: Moyer 1974 ("in all mammalian species, from mouse to man, the male is the more aggressive sex") **HUMANS** *Generalization*: Walters et al. 1957 (especially toward males rather than toward females); Maccoby & Jacklin 1974 ("the evidence is strong that males are the more aggressive sex"); A Mazur 1983 ("An overall sex difference in aggressiveness is found consistently across cultures"); Ramirez et al. 2001:325 (especially as severity increases) **UNGULATES** *Generalization*: Bouissou 1983 ("In ungulates, as in most other mammals, aggressive behavior is sexually dimorphic, in that males are generally more aggressive than females")
Not significant					
More among females					

Table 17.6.1.2 Trends in sex differences in physical aggression

Nature of difference				*Post-pubertal*	
				Adult	
Increasing sex differences					
No significant change				**OVERVIEW** *Meta-Analysis*: Eagly & Steffen 1986 (1966-1983)	
Decreasing sex differences				**OVERVIEW** *Meta-Analysis*: Hyde 1984 (1950-1981)	

Table 17.6.1.3 Physical aggression associated with drug or alcohol consumption

Nature of difference			*Post-pubertal*		
			Adolescent	*Adult*	
More among males				**EUROPE** *Britain*: K Graham et al. 2004 (alcohol use) **NORTH AMERICA** *Canada*: Rossow 2004 (homicide rate); RE Mann et al. 2006 (homicide rate); *United States*: Crawford 1984; Spunt et al. 1990; Pernanen 1991	

(*Continued*)

Table 17.6.1.3 (Continued)

Nature of difference			*Post-pubertal*		
			Adolescent	*Adult*	
				(alcohol-related); Perkins 1992; Giancola & Zeichner 1995 (alcohol use); Dougherty et al. 1999 (lab experiment); Hoaken & Phil 2000 (alcohol use); Giancola et al. 2002:1156 (among social drinkers, N = 111M + 93F)	
Not significant			**NORTH AMERICA** *United States*: R Bachman & Peralta 2002		
More among females					

Table 17.6.1.4 Physical aggression among the mentally ill

Nature of difference	*Pre-pubertal*				*Wide age range*
		Child			
More among males		**NORTH AMERICA** *United States*: Kazdin et al. 1987; Fava et al. 1995			**EUROPE** *Denmark*: S Hodgins et al. 1996; *Finland*: Eronen et al. 1996 (schizophrenic patients); *Switzerland*: Modestin & Ammann 1995; *Multiple Scandinavian Countries*: JW Swanson 1994 **MIDDLE EAST** *Israel*: A Stueve & Link 1998; Rabinowitz & Mark 1999:343 (during hospital stay) **NORTH AMERICA** *United States*: WN Adler et al. 1983 (during stay); Tardiff 1984 (before admission)
Not significant		**NORTH AMERICA** *United States*: Connor et al. 2003 (proactive & reactive aggression)			**EUROPE** *Britain*: DV James et al. 1990 (during stay); *Sweden*: Palmstierna & Wistedt 1989 (during hospital stay) **NORTH AMERICA** *United States*: Tardiff & Sweillam 1982 (during hospital stay); Tardiff 1984; Hodgkinson et al. 1985 (during hospital stay); JG Edwards et al. 1988 (during hospital stay); Binder & McNiel 1990; Blomhoff et al. 1990 (during hospital stay); RJ Miller et al. 1993 (during hospital stay); HJ Steadman et al. 1994; Tam et al. 1996; Tardiff et al. 1997 (before admission); Hiday et al. 1998
More among females					**EUROPE** *Britain*: Fottrell 1980 (during hospital stay) **NORTH AMERICA** *United States*: Binder & McNiel 1990 (during hospital stay)

provocative nature. For example, individuals might be escorted into a research lab and subjected to some sort of insult by the experimenter (e.g., You sure know how to pick some weird clothes to wear, don't you?), and given the opportunity to behave aggressively later in the actual experiment. Sometimes the aggressive behavior is physical in nature, but more often it involves instructing participants to administer electric shock to other participants in the experiment (although the "other participants" are confederates who are not actually getting shocked).

Table 17.6.1.5a summarizes the findings from these experiments. One can see that most, but not all, of the studies have concluded that males are more likely to behave aggressively (usually in the form of administering what they are led to believe is electric shock to a research participant) at higher levels than females under most experimental conditions.

A few studies of sex differences in experimentally induced physical aggression were located regarding various species of non-humans. As shown in Table 17.6.1.5b, all of these studies concluded that females were more physically aggressive than were males under the testing conditions used.

17.6.1.6 Inflicting Pain on Another Person

The tendency to inflict pain on another person (or at least expressing a willingness to do so) has been investigated in several studies, most of which were experimental in nature. As one can see in Table 17.6.1.6, the studies are more or less equally divided between those concluding that males are more prone (or more willing) to do so than females or that there is no significant difference.

17.6.1.7 Aggression toward "Outsiders"

Aggression toward individuals who are outside of one's normal social group has been observed in a few species of non-humans. As shown in Table 17.6.1.7, all of these studies indicate that the aggression is more likely to be engaged in my males than by females.

17.6.1.8 Biting Others During Aggression

One study of macaques was conducted regarding biting one's opponent in an aggressive bout. Table 17.6.1.8 shows that the study indicated that females were more likely than males to incorporate biting into their displays of aggression.

17.6.1.9 Imitative/Contagious Physical Aggression

Imitative or contagious violence refers to the tendency for fights between two individuals to sometimes quickly spread to fighting between many

Table 17.6.1.5a Physically aggressive responses under experimental conditions

Nature of difference	*Pre-pubertal*		*Post-pubertal*	
		Child	*Adult*	
More among males		**NORTH AMERICA** *United States*: Spache 1951* (projective test toward peers); AH Buss 1963 (young, lab); Epstein 1965 (lab); AH Buss 1966a&b (lab); SP Taylor & Epstein 1967* (lab); Edwards 1968 (lab); Youssef 1968 (lab); Titley & Viney 1969 (lab); Schuck et al. 1971 (lab); Larsen et al. 1972* (young, lab); Scharff & Schlottman 1973 (lab); Jaffe et al. 1974 (lab); Raden 1974 (young, lab); Konecni 1975 (young, lab); Yinon et al. 1975 (lab); Hedrick 1977 (lab); Lando et al. 1977* (lab); Siegman & Dintzer 1977 (lab); Frodi 1978 (lab); Lando & Donnerstein 1978 (lab); Hynan et al. 1980 (lab); Rogers 1980 (lab); Hynan & Esselman 1981 (lab); Ahmed 1982 (field); Hynan 1982 (lab)		**EUROPE** *France*: DaGloria & DeRidder 1979 (experiment, N = 10, d = 1.87) **NORTH AMERICA** *United States*: AH Buss 1963 (undergrad, experiment); Epstein 1965 (experiment, male target, N = 40, d = .78); Worchel 1966 (experimental shock, female target, N = 120, d = .53); SP Taylor & Epstein 1967* (shocking an experimental opponent); DB Leventhal et al. 1968 (experiment, male target, N = 40, d = .18); Yousseff 1968 (experiment, N = 120, d = .12); Leventhal & Shemberg 1969 (experiment, N = 80, d = .36); Titley & Viney 1969 (experiment, female target, N = 10, d = .80); Schuck et al. 1971 (experiment, same-sex target, N = 10, d = 2.31); KS Larsen et al. 1972 (experiment, shock to female target, N = 27, d = .16); AR Goodwin 1973 (experiment, male target, N = 24, d = .23); Scharff & Schlottmann 1973 (experiment, male target, N = 20, d = .1.13); Jaffe et al. 1974 (experiment); CS Carver 1975 (experiment, male target, d = 40, d = .52); Yinon et al. 1975 (undergrad, experiment, N = 35, same sex targets, d = 2.06); Gaebelein 1977 (experiment, female target, N = 20, d = .37); Lando et al. 1977 (experiment, same-sex target, N = 40, d = .63); Mueller & Donnerstein 1977 (experiment, same-sex target, N = 12, d = .60); Hoppe 1978 (experiment, female target, N = 48, d = .30); Lando & Donnerstein 1978 (experiment, same-sex target, physical aggression, N = 10, d = 1.77); RW Rogers 1980 (experiment, same-sex target, N = 96, d = .66); Hynan & Esselman 1981 (experiment, female target, N = 25, d = .28); Zillman et al. 1981 (experiment, same-sex target, N = 72, d = .39); MT Hynan 1982 (experiment, N = 140, d = .38); Caprara et al. 1983 (experiment, same-sex target, N = 240, d = .42); Caprara et al. 1984 (experiment, same-sex target, N = 40, d = .50); Hammock & Richardson 1992 (experiment, N = 194, d = .49); CA Anderson & Dill 2000 (men deliver more shock intensity in aggression experiments); Bartholow & Anderson 2002 (after playing violent video games, men deliver more shock intensity in aggression experiments); Broman-Fulks et al. 2007 (shocking opponents more intensely in experiment); MH McIntyre, Barnett et al. 2007 (unprovoked attacks in experimental gaming); Verona et al. 2007 (when under stress, delivered electric-shock in an experiment)	

(*Continued*)

Table 17.6.1.5a (Continued)

Nature of difference	*Pre-pubertal*		*Post-pubertal*		
		Child		*Adult*	
				OVERVIEW *Meta-Analysis*: Bettencourt & Miller 1996:433 (experimental studies, d = .33 under non-provoked conditions, d = .17 under provoked conditions)	
Not significant		**NORTH AMERICA** *United States*: JP McKee & Leader 1955 (experimental study); Larsen et al. 1972* (young, lab)		**NORTH AMERICA** *United States*: L Berkowitz 1959 (experiment, verbal, same-sex target, N = 34); L Berkowitz 1960 (experiment, verbal, same-sex target, N = 80); SP Taylor & Epstein 1967 (experiment, shocking an experimental opponent after provocation, male target, N = 12, d = .02); Larsen et al. 1972* (shocking an opponent in an experiment); RA Baron & Ball 1974 (experiment, male target, N = 10); Stagner & Gongdon 1975 (experiment, verbal, N = 20, d = .00); Lando et al. 1977 (monetary subtraction was substituted for shock); Dor-Shav & Dolgin 1981 (experiment, after shock delivery, N = 16); CA Anderson & Dill 2000 (Study 2, after playing violent video games); DR Richardson et al. 1986 (undergrad, shocking an experimental opponent)	
More among females		**NORTH AMERICA** *United States*: Spache 1951* (projective test toward adults); Heacock et al. 1975 (undergrad, following an electric shock); J Cooper & Mackie 1986 (after playing a violent video game)		**NORTH AMERICA** *United States*: Shemberg et al. 1968 (experiment, female target, N = 45, d = .31); Titley & Viney 1969 (experiment, female target with a physical handicap, N = 10); Caprara 1982 (experiment, same-sex target, N = 100, d = .58)	

Table 17.6.1.5b Experimentally induced aggression among non-humans

Nature of difference				*Post-pubertal*	
				Adult	
More among males					
Not significant					
More among females				**MARSUPIAL** *Gray Short-tailed Opossum*: BH Fadem & Corbett 1993a (when paired with a male) **PRIMATE** *Rhesus Macaque*: Rosvold et al. 1954 (following amygdala damage); Kling 1974 (following amygdala damage); de Waal 1984 (experimental dyadic conditions) **RODENT** *Rat*: RL Conner & Levine 1969 (in response to foot shock); DC Blanchard et al. 1980 (without a tail shock); DC Blanchard et al. 1991 (when stimulated with cat odor)	

Table 17.6.1.6 Inflicting pain on another person

Nature of difference	*Pre-pubertal*		*Post-pubertal*		
		Child	*Adolescent*	*Adult*	
More among males		**NORTH AMERICA** *United States*: Larder 1962 (young, after listening to an aggressive story); Hoving et al. 1974; Slaby 1974	**NORTH AMERICA** *United States*: Epstein 1965; AH Buss 1966; Titley & Viney 1969; Shortell & Biller 1970	**NORTH AMERICA** *United States*: Hokanson & Edelman 1966 (undergrad); Youssef 1968 (undergrad); Knott & Drost 1970 (undergrad); Schuck et al. 1971 (undergrad); RW Rogers 1980 (undergrad, self-report)	
Not significant		**NORTH AMERICA** *United States*: McCandless 1966 (age 9); Liebert & Baron 1972	**NORTH AMERICA** *United States*: Taylor & Epstein 1967	**NORTH AMERICA** *United States*: DB Leventhal et al. 1968 (undergrad); Hoppe 1979 (undergrad, direct observation); Koerner 1977 (undergrad, self-report); Hynan et al. 1980 (undergrad, direct observation)	
More among females					

Table 17.6.1.7 Aggression toward "outsiders" among non-humans

Nature of difference					*Wide age range*
More among males					**PRIMATE** *Bush Baby*: Doyle 1974; *Gorilla*: Sabater 1966 **RODENT** *Mouse*: Fredericson 1950* (pairing with a stranger)
Not significant					
More among females					

Table 17.6.1.8 Biting others during aggression among non-humans

Nature of difference	*Post-pubertal*
	Adult
More among males	
Not significant	
More among females	**PRIMATE** *Rhesus Macaque*: Bernstein & Ehardt 1985

additional individuals under volatile social circumstances. As shown in Table 17.6.1.9, nearly all studies of such aggression have concluded that it occurs more among males than among females.

Table 17.6.1.9 Imitative/contagious physical aggression

Nature of difference	*Pre-pubertal*	*Post-pubertal*
	Child	*Adult*
More among males	**NORTH AMERICA** *United States*: Bandura et al. 1966; Rosekrans & Hartup 1967; DJ Hicks 1968; Madsen 1968; Hapkiewiez & Roden 1971 (imitating cartoon aggression); MF Martin et al. 1971; Parton & Geshuri 1971; Grusec 1972 (age 9); Liebert & Baron 1972; Puleo 1978 (direct observation)	**NORTH AMERICA** *United States*: Lando & Donnerstein 1978 (undergrad, direct observation)
Not significant	**NORTH AMERICA** *United States*: Grusec 1973 (age 5); Franzini et al. 1978	
More among females		

17.6.1.10 Direct Involvement in Warfare

Involvement in warfare as a combatant is usually assessed based on information provided by military organizations. As shown in Table 17.6.1.10a, all studies have found that males are the primary combatants in warfare.

Several studies have sought to determine if there is a sex difference in the proportion of individuals who are killed during warfare. Most of these studies have been based on studies of tribal warfare. Table 17.6.1.10b shows that all the studies have concluded that males are more often victimized in warfare than are females.

Table 17.6.1.10a Direct involvement in warfare

Nature of difference			*Post-pubertal*		*Wide age range*
				Adult	
More among males				**AFRICA** *Kenya*: Lahr et al. 2016 (inter-group coalition fighting, among prehistoric hunter-gatherers) **EUROPE** *Britain*: A Jackson 2002; *Norway*: Thapa & Hauff 2005:81 (among immigrants) **LATIN/CARIBBEAN AMERICA** *Paraguay*: Hill & Hurtado 1996 (Ache tribe, deaths from warfare and club fights) **NORTH AMERICA** *United States*: DB Adams 1983; Hoganson 1998; Kumar 2001 (civil war); AE Street et al. 2013 (combat in Iraq and Afghanistan Wars) **INTERNATIONAL** *Multiple Countries*: Whyte 1978; DB Adams 1983; Keeley 1996:272; Gat 2006:848; *Multiple Preliterate Societies*: Whyte 1978:217 (70/70 societies); Leonard 1999 (civil war)	**MIDDLE EAST** *Israel*: Dimitrovsky et al. 1989; AR Bloom 1993 **NORTH AMERICA** *United States*: Murdoch et al. 2003 (military) **OVERVIEW** *Literature Review*: JS Goldstein 2001; JS Goldstein 2004
Not significant					
More among females					

Table 17.6.1.10b Death due to warfare

Nature of difference			*Post-pubertal*	*Wide age range*
			Adult	
More among males			**LATIN/CARIBBEAN AMERICA** *Venezuela*: Beckerman & Lizarralde 1995* (Bari tribe, 3.7M to 1F)	**LATIN/CARIBBEAN AMERICA** *Brazil*: Werner 1983:241 (Mekranoti tribe, 2.4M to 1F); *Colombia*: Chagnon 1974:160 (3.4 to 1 and 8.5 to 1 in two Yanomamo tribes); *Venezuela*: Lizarralde & Lizarralde 1991; Beckerman & Lizarralde 1995* (Bari tribe, 2.8M to 1F for adolescents & adults combined) **OCEANIA** *New Guinea*: Heider 1970:128 (Dani tribe, 11.9M to 1F); Meggitt 1977:109 (Mae Enga tribe)
Not significant				
More among females				

At least two studies of fighting between males of different, albeit neighboring, social troops have been published based on naturalistic observations of wild chimpanzees. In both cases, as cited in Table 17.6.1.10c, the combatants were males.

Table 17.6.1.10c Involvement in warfare-like combat among non-humans

Nature of difference				*Post-pubertal*	
				Adult	
More aggression by males				**PRIMATE** *Chimpanzee*: Nishida, Naraiwa-Takahata 1985 (fighting between neighboring troops); J Goodall 1986:488 (boarder skirmishes, sometimes lethal)	
Not significant					
More aggression by females					

17.6.1.11 Aggression toward Females

One study was located having to do with aggression directed toward females. Table 17.6.1.11a shows that this study concluded that males were more likely than females to be the aggressor.

Table 17.6.1.11a Physical aggression toward females

Nature of difference				*Post-pubertal*	
				Adult	
More aggression by males				**NORTH AMERICA** *United States*: Christopher et al. 1998	
Not significant					
More aggression by females					

Several studies of aggression directed specifically toward females rather than toward males were located for species other than humans. As one can see in Table 17.6.1.11b, several studies of fish have concluded that females are more likely to engage in such aggression, but that the one study of birds found no significant sex difference in this regard.

Table 17.6.1.11b Physical aggression toward females among non-humans

Nature of difference					*Wide age range*
More aggression by males					
Not significant					**BIRD** *Zebra Finch*: Adkins-Regan & Robinson 1993
More aggression by females					**FISH** *Black Chinned Tilapia*: Balshine-Earn & McAndrew 1995 (same sex rivals during courtship); *Cardinal fish*: Kuwamura 1985 (same sex rivals during courtship); Okuda 1999 (same sex rivals during courtship); *Salmon*: AJ Hanson & Smith 1967; Flemming & Gross 1993; Okuda & Yanagisawa 1996 (same sex rivals during courtship); TP Quinn 1999:194; *Tidewater Goby*: RO Swenson 1997 (same sex rivals during courtship)

17.6.1.12 Aggression toward Males

Several studies of non-humans were located regarding aggression specifically directed toward males (no studies among humans were found, however). As shown in Table 17.6.1.12, most of the studies have indicated that males are more likely to exhibit aggression toward males, although one study found no significant difference.

Table 17.6.1.12 Physical aggression toward males among non-humans

Nature of difference			*Post-pubertal*		*Wide age range*
				Adult	
More aggression by males				**RODENT** *House Mouse*: Palanza et al. 1996	**AMPHIBIAN** *Green Dart Poison Frog*: K Summers 1992 (same sex rivals during courtship) **FISH** *Salmon*: AJ Hanson & Smith 1967; Keenleyside & Dupuis 1988; Flemming & Gross 1993; TP Quinn 1999:194 **REPTILE** *Anolis Lizard*: TA Jenssen et al. 2000 (aggressive signaling to same-sex rival during courtship)
Not significant				**BIRD** *Zebra Finch*: Adkins-Regan & Robinson 1993	
More aggression by females					

17.6.1.13 Aggression Motivated by Anger

The few studies of aggression specifically motivated by emotions are summarized in Table 17.6.1.13. Findings are more or less evenly split between those indicating that males exhibit anger-motivated aggression more than females and ones reporting no significant sex differences.

Table 17.6.1.13 Aggression motivated by anger

Nature of difference				*Post-pubertal*	
				Adult	
More among males				**NORTH AMERICA** *United States*: JL Newman et al. 1999 (anger-motivated); Nunn & Thomas 1999 (anger-motivated)	
Not significant				**NORTH AMERICA** *United States*: SP Thomas 1989 (anger-motivated); Guerrer 1994 (anger-motivated, self-report); Guerrero & Reiter 1998 (anger-motivated, self-report)	
More among females					

17.6.1.14 Aggression in Response to Provocation

Which sex is more likely to respond to provocations (such as insults or being shoved) with physical aggression? Findings cited in Table 17.6.1.14 all agree that this is more likely among males than among females.

Table 17.6.1.14 Aggression in response to provocation

Nature of difference	*Pre-pubertal*				
		Child			
More among males		**NORTH AMERICA** *United States*: Chung & Asher 1996; Hopmeyer & Asher 1997; Rose & Asher 1999			
Not significant					
More among females					

17.6.1.15 Instruments/Weapons Used in Aggressive Behavior

One study of sex differences in the type of instruments used in the commission of violence was found. As shown in Table 17.6.1.15, it concluded that knives and other pointed instruments were used in a greater proportion of cases by males than by females.

Table 17.6.1.15 Instruments/weapons used in aggressive behavior

Nature of difference					*Wide age range*
More among males					**EUROPE** *Britain*: J Warner et al. 2005:294 (knives & other pointed instruments, 17th & 18th Centuries)
Not significant					
More among females					

17.6.1.16 Relationship between Physical Aggression and Testosterone

Most, although not all, studies have found physical aggression and testosterone levels to be positively correlated (reviewed by Ellis, Farrington & Hoskin, 2019:350–357). As shown in Table 17.6.1.16, one study indicated that the strength of this physical aggression-testosterone relationship was stronger for females than for males.

Table 17.6.1.16 Relationship between aggression and testosterone

Nature of difference			*Post-pubertal*		
				Adult	
More among males					
Not significant					
More among females				**NORTH AMERICA** *United States*: Assari, Caldwell & Zimmerman 2014 (ages 21-23, N = 257, not significant among males)	

17.6.2 Non-physical Aggression

Most forms of non-physical aggression are either verbal, indirect, or relational in nature. *Verbal aggression* usually involves shouting and cursing at the individual who caused the aggressor to become upset. Most other forms of aggression are sometimes referred to as *displaced aggression*, meaning aggression that is directed toward someone or something other than the provocateur. *Relational aggression* usually involves ending a friendship with someone as a form of punishment for his or her behavior. Measurement of non-physical aggression is primarily based on self-reports or reports from teachers or parents. Findings regarding sex differences in such aggression are reviewed below.

17.6.2.1 Verbal Aggression

Verbal aggression (also termed *direct verbal aggression*) refers to behavior that personally insults and demeans another person "to their face." Another type of verbal aggression involves saying unpleasant things about a targeted person to a third party rather than to the targeted person directly. This latter type of *indirect* verbal aggression is dealt with in a later table.

Tables 17.6.2.1a summarizes findings from all the studies of verbal aggression among individuals who have not yet reached puberty. One can see that the table provides a mixed picture regarding sex differences in verbal aggression among children, although most studies suggest that boys engage in such behavior more than do girls.

Table 17.6.2.1a Verbal aggression before puberty

Nature of difference	*Pre-pubertal*	
	Infant/toddler	*Child*
More among males		**EUROPE** *Britain*: Tapper & Boulton 2000; *Spain*: Sanchez-Martin et al. 2010 **NORTH AMERICA** *Canada*: Ankeney & Goodman 1976; *United States*: Dawe 1934; McCandless et al. 1961 (young); Sears et al. 1965 (young); JS Hatfield et al. 1967:376 (young, direct observation); RN Walker 1967 (self-report); Feshbach & Devor 1969 (young); Baumrind 1971 (young); JM McGuire 1973; Mueller & Donnerstein 1977 (lab); Barrett 1979 (young); Bullock & Merrill 1980; Achenbach & Edelbrock 1981:14*; Bredemeir et al. 1986; Ghodsian-Carpey & Baker 1987 (young); Renken et al. 1989 (young); D Wright et al. 1992; Finkelstein et al. 1994; Clay et al. 1996; Erdley & Asher 1998; Ostrov & Keating 2004 (toward other males); Salazar 2016:Table 2 (undergrad, N = 613)
Not significant	**NORTH AMERICA** *United States*: Jersild & Markey 1935 (toddler); Muste & Sharpe 1947 (toddler)	**NORTH AMERICA** *United States*: Jersild & Markey 1935; JP McKee & Leader 1955; Madsen 1968 **INTERNATIONAL** *Multiple Western Countries*: Osterman et al. 1994
More among females		**EUROPE** *Britain*: Archer et al. 1988; Ostermann et al. 1998 **NORTH AMERICA** *United States*: Jersild & Markey 1935; Durrett 1959; Lowenstein 1977; Crick at al. 1999; Xie et al. 2003

Much of the research on verbal aggression among adults (typically college students) is based on experiments in which research participants are subjected to various types of frustration or irritating comments. Fairly typical examples include bringing participants into a room and

then having one of the people associated with the experiment make an insulting comment to the participant. After that, the research participant is given the opportunity to verbally retaliate toward the provocateur in some way.

Other studies that have been used to assess sex differences in verbal aggression are hypothetical in nature. For example, various types of hypothetical unpleasant social experiences would be described to respondents, and then they are asked how they think they would react in terms of verbal aggression.

Findings regarding sex differences in verbal aggression following puberty are summarized in Table 17.6.2.1b. One can see that among adolescents, the proportion of studies are close to equally split in terms of suggesting that males and females are more involved in such aggression, and that there are no significant differences.

In the case of adults, a little over half of the studies have found males to be more likely to verbally aggress toward others, while most of the remaining studies have indicated that there is either no significant sex difference or that females engaged in verbal aggression more than males. Among the factors that seem to influence sex differences in the outcome of these studies are the nature of the provocative insults and the sex of the provocateur.

17.6.2.2 Indirect (Displaced) Aggression (e.g., Slamming Doors, Throwing Things)

Research concerning aggression that is directed away from the person who caused someone to be angry is known as *indirect aggression* or *displaced aggression*. Table 17.6.2.2 summarizes the substantial amount of research on sex differences in such aggression. One can see that the findings have been quite mixed.

17.6.2.3 Indirect Verbal Aggression

Indirect verbal aggression involves exhibiting one's displeasure over someone not by confronting them directly but by doing so by demeaning the people when interacting with a third party. Table 17.6.2.3 shows that most studies of indirect verbal aggression have found no significant sex differences in such behavior. When differences have been found, they favor males over females.

17.6.2.4 Relational Aggression

Relational aggression refers to statements or actions that deny future friendly relationships between an aggressor and his or her target. Statements such as "You are no longer my friend" or "We'd rather you

Table 17.6.2.1b Verbal aggression after puberty

Nature of difference			*Post-pubertal*		*Wide age range*
			Adolescent	*Adult*	
More among males			**ASIA** *Japan*: Harman et al. 1990* (young); Butovskaya, Timentschik & Burkova 2007:Table 1* (peer rated, N = 101M + 111F) **EUROPE** *Slovakia*: Baumgartner 1995 **NORTH AMERICA** *United States*: Ditrichs et al. 1967; WD Gentry 1972; Brodzinsky et al. 1979 (peer reports); Achenbach & Edelbrock 1981:14*; AH Buss & Perry 1992*; Fling et al. 1992; Crane-Ross et al. 1998	**ASIA** *Japan*: Harman et al. 1990* (undergrad); Ramirez et al. 2001* (undergrad); *India*: Prasad 1980 (undergrad); Ujjwala Rani & Ramavani 1989 **EUROPE** *Austria*: Voracek & Stieger 2009:387 (self-report); *Britain*: Austin et al. 2002:1119 (undergrad); J Archer et al. 1995 (undergrad); Archer et al. 1997 (young); *Finland*: Sallinen-Kuparinen et al. 1991 (undergrad); *Netherlands*: Meesters et al. 1996:842; *Spain*: Ramirez et al. 2001* (undergrad) **LATIN/CARIBBEAN AMERICA** *Argentina*: NJ Hines & Fry 1994 **MIDDLE EAST** *Turkey*: Ozener 2012:171 (self-reports, N = 470) **NORTH AMERICA** *Canada*: Russell 1981 (undergrad); AA Bailey & Hurd 2004 (undergrad, N = 149M + 149F); AA Bailey & Hurd 2005:Table 1 (undergrad); Dinsdale et al. 2011:390; *United States*: Strodtbeck & Mann 1956; Buss 1961 (undergrad); Sarason 1961 (undergrad); Fischer et al. 1969 (young, lab); Gaebelein 1977 (young, lab); Bakker et al. 1978 (undergrad, self-report); Lefkowitz et al. 1978 (undergrad); Tucker 1978 (undergrad); Finchum & Freitag 1979 (undergrad, self-report); Roloff & Greenberg 1979 (in romantic relationships, undergrad); Burgoon, Dillard & Doran 1983; Infante, Wall et al. 1984; Greenglass & Julkunen 1989; Schill et al. 1990 (undergrad); Gladue 1991a (undergrad); Gladue 1991b (undergrad); AH Buss & Perry 1992* (undergrad); MB Harris 1992b (undergrad); MS Stanford et al. 1995; LR Green et al. 1996; Bernstein & Gesn 1997 (undergrad); JA Harris 1997 (undergrad); Bushman & Anderson 1998; Manuck et al. 1998 (middle-age); Wann et al. 1999; Dahlen et al. 2004:1620 (undergrad); Chory & Cicchirillo 2007 (when playing video games); Cross & Campbell 2012 (toward the opposite sex); AS Shaw et al. 2012:783; Glascock 2014 (self-report) **NORTH AMERICA** *United States*: Rothaus & Worchel 1960 (experiment, verbal aggression, male target, N = 96, d = .48); Rothaus & Worchel 1964 (experiment); Pytkowicz et al. 1967 (experiment, verbal aggression, male target, N = 10, d = .87); Doob & Gross 1968 (experiment); DG Fischer et al. 1969 (experiment, verbal aggression, same sex target, N = 8M, d = .61); Gentry 1972 (experiment, verbal aggression, same sex target, N = 14, d = .31); Mauren 1972 (experiment); Rappaport 1972 (experimental); Unger et al. 1974 (experiment); Buvinic 1975 (experiment, verbal aggression, same-sex target, N = 48, d = .45); CW Turner et al. 1975; Atkinson & Polivy 1976 (experiment, verbal aggression,	**OVERVIEW** *Meta-Analysis*: Archer 2004 (d = .19)

				female target, N = 20); Buvinic 1976 (experiment); MB Harris 1976 (experiment, verbal aggression, female target, N = 40, d = .39); DR Richardson et al. 1994 (experiment, verbal aggression responding to insulting behavior, d = 2.03)	
Not significant			**ASIA** *Russia*: Butovskaya, Timentschik & Burkova 2007:Table 1* (self-rated, N = 101M + 111F) **EUROPE** *Finland*: Lagerspetz, Bjorquvist & Peltonen 1988 (verbal aggression, ages 11-12, N = 167); Bjorkqvist et al. 1992 **MIDDLE EAST** *Turkey*: Ulubas et al. 2018:216	**ASIA** *China*: Yang et al. 2009:53 (undergrad, N = 118M + 103F, self-report) **EUROPE** *Britain*: T Miller & Miller (experiment); *Germany*: Muller et al. 1995; *Scotland*: Edmunds 1977 (undergrad); *Spain*: Condon et al. 2006 **NORTH AMERICA** *United States*: Buss & Durkee 1957 (undergrad); L Berkowitz & Holmes 1959 (experiment); L Berkowitz 1960 (frustration experiment); Aronson & Cope 1968 (experiment); Bramel et al. 1968 (experiment); DB Leventhal et al. 1968 (undergrad); Deaux 1971 (experiment); LJ Chase & Mills 1973 (frustration experiment); MB Harris 1973 (experiment); MB Harris & Huang 1974 (experiment); GK Leak 1974 (experiment); CW Turner et al. 1975 (horn-honking, experiment); Atkinson & Polivy 1976* (young); Fisher & Harris 1976 (young, lab experiment); Harris & Klingbeil 1976 (field); Golin & Romanawski 1977 (experiment, verbal, N = 40, d = .00); Koerner 1977* (young, lab experiment); Laventure 1978 (undergrad, self-report); Staats et al. 1978; Doyle & Biaggio 1981 (undergrad); Reinisch & Sanders 1986 (undergrad); McCann et al. 1987 (undergrad); Stets 1990 (among married couples); Kopper 1993; Driscoll & Yankeelov 1995 (young); MB Harris & Knight-Bohnhoff 1996b:37 (undergrad, hypothetical scenarios); Verona 2005:427 (self-report)	**NORTH AMERICA** *United States*: Cairns et al. 1984 (4th-10th grades) **OVERVIEW** *Meta-Analysis*: Card, Stucky et al. 2008
More among females			**ASIA** *Russia*: Butovskaya et al. 2013 **NORTH AMERICA** *United States*: Zakriski et al. 2005:849* (in reaction to adult warnings); Zakriski et al. 2005:849* (in reaction to adult warnings, mean age 12.5); Zakriski et al. 2005:849* (in reaction to adult punishment)	**ASIA** *Nepal*: Mehta et al. 2014 **NORTH AMERICA** *United States*: Gentry 1972 (experiment); Zillman et al. 1981 (experiment, verbal, same-sex target, N = 72, d = .44); Worthing et al. 1973 (undergrad); Atkinson & Polivy 1976* (young, lab); Prerost 1976 (undergrad); Koerner 1977* (young, lab); Lando et al. 1977 (young, lab); Klesges et al. 1979 (undergrad); Rohsenow & Bachorowski 1984 (experiment, verbal, same-sex target, N = 47, d = .42)	

Table 17.6.2.2 Indirect (displaced) aggression (e.g., slamming doors, throwing things)

Nature of difference	*Pre-pubertal*		*Post-pubertal*		*Wide age range*
		Child	*Adolescent*	*Adult*	
More among males		**EUROPE** *Britain*: T Moore & Ucko 1961 (toward dolls); Tapper & Boulton 2000; *Finland*: Linderman, Harakka & Keltikangas-Jarvinen 1997*; *Spain*: Sanchez-Martin et al. 2010 (age 9) **NORTH AMERICA** *United States*: WC Olson 1930; Bach 1945 (toward dolls); Pintler et al. 1946 (toward dolls); PS Sears 1951 (toward dolls); Bandura et al. 1961 (toward bobo dolls)	**ASIA** *Russia*: Butovskaya, Timentschik & Burkova 2007:Table 1 (both self-rated and peer rated, N = 101M + 111F) **EUROPE** *Britain*: J Archer et al. 1995; *Finland*: Linderman, Harakka & Keltikangas-Jarvinen 1997*; *Slovak Republic*: Baumgartner 1995 **NORTH AMERICA** *United States*: PW Jackson & Lahaderne 1967; Doob & Gross 1968 (field, horn honking); Fischer et al. 1969 (young, lab); Deaux 1971 (field, horn honking); Chase & Mills 1973 (field, horn honking); TL Good et al. 1973; Harris 1973 (field); PC Lee 1973; PC Lee & Wolinsky 1973; Buvinic 1975 (young, lab); Hedrick 1977 (young, lab experiment)	**ASIA** *India*: Prasad 1980 (undergrad) **EUROPE** *Finland*: Bjorkqvist et al. 1994* (rational-appearing aggression) **MIDDLE EAST** *Turkey*: Ozener 2012:171 (self-reports, N = 470)	**NORTH AMERICA** *United States*: CW Turner et al. 1975* (aggressive horn honking)
Not significant		**INTERNATIONAL** *Multiple Countries*: Osterman et al. 1994 (multiple European and North American countries)		**ASIA** *India*: Ujjwala Rani & Ramavani 1989 **EUROPE** *Germany*: Muller 1991; Muller et al. 1995 **NORTH AMERICA** *Canada*: Russell 1981 (undergrad); *United States*: Buss & Durkee 1957 (undergrad); Buss 1961 (undergrad); Sarason 1961 (undergrad); McCann et al. 1987 (undergrad); Kopper 1993; Green et al. 1996 (undergrad); DR Richardson & Green 1999 (undergrad, 56M + 57F, self-report); Walker, Richardson & Green 2000	**OVERVIEW** *Meta-Analysis*: Card, Stucky et al. 2008

More among females		**EUROPE** *Britain*: J Archer & Westeman 1981; J Archer et al. 1988; Ahmad & Smith 1994; Archer & Parker 1994 **NORTH AMERICA** *United States*: Lagerspetz et al. 1988; Cairns et al. 1989; Bjorkqvist et al. 1992	**EUROPE** *Finland*: Bjorkqvist et al. 1992a (ages 11-15); Lagerspetz & Bjorkqvist 1994 **NORTH AMERICA** *United States*: CW Turner et al. 1975* (horn honking)	**EUROPE** *Finland*: Bjorkqvist et al. 1994* (social manipulation); *Scotland*: Edmunds 1977 (undergrad) **LATIN/CARIBBEAN AMERICA** *Argentina*: NJ Hines & Fry 1994 **NORTH AMERICA** *United States*: Guerrero & Reiter 1988:332 (undergrad; self-report of passive aggression); Guerrero 1994 (self-report of passive aggression); Guerrero & Reiter 1998 (passive aggression); NH Hess & Hagen 2006:240 (desire to aggress indirectly in response to aggression provoked stimuli, undergrad, N = 255, d = .39)	**OVERVIEW** *Literature Review*: Ahmad & Smith 1994 (especially by spreading negative rumors)

Table 17.6.2.3 Indirect verbal aggression

Nature of difference				*Post-pubertal*	
				Adult	
More among males				**NORTH AMERICA** *United States*: Am Barclay 1970 (experiment); MB Harris & Samerotte 1975 (experiment)	
Not significant				**NORTH AMERICA** *United States*: H Kaufmann & Feshbach 1963 (experiment); AM Barclay & Haber 1965; Pytkowicz et al. 1967 (experiment); AM Barclay 1969 (experiment); DG Fischer et al. 1969 (experiment)	
More among females					

not hang out with us any longer" would be indicative of relational aggression. Table 17.6.2.4 shows that roughly half of the pertinent studies have found relational aggression to be more common among females than among males. The remaining studies are roughly split evenly between those indicating that males are more involved in relational aggression or that there are no significant differences between the sexes.

17.6.2.5 Inward Aggression

Inward aggression has to do with blaming and even punishing oneself for one's misbehavior. As shown in Table 17.6.2.5, two of the three relevant studies indicated that females were more likely than males to engage in inward aggression, while the remaining study found no significant sex difference.

17.6.2.6 Aggression in Response to Observing Aggression (Modeled Aggression)

As noted earlier, most studies have found males being more physically aggressive than females under a variety of circumstances. A related issue has to do with how much witnessing aggression increases the probability of aggression by males and females. For example, are there sex differences in the effects of watching violent television programs on subsequent aggression?

To address such questions, researchers have used a variety of methods, most of which are experimental in nature. For instance, children have been randomly divided into two groups, with one group given access to a violent video game, while the other group is only allowed to play a non-violent video game. Following equal amounts of play, subjects are given opportunities to be aggressive toward other children under the watchful eyes of researchers (Cooper & Mackie 1986). To assess the effects of similar experiences by adults, researchers have sometimes used questionnaires in which aggression-provoking situations are described and subjects are asked to report their most probable responses.

Table 17.6.2.4 Relational aggression

Nature of difference	*Pre-pubertal*		*Post-pubertal*		*Wide age range*
		Child	*Adolescent*	*Adult*	
More among males		**EUROPE** *Italy*: Tomada & Schneider 1997*; *Sweden*: Salmivalli & Kaukianen 2004 **NORTH AMERICA** *United States*: Henington et al. 1998	**EUROPE** *Estonia*: Peets & Kikas 2006 (young)	**NORTH AMERICA** *United States*: Loudin et al. 2003 (undergrad); Storch et al. 2004 (undergrad, self-report); Lento-Zwolinski 2007:413 (undergrad, N = 61M + 221F, self-report)	
Not significant		**EUROPE** *Britain*: K Tapper Boulton 2004 (ages 3-6, self & peer reports); *Poland*: K Osterman et al. 1994* (peer/teacher reports); *Italy*: G Tomada & Schneider 1997* (peer/teacher reports) **NORTH AMERICA** *Canada*: Bosacki 2003:149 (age 11) **OCEANIA** *Australia*: L Owens & MacMullin 1995 (peer/teacher reports)	**NORTH AMERICA** *United States*: SA Paquette & Underwood 1999 (young)		**OVERVIEW** *Meta-Analysis*: Card, Stucky et al. 2008
More among females		**ASIA** *Russia*: CH Hart et al. 1998 **EUROPE** *Britain*: Y Ahmad & Smith 1994*; *Finland*: K Björkqvist 1992 (ages 9-11, peer & teacher reports); K Lagerspetz & Björkqvist 1994 (ages 9-11, peer & teacher reports); K Osterman et al. 1994* (peer & teacher reports) **NORTH AMERICA** *United States*: SL Foster et al. 1986 (social exclusion); K Osterman et al. 1994 (peer & teacher report); NR Crick & Grotpeter 1995 (relationally aggressive, 3rd graders, N = 491, teacher rating & self-reports); NR Crick 1996; NR Crick et al. 1996 (about age 11, peer & teacher reports); McNeilly-Choque et al. 1996; NR Crick et al. 1997; Galen & Underwood 1997; Bonica et al. 2003; A Russell et al. 2003*; Sebanc 2003; JM Ostrov et al. 2004; Ostrov & Keating 2004; JE Burr et al. 2005 **OCEANIA** *Australia*: A Russell et al. 2003*	**NORTH AMERICA** *United States*: Tomada & Schneider 1997*	**EUROPE** *Britain*: A Campbell et al. 1997 (undergrad, questionnaire); *Sweden*: Bjorkqvist et al. 1994b **NORTH AMERICA** *United States*: Werner & Crick 1999 (undergrad)	**OVERVIEW** *Generalization*: Bjorkqvist 1994:186; *Meta-Analysis*: Archer 2004 (d = .45)

Table 17.6.2.5 Inward aggression

Nature of difference	*Post-pubertal*
	Adult
More among males	
Not significant	**NORTH AMERICA** *United States*: Suarez 2006:486
More among females	**NORTH AMERICA** *United States*: JL Newman et al. 1999 (when angry); Nunn & Thomas 1999 (when angry)

Table 17.6.2.6 shows that increased aggression following vicariously observing or engaging in simulated violence has been mixed with respect to any sex differences, with some possible age-related differences. Generally, among school age children, females appear to be more likely to display aggression in response to vicarious aggressive experiences, but males may do so more in adulthood.

Table 17.6.2.6 Aggression in response to observing aggression (modeled aggression).

Nature of difference	*Pre-pubertal*	*Post-pubertal*
	Child	*Adult*
More among males		**NORTH AMERICA** *United States*: Harris & Samerotte 1975 (field); Bartholow & Anderson 2002 (undergrad, video games)
Not significant		**NORTH AMERICA** *United States*: Anderson & Dill 2000 (undergrad, video games)
More among females	**NORTH AMERICA** *United States*: Cooper & Mackie 1986 (older, video games); Silvern & Williamson 1987 (young, video games); Schutte et al. 1988 (young, video games)	

17.6.2.7 Instrumentally Motivated Aggression

Aggression that is undertaken with clear personal objectives to be achieved has been investigated in a couple of studies with respect to sex differences. As shown in Table 17.6.2.7, both studies concluded that instrumentally motivated aggression was more common in males than females.

17.6.3 Defensive/Prosocial Aggression

Aggression that has as its goal either self-defense or defense of others has sometimes received special research attention. The findings from these studies with respect to sex differences are reviewed below.

Table 17.6.2.7 Instrumentally motivated aggression

Nature of difference	*Pre-pubertal*		*Post-pubertal*	
		Child		*Adult*
More among males		**EUROPE** *Britain*: Tapper & Boulton 2000 (emotionally expressive when aggressive) **NORTH AMERICA** *United States*: J Archer & Parker 1994		**NORTH AMERICA** *United States*: A Campbell et al. 1993a
Not significant				
More among females				

17.6.3.1 Self-Defensive Aggression

Defensive aggression can be seen as differing from offensive forms of aggression. Table 17.6.3.1a shows that the available research suggests that defensive aggression is more common among males than females.

Table 17.6.3.1a Self-defensive aggression

Nature of difference					*Wide age range*
More among males					**NORTH AMERICA** *United States*: Harned 2001 (56%M vs 42%F)
Not significant					
More among females					

Non-human animal studies of defensive aggression among males and females are numerous. In Table 17.6.3.1b, one can see that these studies have reached very mixed conclusions regarding any sex differences.

17.6.3.2 Aggression in Defense of Others

Aggression that defends others, such as mates or offspring, has been studied among various species regarding possible sex differences in such aggression. As one can see in Table 17.6.3.2, findings have reached inconsistent conclusions.

17.7 Sexuality and Pair Bonding

While they are certainly interrelated phenomena, sexuality and pair bonding can be distinguished in terms of their duration and relationship

Table 17.6.3.1b Aggression in self-defense or territorial defense among non-humans

Nature of difference	*Pre-pubertal*		*Post-pubertal*		*Wide age range*
		Child	*Adolescent*	*Adult*	
More among males			**RODENT** *Ground Squirrel*: CL Arenz & Leger 1997 (field)	**AMPHIBIAN** *Salamander*: EB Wiltenmuth 1996 (more likely to attack intruders) **PRIMATE** *Macaque*: M Cooper & Berstein 2000 (counter-attack); *White-Fronted Capuchin Monkey*: L Gould et al. 1997 (field) **RODENT** *Prairie Vole*: Bales & Carter 2003:Figure 1 (N = 20M + 20F)	**PRIMATE** *Macaque*: M Cooper & Bernstein 2000 (especially if initiator was female)
Not significant		**RODENT** *Ground Squirrel*: CL Arenz & Leger 1997* (field)	**CRUSTACEAN** *Red Swamp Crayfish*: MH Figler et al. 1999 (territory holders of either sex are equally likely to attack intruders) **RODENT** *Ground Squirrel*: CL Arenz & Leger 1997* (field)	**CRUSTACEAN** *Hermit Crab*: MD Absher et al. 2001 (in competition for gaining access to a new shell for latency to attack or duration of fights) **PRIMATE** *Ring-Tailed Lemur*: L Gould 1996 (field); L Gould et al. 1997 (field) **RODENT** *Ground Squirrel*: CL Arenz & Leger 1997* (field)	
More among females				**CRUSTACEAN** *Snapping Shrimp*: M Hughes 1996 (respond to intruders of any size) **RODENT** *Golden Hamster*: DM Marques et al. 1977 (with territories more likely to initiate attacks sooner and with greater intensity when confronted with an intruder); *Rat*: RJ Blanchard et al. 1993 (defensive when threatened)	

Table 17.6.3.2 Aggression in defense of others among non-humans

Nature of difference	*Pre-pubertal*		*Post-pubertal*		*Wide age range*
		Child	*Adolescent*	*Adult*	
More among males				**PRIMATE** *White-Fronted Capuchin Monkey*: L Gould et al. 1997 (field)	**PRIMATE** *Chacma Baboon*: WJ Hamilton et al. 1975; *Chimpanzee*: J Goodall 1968a; J Goodall 1968b
Not significant		**RODENT** *Ground Squirrel*: CL Arenz & Leger 1997* (field)	**RODENT** *Ground Squirrel*: CL Arenz & Leger 1997* (field)	**PRIMATE** *Ring-Tailed Lemur*: L Gould 1996 (field); L Gould et al. 1997 (field) **RODENT** *Ground Squirrel*: CL Arenz & Leger 1997* (field)	
More among females					**PRIMATE** *Rhesus Macaque*: JR Kaplan et al. 1987:293 (defense of relatives); IS Bernstein & Ehardt 1985:49 (defense of relatives)

to reproduction. Whereas *sexuality* refers to the activities that are essential to producing new offspring, *pair bonding* refers to the formation of relatively long-term emotional commitments and cooperation between sex partners, often for the purpose of jointly rearing offspring. Studies of sex differences in both of these reproduction-related activities are reviewed below.

17.7.1 Sexual Behavior Initiation

Sexual behavior is difficult to precisely define but generally involves the events leading up to and including copulation. The many studies of sex differences in such behavior are reviewed in the following tables.

17.7.1.1 Masturbation

Masturbation refers to engaging in self-stimulation of the genitals, often to the point of reaching orgasm. One can see in Table 17.7.1.1a that nearly all of a multitude of studies have concluded that males are more likely than females to masturbate.

Table 17.7.1.1a Masturbation

Nature of difference	*Pre-pubertal*		*Post-pubertal*		*Wide age range*
		Child	*Adolescent*	*Adult*	
More among males		**NORTH AMERICA** *United States*: Hattwick 1937:347; Elias & Gebhard 1969	**ASIA** *China*: Liu et al. 1997 (18%M vs. 12% F); *India*: Tikoo 1997 **EUROPE** *Germany*: Sigusch & Schmidt 1973; *Sweden*: Lewin & Helmius 1983; Lewin & Helmius 1986 **NORTH AMERICA** *United States*: DG Brown & Lynn 1966; Hunt 1974*; Leitenberg et al. 1993*; DA Rosenthal & Smith 1997; Astle, Leonhardt & Willoghby 2020:Table 3 (ages 18-19, N = 2,556)	**ASIA** *China*: DW Chan 1990 (young, Hong Kong); Tang et al. 1997:87 (undergrad); Cui & Liang 2001 (undergrad, 53%M vs. 17%F); *Japan*: Asayama 1975 **EUROPE** *Denmark*: Hald 2006:Table 2 (ages 18-30, N = 316M + 375F); *Iceland*: Ragnarsdottir 2020 (undergrad, N = 126M + 119F); *Sweden*: Bergstrom-Walan & Nielson 1990 (elderly); Weinberg et al. 1995* (undergrad); Driemeyer, Janssen et al. 2016 (ages 18-22, 1,452M + 1,566F); *Multiple European Countries*: Fischer, Graham et al. 2021 (elderly) **LATIN/CARIBBEAN AMERICA** *Colombia*: Alzate 1989 (young) **MIDDLE EAST** *Turkey*: Aras, Orcin et al. 2007 (undergrad, ages 20-25, 93.9%M vs. 19.8%F) **NORTH AMERICA** *Canada*: Meston et al. 1996 (young); *United States*: Arafat & Cotton 1974 (undergrad); M Hunt 1974; WR Miller & Lief 1976 (undergrad); Mosher & Abramson 1977 (undergrad); Abramson & Mosher 1979; Cowart & Pollack 1979 (young); MD Story 1982 (young); CG Adams & Turner 1985* (excluding elderly); Atwood & Gagnon 1987 (young); DeLamater 1987; JC Jones & Barlow 1990 (undergrad); JC Jones & Barlow 1990; Leitenberg, Detzer & Srebnik 1993 (young); Laumann et al. 1994; Mosher & Maclan 1994:108 (undergrad); Briton & Hall 1995; Weinberg et al. 1995 (undergrad); Heaven & McBrayer 2000 (undergrad); Chivers & Bailey 2005:116	**EUROPE** *Germany*: Clement et al. 1984:106; *Multiple Countries*: Sandfort et al. 1998:152 **NORTH AMERICA** *United States*: Kinsey et al. 1953; Gebhard & Johnson 1979:261; Laumann et al. 1994:85* **OVERVIEW** *Meta-Analysis*: Oliver & Hyde 1993 (36 studies, d = .96); JL Petersen & Hyde 2010:28 (N = 682,863M + 736,944F)
Not significant				**NORTH AMERICA** *United States*: CG Adams & Turner 1985* (elderly)	
More among females					

A few studies of masturbation among non-humans were located. Table 17.7.1.1b indicates that males are more likely the females to engage in this behavior.

Table 17.7.1.1b Masturbation among non-humans

Nature of difference			*Post-pubertal*		*Wide age range*
			Adolescent	*Adult*	
More among males			**PRIMATE** *Stumptail Macaque*: Nieuwenhuijsen et al. 1988a:261*	**PRIMATE** *Stumptail Macaque*: Nieuwenhuijsen et al. 1988a:261*	**FELINE** *Domestic Cat*: Rosenblatt & Schneirla 1962 **PRIMATE** *Rhesus Macaque*: Carpenter 1942; Nieuwenhuijsen et al. 1988c:369
Not significant					
More among females					

17.7.1.2 Amount of Sexual Behavior in General

Table 17.7.1.2 shows that two studies were located regarding estimates of sex differences in overall sexual activity. One can see that both studies concluded that males were more sexually active than females.

Table 17.7.1.2 Amount of sexual behavior in general

Nature of difference				*Post-pubertal*	
				Adult	
More among males				**NORTH AMERICA** *United States*: KA Dawson et al. 2007; Lindau et al. 2007 (ages 75-85, sex with a partner)	
Not significant					
More among females					

17.7.1.3 Flirting

Sex differences in flirting behavior have been assessed in a few studies. As shown in Table 17.7.1.3, all the evidence points toward this behavior being more prevalent among females than among males.

Table 17.7.1.3 Flirting

Nature of difference	*Pre-pubertal*		*Post-pubertal*		
		Child		*Adult*	
More among males					
Not significant					
More among females		**EUROPE** *Finland*: NK Sandnabba et al. 2003		**NORTH AMERICA** *United States*: Cartwright 1972:215 (self-assessed, among medical students); Rowland et al. 1982 (undergrad, with instructors, self-report)	

17.7.1.4 Competing for Mates

Studies of sex differences in competition for mates were located for several species of birds (especially those that are polyandrous) and two studies of fish. As one can see in Table 17.7.1.4, in these species of animals, females appear to spent more time and energy competing for mates than was the case for males.

Table 17.7.1.4 Competing for mates among non-humans

Nature of difference			*Post-pubertal*		
				Adult	
More among males					
Not significant					
More among females				**BIRDS** *Black Coucal*: Goymann et al. 2004; *Various Polyandrous Species*: Eens & Pinxten 2000 **FISH** *Pipe Fish*: Berglund et al. 2001; Berglund et al. 2005	

17.7.1.5 Initiation of Dating

Taking the initiative in asking a member of the opposite sex for a date (often the beginning of a romantic relationship) has been the subject of scientific investigation only to a limited extent. Table 17.7.1.5 shows that the research indicates that males are more likely than females to take the initiative.

17.7.1.6 Age of First Dating Experience

The two studies located regarding sex differences in the age at which one goes on his or her first date. As shown in Table 17.7.1.6, the findings are not consistent.

Table 17.7.1.5 Initiation of dating

Nature of difference			*Post-pubertal*	*Wide age range*
			Adult	
More among males			**NORTH AMERICA** *United States*: Himadi et al. 1980	**NORTH AMERICA** *United States*: BL Bailey 1988; Cate & Lloyd 1992
Not significant				
More among females				

Table 17.7.1.6 Age of first dating experience

Nature of difference			*Post-pubertal*	
			Adolescent	
Males older			**NORTH AMERICA** *United States*: PC Regan et al. 2004	
Not significant				
Females older			**NORTH AMERICA** *United States*: D Offer 1969:80	

17.7.1.7 Amount of Dating

Table 17.7.1.7 shows that just one study was located on any sex differences in the amount of dating one engages in. It concluded that females reported dating more frequently than do males, at least during adolescence.

Table 17.7.1.7 Amount of dating

Nature of difference			*Post-pubertal*	
			Adolescent	
More among males				
Not significant				
More among females			**NORTH AMERICA** *United States*: Marini 1978:494	

17.7.1.8 Emphasizing One's Physical Attractiveness to Prospective Mates

Two studies compared the personal ads (sometimes called "lonely heart ads") in order to assess sex differences in the tendency to draw attention to one's physical attractiveness. In Table 17.7.1.8, one can see that both studies indicated that females did so more than males.

Table 17.7.1.8 Emphasizing one's physical attractiveness to prospective mates

Nature of difference	*Post-pubertal*
	Adult
More among males	
Not significant	
More among females	**NORTH AMERICA** *United States*: Greenlees & McGrew 1994 (in dating ads); Russock 2011 (in personal ads)

17.7.1.9 Emphasizing One's Social Status Traits to Prospective Mates

In some dating (or lonely heart) ads, individuals emphasize (or at least mention) traits having to do with social status (or social status potential) such as earnings. As shown in Table 17.7.1.9, one study indicated that males did so more than did females.

Table 17.7.1.9 Emphasizing one's social status traits to prospective mates

Nature of difference	*Post-pubertal*
	Adult
More among males	
Not significant	
More among females	**NORTH AMERICA** *United States*: Greenlees & McGrew 1994 (in dating ads)

17.7.1.10 Genital Self-Inspection or Self-Touching

The extent to which individuals inspect or touch their own genitals has been investigated by one study. As shown in Table 17.7.1.10a, it indicated that this behavior is more common among males than among females.

Table 17.7.1.10a Genital self-inspection or self-touching

Nature of difference	*Pre-pubertal*
	Infant/toddler
More among males	**NORTH AMERICA** *United States*: Hattwick 1937 (touching crotch area)
Not significant	
More among females	

Three studies of genital self-inspection or touching were conducted among non-humans regarding sex differences. Table 17.7.1.10b shows that all three studies concluded that this behavior was more frequent among males than females.

Table 17.7.1.10b Genital self-inspection or self-touching among non-humans

Nature of difference	*Pre-pubertal*				
	Infant/toddler				
More among males	**PRIMATE** *Rhesus Macaques*: Goy et al. 1988 (neonate) **RODENT** *Rat*: Moore & Morelli 1979; Melniczek & Ward 1994				
Not significant					
More among females					

17.7.1.11 Initiating, or Attempting to Initiate, Sexual Intimacy

Substantial research has compared males and females regarding the initiation of sexual intimacy, usually in the form of sexual petting. As one can see in Table 17.7.1.11, all but a couple of studies have concluded that males surpass females in making attempts to initiate sexual intimacy with the opposite sex.

17.7.1.12 Initiating Unwelcomed/Unwanted Sexual Behavior

Three studies of sex differences in initiating sexual advances that are unwelcomed by the recipient. As shown in Table 17.7.1.12, all three studies concluded that males are more likely than females to initiate such advances. The table following this one pertains to even more assertive forms of unwanted sexual overtures.

17.7.1.13 Pushy/Assertive Sexual Overtures

Research findings regarding sex differences in the making of persistent pushy forms of sexual advances are presented in Table 17.7.1.13. One can see that, with the exception of one study of adolescents, all findings agree that males are more likely than females to make pushy and assertive sexual overtures toward others (usually members of the opposite sex). Additional information of this nature is contained in Chapter 19 having to do with sexual assault and rape.

Table 17.7.1.11 Initiating, or attempting to initiate, sexual intimacy

Nature of difference			*Post-pubertal*		*Wide age range*
			Adolescent	*Adult*	
More among males			**ASIA** *China*: Lam et al. 2002 (Hong Kong); *Malaysia*: Zulkifli et al. 1995 **NORTH AMERICA** *United States*: Santelli et al. 2004:204 (initiate sex earlier)	**NORTH AMERICA** *United States*: J Carlson 1976 (in marriage); McCormick 1979 (young); Peplau et al. 1977 (young); LaPlante et al. 1980 (undergrad); M Brown & Auerback 1981 (married couples); Blumstein & Schwartz 1983 (married couples); Grauerholz & Serpe 1985; Byers & Heinlein 1989* (married couples); Byers & Heinlein 1989 (married & cohabitating couples); RD Clark & Hatfield 1989; Huang & Uba 1992 (undergrad, ethnic Chinese students); MN LaPlante et al. 1992 (undergrad); O'Sullivan & Byers 1992 (undergrad, dating couples); Lottes 1993; O'Sullivan & Byers 1993; Bartling & Eisenman 1994:73; Lippa & Arad 1997:196 (undergrad); O'Sullivan & Allgeier 1998 (undergrad, dating couples); Hogben & Waterman 2000; Zurbriggen 2000; Struckman-Johnson et al. 2003 (coercive); McClintock 2011 (females seek to delay sex longer)	**NORTH AMERICA** *United States*: Byers & Heinlein 1989 (cohabitating couples); Herold & Mewhinney 1993 (with someone they met on the same day); Laumann et al. 1994:239 (petting behavior)
Not significant				**NORTH AMERICA** *Canada*: Meston et al. 1996 (undergrad)	
More among females				**EUROPE** *Norway*: Kennair et al. 2009:Figure 4 (undergrad)	

Table 17.7.1.12 Initiating unwelcomed/unwanted sexual behavior

Nature of difference				*Post-pubertal*	
				Adult	
More among males				**NORTH AMERICA** *United States*: Lott et al. 1982; Baier et al. 1991 (undergrad); P Anderson & Aymami 1993 (undergrad)	
Not significant					
More among females					

Table 17.7.1.13 Pushy/assertive sexual overtures

Nature of difference			*Post-pubertal*		
			Adolescent	*Adult*	
More among males			**NORTH AMERICA** *Canada*: Poitras & Lavoie 1995	**NORTH AMERICA** *United States*: Sigelman et al. 1984:538 (undergrad, dating couples); Grauerholz & Serpe 1985; K Lane & Gwartney-Gibbs 1985 (undergrad); P Burke et al. 1988 (undergrad); Byers & Heinlein 1989 (among married & cohabitating couples); Baier et al. 1991 (undergrad); Sorenson & Siegel 1992; P Anderson & Aymami 1993 (undergrad, using drugs or alcohol to initiate sex); Laumann et al. 1994:335; Hogben et al. 1996; Tjaden & Thoennes 1996 (aggressive)	
Not significant			**NORTH AMERICA** *United States*: Chadwick & Top 1993:62		
More among females					

17.7.1.14 Mounting and Genital Thrusting

Several studies have compared the sexes regarding tendencies to mount or engage in genital thrusting toward a conspecific among non-human animals. Table 17.7.1.14 shows that all of these studies have concluded that males are more likely than females to exhibit such behaviors.

17.7.1.15 Lordosis and Sexual Receptivity

Lordosis refers to a sexually receptive posture in which an individual's rear is elevated; it is especially common among rodents. As shown in Table 17.7.1.15, one study concluded that this posture is exhibited more by females than by males.

Table 17.7.1.14 Mounting and genital thrusting among non-humans

Nature of difference	*Pre-pubertal*		*Post-pubertal*		*Wide age range*
	Infant/toddler	*Child*	*Adolescent*	*Adult*	
More among males	**PRIMATE** *Blue Monkey*: Forster & Cords 2005 (toddler); *Japanese Macaque*: GG Eaton et al. 1985:242*; *Rhesus Macaque*: Hinde & Spencer-Booth 1967 (toddler); Goldfoot & Wallen 1978 (toddler); GR Brown & Dixson 2000 (toddler, N = 14M + 20F)	**CANINE** *Dog*: FA Beach et al. 1968 **PRIMATE** *Japanese Macaque*: Eaton et al. 1985*	**PRIMATE** *Rhesus Macaque*: IS Bernstein et al. 1993:208 **UNGULATE** *Lamb*: Sachs & Harris 1978	**BIRD** *Zebra Finch*: Adkins-Regan et al. 1996	**PRIMATE** *Japanese Macaque*: Vasey et al. 2006 (both same-sex and opposite sex mountings); *Rhesus Macaque*: Michael & Saayman 1967
Not significant					
More among females					

Table 17.7.1.15 Lordosis and sexual receptivity among non-humans

Nature of difference					*Wide age range*
More among males					
Not significant					
More among females					**RODENT** *Rat*: Pfaff 1980

17.7.1.16 Oral Sex

Research undertaken to assess sex differences in either performing or receiving oral sex is summarized in Table 17.7.1.16. One can see that two studies concluded that this activity was more common among males, while the remaining study reported no significant sex difference.

Table 17.7.1.16 Oral sex

Nature of difference			*Post-pubertal*		
			Adolescent		
More among males			**NORTH AMERICA** *Canada*: Fischtein et al. 2007:456 (both performing and receiving); *United States*: Newcomer & Udry 1985:43 (53%M vs. 42%F, giving, receiving or both)		
Not significant			**NORTH AMERICA** *United States*: Halpern-Felsher et al. 2005:847 (premarital, N = 43M + 69F)		
More among females					

17.7.1.17 Orgasm Frequency

Sex differences in orgasm frequency has been reported in at least three studies. In Table 17.7.1.17, one can see that all of these studies indicated that males are more likely than females to experience orgasm.

17.7.1.18 Sexual Vocalization

A few studies of sex differences in sexual vocalizations among frogs have been reported. Table 17.7.1.18 shows that all of these studies have indicated that males emit these vocalizations more than do females.

Table 17.7.1.17 Orgasm frequency

Nature of difference			*Post-pubertal*		
				Adult	
More among males				**NORTH AMERICA** *United States*: Kinsey et al. 1953:392 (during sexual intercourse & masturbation); WH Masters & Johnson 1966; Vance 1976; EA Armstrong et al. 2009	
Not significant					
More among females					

Table 17.7.1.18 Sexual vocalization among non-humans

Nature of difference					*Wide age range*
More among males					**AMPHIBIAN** *Frog*: R Schmidt 1976 (mate calling); Wetzel & Kelley 1983 (mate calling); Wetzel et al. 1985 (mate calling); D Kelley 1986 (mate calling)
Not significant					
More among females					

17.7.1.19 Premarital Sexual Intercourse

Among humans, information regarding sexual intercourse is derived from self-reports, and is therefore subject to being either exaggerated or understated. These possibilities are particularly salient to research on heterosexual sexual relationships because logically speaking, there are no sex difference in the incidence of sexual intercourse. Nevertheless, as shown in Table 17.7.1.19, most studies throughout the world have found males report having had sexual intercourse more than is true for females.

Some studies have been undertaken to determine why such a sex difference would exist. One of the most elaborate and innovative involved the use of a research strategy known as the *bogus pipeline*, a method that leads subjects to believe that any deception on their part will be detected by a sophisticated type of "lie detector" (MG Alexander & Fisher 2003). This study revealed that males and females who were tested under bogus pipeline conditions reported almost identical numbers (~4) of premarital sex partners. However, under standard test conditions (in which no efforts were taken to assure honesty), the number of sex partners reported by males was unchanged (~4), but those reported by females were substantially lower (~2). This suggests that, in fact, few if any sex differences in numbers of sex partners exist, and that females are less likely than males to fully report the number of sex partners they have had.

Table 17.7.1.19 Premarital sexual intercourse

Nature of difference			*Post-pubertal*		*Wide age range*
			Adolescent	*Adult*	
More among males			**AFRICA** *Botswana*: Meekers & Ahmed 2000; *Kenya*: Ajayi et al. 1991; *Nigeria*: Orubuloye et al. 1991 **ASIA** *China*: Family Planning Association of Hong Kong 1994; Lam et al. 2002; *Malaysia*: Zulkifli et al. 1995; *South Korea*: Youn 1996 **EUROPE** *Britain*: Schofield 1965 (self-report); *Norway*: Traeen & Kvalem 1996*; *Scotland*: Wight et al. 2000 (young); *Slovenia*: Pinter & Tomori 2000; Petel, Geckova et al. 2012:1124 (9th graders, 15.3%M vs. 10.4%F, N = 3,674) **LATIN/CARIBBEAN AMERICA** *Guatemala*: Berganza et al. 1989 **MIDDLE EAST** *Israel*: Tamir & Epstein 1982; Harel & Kanny 1997 **NORTH AMERICA** *United States*: RC Sorensen 1973; Vener & Stewart 1974; Hopkins 1977; Zelnik & Kantner 1980; Newcomer & Udry 1985:43 (50%M vs. 37%F); Brooks-Gunn & Furstenberg 1989 (by age 16); Sonnenstein et al. 1991; EW Young et al. 1991:981* (whites); RW Blum et al. 1992 (Native Americans); NM Morris 1992:174; Arnett & Jensen 1994:9*; Dolcini & Adler 1994:500; Alan Guttmacher Institute 1994; Liebowitz et al. 1999:474 (among Mexican Americans); Paikoff et al. 2000 (young); Centers for Disease Control 2004; Loewenson et al. 2004:210 (high school) **OCEANIA** *Philippines*: Upadhyay & Hindin 2006:573; Upadhy et al. 2006:114	**ASIA** *China*: Family Planning Association of Hong Kong 1987; Chan 1990 (medical students); Pan 1993; Tang et al. 1997 (undergrad); Zhang et al. 1999 (undergrad, 13%M vs. 6%F); Huang et al. 2005 (undergrad, 12%M vs. 3%F) **EUROPE** *Germany*: Clement et al. 1984:112 (young); G Schmidt et al. 1994; *Norway*: Traeen & Kvalem 1996* **MIDDLE EAST** *Turkey*: Ulu & Ugurlu 1999 (undergrad); Aras, Orcin et al. 2007 (undergrad, ages 20-25, 61.2%M vs. 18.3% F); Golbasi, Erenel & Tugut 2012 (undergrad); Schuster, Krahe & Toplu-Demirtas 2016:Table 4 (undergrad) **NORTH AMERICA** *Canada*: Meston et al. 1996; *United States*: Faulkner & De Jong 1966:41 (young); Bauman & Wilson 1974* (undergrad, in 1968); M Hunt 1974 (ages 18-24); WC Wilson 1975 (by age 21); De Lamater & MacCorquodale 1979; Murstein & Holden 1979:625; Zelnik & Kantner 1980 (young); Blumstein & Schwartz 1983 (homosexuals); T Smith 1991; Herold & Mewhinney 1993; Weinberg et al. 1995:421* (undergrad); DF Perkins et al. 1998 (undergrad); NR Brown & Sinclair 1999 (males report more sex partners); CA Hill 2002 (casual sex); A Walsh & Walsh 2002:214 (undergrad); MG Alexander & Fisher 2003* (undergrad, non-bogus pipeline	**AFRICA** *Uganda*: Schopper et al. 1993; *Guinea*: Gorgen et al. 1998:66 **EUROPE** *Britain*: AM Johnson et al. 1990; *Norway*: Sundet et al. 1988; Sundet et al. 1989 **NORTH AMERICA** *Canada*: Ornstein 1989; *United States*: Terman 1938 (married couples); HJ Locke 1951 (married couples); Hunt 1974; DeLameter & MacCorquodale 1979:58*; Klassen et al. 1989; May et al. 1989; Laumann et al. 1994; Brewer et al. 2000 **INTERNATIONAL** *Multiple Countries*: TW Smith 1992 (4/4 countries) **OVERVIEW** *Meta-Analysis*: Oliver & Hyde 1993

(*Continued*)

Table 17.7.1.19 (Continued)

Nature of difference			*Post-pubertal*		*Wide age range*
			Adolescent	*Adult*	
			INTERNATIONAL *Multiple Countries*: Godeau et al. 2008* (21/24 countries)	testing conditions); PC Regan et al. 2004:671 (undergrad)	
Not significant			**ASIA** *China*: WCW Wong et al. 2004 **EUROPE** *Denmark*: Arnett & Jensen 1994:9* **NORTH AMERICA** *United States*: PY Miller & Simon 1974 (age 17); DS Moore & Erickson 1985; Brooks-Gunn & Furstenberg 1989; EW Young et al. 1991:981* (blacks); Halpern-Felsher et al. 2005:847 (N = 43M + 69F); Giordano et al. 2006:269 (30%M vs. 27%F) **INTERNATIONAL** *Multiple Countries*: Godeau et al. 2008* (3/24 countries)	**EUROPE** *Norway*: Kennair et al. 2009:Figure 6 (undergrad, one-night stands); *Sweden*: Weinberg et al. 1995:421* (oral sex) **NORTH AMERICA** *Canada*: Meston et al. 1996 (young); Maticka-Tyndale et al. 1998 (undergrad, spring breakers); *United States*: Bauman & Wilson 1974* (undergrad, in 1972); Jessor & Jessor 1974 (undergrad); DeLamater & MacCorquodale 1979* (oral sex); ES Person et al. 1989 (young); Lottes 1993 (oral sex); Hsu et al. 1994:107 (young); Weinberg et al. 1995:421* (oral sex); MG Alexander & Fisher 2003* (undergrad, bogus pipeline testing conditions); Finer 2007:76 (by age 20)	**EUROPE** *Sweden*: Haggstrom-Nordin et al. 2002:291 (Sweden, adol)
More among females			**AFRICA** *Liberia*: D Nichols et al. 1987:173 **EUROPE** *Germany*: Schlaegel et al. 1975 (self-report); Krahe 2000:273 (by age 17); *Sweden*: Hammaren & Johansson 2001:Table 10 (N = 1,331) **NORTH AMERICA** *United States*: Jessor & Jessor 1975 (10th graders); DM Siegel et al. 1998; Upchurch et al. 2002	**EUROPE** *Sweden*: Weinberg et al. 1995:421* (undergrad); Driemeyer, Janssen et al. 2016 (ages 18-22, 1,452M + 1,566F) **NORTH AMERICA** *United States*: Abma et al. 2005:18 (by age 19)	

17.7.1.20 Relationship between Premarital Sex and Unstable Family Background

Considerable research has indicated that premarital sex is more common among individuals reared in unstable families, i.e., in families where the parents have divorced or in which poor relationships are common (Fagan & Churchill 2012). Several studies have sought to determine if there is a sex difference in the relationship between offspring engaging in premarital sex, especially early in life, and family stability. As shown in Table 17.7.1.20, all of these studies have concluded that the relationships are stronger for females than for males.

Table 17.7.1.20 Relationship between premarital sex and unstable family background

Nature of difference					*Wide age range*
Stronger for males					
Not significant					
Stronger for females					**LATIN/CARIBBEAN AMERICA** *Chile*: NJ Murray & Zabin 1998; *Nicaragua*: Rani et al. 2003 **NORTH AMERICA** *United States*: Upchurch et al. 1998; Mensch et al. 2001 **OCEANIA** *Philippines*: Upadhyay & Hindin 2006; Upadhyay & Hindin 2007:180 **INTERNATIONAL** *Multiple Countries*: Singh et al. 2000

17.7.1.21 Age of First Sexual Intercourse

Numerous studies have asked research participants who were sexually experienced the age at which they had their first sexual encounter. As shown in Table 17.7.1.21a, the findings have been mixed, with most of the differences associated with the age when participants provided research information. Basically, when information was obtained from adolescents (typically high school students), sex differences regarding the age when sex first occurred is not consistent. However, the findings for adults (typically college students) generally suggest that males have their first sexual experience at a younger average age than is true for females.

A few studies of non-humans have also managed to assess the average age of first sexual intercourse among three different species of birds and one species of primates. The findings are summarized in Table 17.7.1.21b. One can see that no significant sex difference was found for one bird species, but for the other two avian species and the one primate species, females were younger than males of their species at their first sexual encounter.

Table 17.7.1.21a Age of first sexual intercourse

Nature of difference			*Post-pubertal*		*Wide age range*
			Adolescent	*Adult*	
Earlier age for males			**AFRICA** *Botswana*: Meekers & Ahmed 2000 **ASIA** *Malaysia*: Zulkifli & Low 2000; *Thailand*: Isarabhakdi 1999 **EUROPE** *Sweden*: H Zetterberg 1969* **NORTH AMERICA** *United States*: Lewis 1973; Verner & Stewart 1974; Mott & Haurin 1988; Brooks-Gunn & Furstenberg 1989; De Gaston, Weed & Jensen 1996 (N = 1,800) **OCEANIA** *Philippines*: Raymundo et al. 1999; Raymindo & Cruz 2004; Upadhyay & Hindin 2007:180	**AFRICA** *Guinea*: Gorgen et al. 1998 (young) **ASIA** *China*: Tang et al. 1997 (undergrad); *Japan*: Asayama 1975 (undergrad); *Thailand*: Caral 1995* (young) **EUROPE** *Multiple European Countries*: Bozon & Kontula 1998* (young) **LATIN/CARIBBEAN AMERICA** *Brazil*: Caral 1995* (young, Rio de Janeiro) **NORTH AMERICA** *Canada*: Fischtein et al. 2007:456 (N = 1,479, means: 17.69M vs. 18.73F); *United States*: WC Wilson 1975; DeLamater & MacCorquodale 1979; Phillips & Gromko 1985; Earle & Perricone 1986 (undergrad); Darling & Davidson 1987 (undergrad); Reiss 1990; MG Alexander & Fischer 2003:32* (anonymous self-report) **OCEANIA** *New Zealand*: Gavey 1991 (undergrad); *Philippines*: Caral 1995* (young, Manila) **INTERNATIONAL** *Multiple Countries*: McCauley & Salter 1995 (young); Wellings & Mitchell 1998:83	**INTERNATIONAL** *Multiple Countries*: T Smith 1992 **OVERVIEW** *Meta-Analysis*: Oliver & Hyde 1993 (d = .38); Wells & Twenge 2005:254 (1950-1999, age for both decreasing over time)
Not significant			**EUROPE** *Norway*: Engen & Walloe 1978*	**EUROPE** *Britain*: LT Higgins et al. 2002:87 (undergrad); *Sweden*: Weinberg et al. 1995* (undergrad) **NORTH AMERICA** *Canada*: Maticka-Tyndale et al. 2000 (both 17 as median age); *United States*: Reinisch et al. 1992 (undergrad); Lottes 1993 (undergrad); Weinberg et al. 1995:421* (undergrad); MG Alexander & Fischer 2003:32* (bogus pipeline self-report)	**EUROPE** *Britain*: M Johnson et al. 1994; Wellings & Field 1996; *Sweden*: Kosunen et al. 1993; Edgardh et al. 1999

Earlier age for females			**EUROPE** *Finland*: Kosunen et al. 1998; Kaltiala-Heino et al. 2003:537; *Norway*: Thorsen Bloch & Skjeldestad 1982; EF Jones et al. 1985; BO Eriksen et al. 1988; Pedersen 1988; Kraft et al. 1990; JM Sundet et al. 1990; P Kraft 1991:208; Sundet et al. 1992:247; *Sweden*: H Zetterberg 1969*; B Lewin 1982 **NORTH AMERICA** *United States*: Christensen & Gregg 1970; Schmidt & Sigusch 1972	**EUROPE** *Germany*: Clement et al. 1984; *Norway*: Engen & Walloe 1978* (undergrad); Noack & Ostby 1981 (young); Sundet et al. 1992*	

Table 17.7.1.21b Age of first sexual intercourse among non-humans

Nature of difference			*Post-pubertal*		*Wide age range*
			Adolescent		
Earlier age for males					
Not significant					**BIRD** *Cassin's Auklet*: Pyle 2001
Earlier age for females			**PRIMATE** *Stumptail Macaque*: Nieuwenhuijsen et al. 1988		**BIRD** *Adelie Penguin*: Ainley et al. 1983; *Thick-Billed Murre*: Gaston et al. 1994

17.7.1.22 Non-sexual Reasons for Having Sexual Intercourse

For both sexes, sexual intercourse tends to be highly pleasurable, therefore providing an obvious explanation for such behavior. However, there are other reasons for such activity, such as desiring to please one's partner or to solidify a relationship. As shown in Table 17.7.1.22, two studies have indicated that females are more likely than males to give these non-sexual reasons for engaging in sexual intercourse.

Table 17.7.1.22 Non-sexual reasons for having sexual intercourse

Nature of difference			*Post-pubertal*		
				Adult	
More by males					
Not significant					
More by females				**NORTH AMERICA** *United States*: Hill 2002; Impell & Peplau 2002	

17.7.1.23 Relationship between Premarital Sex and Athletic Participation

One study was located pertaining to the possible correlation between having premarital sex and participating in athletics. As shown in Table 17.7.1.23, the study found that being involved in athletics was positively correlated with premarital sex among males but actually negatively correlated among females.

17.7.1.24 Number of Sex Partners

The only way to obtain a reasonable estimate of the number of sex partners that people have had involves asking them (normally on

Table 17.7.1.23 Relationship between premarital sex and athletic participation

Nature of difference			*Post-pubertal*		
			Adolescent		
Positive for males			**NORTH AMERICA** *United States*: KE Miller et al. 2002 (in fact negative for females)		
Not significant					
Positive for females					

anonymous questionnaires) (Shrier et al. 1996:378). To assess the accuracy of these self-reports, a few studies have surveyed the same people two or more times. These studies have revealed that there is a general tendency to under-report the number of partners one has had, especially by females (Gold 1970; Alexander & Fisher 2003), but that there is a tendency for at least a small proportion of males to exaggerate (Clark & Tifft 1966). Nonetheless, the answers given by most subjects appear to be accurate (Rodgers et al. 1982; Kahn et al. 1988). Obviously, the number of heterosexual partners each sex has had should be equal (Phillis & Gromko 1985).

As noted above regarding questions about either having had or not having had premarital sex, responses about the actual *number* of sex partners can also be over or under reported. Studies of possible sex differences in this regard have indicated that the main tendency is for females to under-report the number of sex partners they have had (Alexander & Fisher 2003; Jonason & Fisher 2009). When experimental measures have been used to minimize under-reporting – such as the bogus pipeline method (Tourangeau et al. 1997) – studies find a substantial reduction in the sex differences, sometimes even eliminating the sex differences entirely (Alexander & Fisher 2003:32).

Table 17.7.1.24a summarizes the findings of research on self-reported number of sex partners and gender. It shows that in most countries, males report having had more sex partners than is true for females. Nonetheless, there are several exceptions, both in terms of females reporting more partners and especially in studies finding no significant differences.

In the case of non-humans, a small number of studies of sex differences in number of sex partners were located, only two of which pertained to mammals. As shown in Table 17.7.1.24b, the two studies of mammals (both ground squirrels) concluded that males had more sex partners than did females. However, in the case of birds and insects, the opposite pattern was found.

Table 17.7.1.24a Number of sex partners

Nature of difference			*Post-pubertal*		*Wide age range*
			Adolescent	*Adult*	
More among males			**AFRICA** *Nigeria*: Orubuloye et al. 1991 **ASIA** *South Korea*: Youn 1996 **MIDDLE EAST** *Israel*: Tamir & Epstein 1982; Carmel et al. 1992:225 (among those with sexual experience) **NORTH AMERICA** *United States*: Luster & Small 1994; Beaver, Wright & Walsh 2008:50; Hoyt, Niu et al. 2020:Table 1* (N = 6,817M + 7,728F, means: 1.68 vs. 1.04F)	**AFRICA** *Ghana & Nigeria*: Gage & Meekers 1994:58; *Guinea*: Gorgen et al. 1998:66 **ASIA** *China*: Yang et al. 2009:53 (undergrad, N = 118M + 103F, self-report, means: 1.2M vs. 0.5F); Zhang, Parish et al. 2012:Table 1 (ages 18-49, N = 1,551M + 1,747F, 3-times more extra marital affairs) **EUROPE** *Britain*: AM Johnson et al. 1992; Einon 1994 (including sex with prostitutes); Wellings et al. 1994; Rahman et al. 2005; *France*: Quenel et al. 1991; Messiah et al. 1996:242; *Germany*: Clement et al. 1984:112* (undergrad, in 1966) **LATIN/CARIBBEAN AMERICA** *Barbados*: Handwerker 1993:312 (undergrad) **MIDDLE EAST** *Israel*: Al-Krenawi et al. 1997 (practice polygamy, among Arab population) **NORTH AMERICA** *Canada*: JJ Levy et al. 1988; Fischtein et al. 2007:457 (11.25M vs. 4.01F); *United States*: Keller et al. 1982 (undergrad, unmarried); Nevid 1984:404 (3.04M vs. 2.24F); Carroll et al. 1985; Earle & Perricone 1986 (undergrad); McDonald et al. 1990 (undergrad); TW Smith 1991*; Reinisch et al. 1992 (undergrad); Lottes 1993 (undergrad); Walsh 1993 (undergrad); Wiederman 1997; NR Brown & Sinclair 1999* (lifetime); DM Siegel et al. 1999:338* (undergrad, during their junior & senior years of HS); Cubbins & Tanfer 2000:243; MG Alexander & Fisher 2003:32* (anonymous self-report); Putz et al. 2004:192 (self-report); Qaqiesh & Regan 2004 (undergrad, "swinging"); Chivers & Bailey 2005:116; WD Mosher et al. 2005:13 (lifetime); Grello et al. 2006 (undergrad, more experience with casual sex partners); Jonason & Fisher 2009:155 (undergrad); Greengross & Miller 2011:Table 1 (undergrad, N = 200M + 200F, means: 7.22M vs. 5.72F);	**AFRICA** *Uganda*: Schopper et al. 1993 **EUROPE** *Britain*: M Morris 1993; Wellings et al. 1994; KR Mitchell et al. 2019:Table 2 (ages 16-74, N = 15,162); *Denmark*: Melbye & Biggar 1992; *Norway*: Sundet et al. 1989; *Sweden*: Herlitz & Ramstedt 2005 (16-44 year-olds); *Multiple European Countries*: TW Smith 1992; Leridon et al. 1998:180 **NORTH AMERICA** *United States*: Kinsey et al. 1953; Clayton & Bokemeier 1980; Dolcini et al. 1993; Laumann et al. 1994:184; Tourangeau et al. 1997:217 (using bogus pipeline method) **OCEANIA** *New Zealand*: PB Davis et al. 1993 **OVERVIEW** *Meta-Analysis*: Oliver & Hyde 1993 (d = .25); JL Petersen & Hyde 2010:28 (N = 682,863M + 736,944F)

				Hoyt, Niu et al. 2020:Table 1* (N = 6,817M + 7,728F, means: 12.13M vs. 8.61F) **OCEANIA** *New Zealand*: Paul et al. 1995	
Not significant				**EUROPE** *Britain*: C Mercer 2001 (number of premarital partners); Hald 2006:Table 2 (ages 18-30, N = 316M + 375F) **NORTH AMERICA** *Canada*: Maticka-Tyndale et al. 1998 (undergrad, while on spring break); EL Paul et al. 2000 (undergrad, anonymous sex); *United States*: Poulson et al. 1998 (undergrad); NR Brown & Sinclair 1999* (in the past year); JR Browning et al. 1999; DD Brewer et al. 2000 (including prostitutes); MG Alexander & Fisher 2003:32* (bogus pipeline self-report); Sim 2013:104 (undergrad, Means: 3.33M vs. 3.23F, N = 98M + 145F)	
More among females				**EUROPE** *Sweden*: Clement et al. 1984:112* (undergrad, in 1982); Driemeyer, Janssen et al. 2016 (ages 18-22, 1,452M + 1,566F) **NORTH AMERICA** *United States*: DM Siegel et al. 1999:338* (undergrad, during their freshman & sophomore years of HS); Putz, Gaulin et al. 2004:Table 2 (N = 260M + 120F, means: 1.57M vs. 2.08F)	

Table 17.7.1.24b Number of sex partners among non-humans

Nature of difference			*Post-pubertal*		*Wide age range*
				Adult	
More among males				**RODENT** *Ground Squirrel*: FC Evans & Holdenried 1943	**RODENT** *Ground Squirrel*: Owings et al. 1977
Not significant					
More among females					**BIRD** *Black Coucal*: Vernon 1971; Slotow 1996; Goymann et al. 2004b **INSECT** *Hover Wasp*: Turillazzi 1989; *Paper Wasp*: JM Carpenter 1991; *Polistine Wasp*: Sinha et al. 1993

17.7.1.25 Trends in Sex Differences in the Number of Sex Partners

One study investigated the possibility that there has been a trend toward greater equality in terms of the number of sex partners males and females report having had. One can see by viewing Table 17.7.1.25 that this study concluded that, at least in the United States, there has been a significant increase in this regard.

Table 17.7.1.25 Trends in sex differences in the number of sex partners

Nature of difference			*Post-pubertal*		*Wide age range*
				Adult	
Increasing in equality over time				**NORTH AMERICA** *United States*: R Robinson et al. 1991 (1965-1985)	**OVERVIEW** *Meta-Analysis*: Wells & Twenge 2005:254 (1950-1999)
Not significant					
Decreasing in equality over time					

17.7.1.26 Under-Reporting the Number of Sex Partners One Has Had

As noted in an earlier table, most research has indicated that males have had more sex partners than is the case for females. Assuming that the majority of sex partners are of the opposite sex, this finding is difficult to explain mathematically. Therefore, a few studies have sought to determine is females are under-reporting (or males are over-reporting) the number of sex partners they have had. While it is all but impossible to be certain, pertinent studies, shown in Table 17.7.1.26, have estimated that females tend to under-report the number of sex partners they have had more than males do.

Table 17.7.1.26 Under-reporting the number of sex partners one has had

Nature of difference				*Post-pubertal*	
				Adult	
More among males					
Not significant					
More among females				**NORTH AMERICA** *United States*: Knox et al. 1993; Alexander & Fisher 2003; Jonason & Fisher 2009; TD Fisher 2013	

17.7.1.27 Actively Maintaining Access to Multiple Sex Partners

Two studies of baboons compared the sexes regarding actively attempting to maintain access to multiple sex partners of the opposite sex. Table 17.7.1.27 shows that both studies concluded that males devoted more time and energy doing so than was the case for females.

Table 17.7.1.27 Actively maintaining access to multiple sex partners among non-humans

Nature of difference			*Post-pubertal*		
			Adolescent	*Adult*	
More among males			**PRIMATE** *Baboon*: Rowell 1972:53	**PRIMATE** *Baboon*: Kummer & Kurt 1967	
Not significant					
More among females					

17.7.1.28 Sexual Experience with Persons Older Than Oneself

In one study, research participants were asked if they had ever had a sexual encounter with someone who was considerably older than themselves. The study, cited in Table 17.7.1.28, concluded that females were more likely than males to answer affirmatively.

17.7.1.29 Sexual Experience with a Prostitute

Just one study was located in which individuals were asked to report whether they had ever had sex with a prostitute. One can see in Table 17.7.1.29 that more males than females answered affirmatively.

Table 17.7.1.28 Sexual experience with people older than oneself

Nature of difference			*Post-pubertal*		
			Adolescent		
More among males					
Not significant					
More among females			**NORTH AMERICA** *United States*: Auerswald et al. 2006 (blacks)		

Table 17.7.1.29 Sexual experience with a prostitute

Nature of difference			*Post-pubertal*		
				Adult	
More among males				**EUROPE** *Denmark*: Bonnerup et al. 2000	
Not significant					
More among females					

17.7.1.30 Sexual Experience with Animals

Three studies were located having to do with individuals self-reporting having had sex with some non-human animal. One can see in Table 17.7.1.30 that greater proportions of males reported doing so than did females.

Table 17.7.1.30 Sexual experience with animals

Nature of difference			*Post-pubertal*		
				Adult	
More among males				**NORTH AMERICA** *United States*: Kinsey et al. 1953 (8%M vs. 3.6%F); M Hunt 1974 (N = 982M + 1,044 F, 4.9%M vs. 1.9%F); Flynn 1999 (undergrad, 2.4%M vs. 1.1%F)	
Not significant					
More among females					

17.7.1.31 Extramarital Sexual Relationships/Affairs

As shown in Table 17.7.1.31, most pertinent studies report that males have extramarital sexual relationships more often than do females. The exception was based on determining the number of adultery convictions in 17th-century Sweden (when such behavior was still a criminal offense). In this case, females were convicted more often than were males.

Table 17.7.1.31 Extramarital sexual relationships/affairs

Nature of difference			*Post-pubertal*		*Wide age range*
				Adult	
More among males				**NORTH AMERICA** *United States*: Blumstein & Schwartz 1983; Spanier & Margolis 1983; A Lawson 1988; A Greeley 1994; Laumann et al. 1994; Wiederman 1997; DC Atkins et al. 2001	**NORTH AMERICA** *United States*: GL Hansen 1987 (among steady dating couples)
Not significant					
More among females				**EUROPE** *Sweden*: Sundin 1992 (17th Century, convicted for adultery)	

17.7.2 Avoidance of Premarital Pregnancy

Among humans, both sexes typically seek to avoid pregnancy prior to forming a long-term relationship (usually in the form of marriage). The two tables below cite evidence of sex differences in these types of efforts.

17.7.2.1 Contraceptive Use

A few studies have sought to determine which gender was more likely to use contraceptives to prevent unwanted pregnancy. Table 17.7.2.1 shows that, in all cases, males were more prone to do so than females, although the main type of contraceptive focused on in these studies was condoms.

Table 17.7.2.1 Contraceptive use

Nature of difference			*Post-pubertal*		*Wide age range*
				Adult	
More among males				**EUROPE** *Denmark*: Melbye & Biggar 1992 (during non-marital intercourse); *France*: Messiah et al. 1996 **NORTH AMERICA** *United States*: Catania et al. 1992b	**NORTH AMERICA** *United States*: Mettlin 1976; Shekelle et al. 1976
Not significant					
More among females					

17.7.2.2 Premarital Pregnancy

One study asked both sexes if they had ever had been pregnant or had contributed to a pregnancy prior to marriage. One can see in Table 17.7.2.2 that more females than males answered affirmatively. Given that both sexes must be involved in the production of a premarital pregnancy, this finding is likely due to the fact that females would be more likely than males to actually be aware of such an event.

Table 17.7.2.2 Premarital pregnancy

Nature of difference					*Wide age range*
More among males					
Not significant					
More among females					**AFRICA** *Guinea*: Gorgen et al. 1998:67

17.7.3 Forming Romantic and Bonding Relationships

Romantic relationships primarily include dating and marriage, activities that are found in one form or another in all cultures. They usually involved members of the opposite sex. Research findings pertaining to sex differences regarding these relationships are reviewed below.

17.7.3.1 Being in Love with a Sex Partner

Is there a sex difference in terms of being in love with every sex partner one has had? Table 17.7.3.1 shows that three of the four research findings have indicated that females are more likely to report having been in love with any sex partner they have had. One study among adolescents, however, reported that males were more likely than females to have been in love with the sex partners they have had.

17.7.3.2 Marrying Someone without Being in Love

One study asked people who had been married at least once if they had married someone without being in love with them. As shown in Table 17.7.3.2, the study indicated that more females answered affirmatively than did males.

Table 17.7.3.1 Being in love with a sex partner

Nature of difference			*Post-pubertal*		*Wide age range*
			Adolescent		
More among males			**OCEANIA** *Philippines*: Upadhyay et al. 2006:113		
Not significant					
More among females					**EUROPE** *Multiple European Countries*: Bozon & Kontula 1998:53 (first sex partner) **NORTH AMERICA** *United States*: Balswick & Avertt 1977 (among dating couples); Dosser et al. 1983

Table 17.7.3.2 Marrying someone without being in love

Nature of difference				*Post-pubertal*	
				Adult	
More among males					
Not significant					
More among females				**NORTH AMERICA** *United States*: Kephart 1967 (N = 1,079)	

17.7.3.3 Offering Financial Stability or Wealth to Prospective Mates

The available studies regarding which sex is most likely to offer financial stability to prospective mates (usually in personal ads) are summarized in Table 17.7.3.3. One can see that males are more likely than females to do so.

Table 17.7.3.3 Offering financial stability or wealth to prospective mates

Nature of difference			*Post-pubertal*		*Wide age range*
				Adult	
More among males				**NORTH AMERICA** *United States*: C Cameron et al. 1977 (personal lonely heart ads); AA Harrison & Saeed 1977 (personal lonely heart ads)	**EUROPE** *Spain*: Burmann et al. 2002 **NORTH AMERICA** *United States*: Deaux & Hanna 1984 (personal lonely heart ads)
Not significant					
More among females					

17.7.3.4 Ending a Dating Relationship

In one study, research participants reported on which sex was most likely to break off a dating relationship. Table 17.7.3.4 shows that the study concluded that females were more likely than males to do so.

Table 17.7.3.4 Ending a dating relationship

Nature of difference				*Post-pubertal*	
				Adult	
More among males					
Not significant					
More among females				**NORTH AMERICA** *United States*: CT Hill et al. 1976	

17.7.3.5 "Playing Dumb" in a Romantic Relationship

Two studies were located having to do with self-reports of "playing dumb" with a romantic partner, in other words, pretending to know less than one actually does on a particular matter so one's partner can appear more knowledgeable. Table 17.7.3.5 shows that one study indicated that females do so more than males, while the other study reported no significant difference.

Table 17.7.3.5 "Playing dumb" in a romantic relationship

Nature of difference				*Post-pubertal*	
				Adult	
More among males					
Not significant				**NORTH AMERICA** *United States*: Soltz 1978	
More among females				**NORTH AMERICA** *United States*: Braito et al. 1981	

17.7.3.6 Resolving Problems in a Romantic Relationship

In a couple of studies, researchers sought to determine if males or females devoted more time to resolving problems with a romantic partner. One can see in Table 17.7.3.6 that both studies indicated that females did so more than did males.

Table 17.7.3.6 Resolving problems in a romantic relationship

Nature of difference				*Post-pubertal*	
				Adult	
More among males					
Not significant					
More among females				**NORTH AMERICA** *United States*: Rusbult et al. 1986a; Rusbult et al. 1986b	

17.7.3.7 Terminating a Romantic Relationship

In two studies, dating couples who had broken up were asked to identify which sex initiated the breakup. Table 17.7.3.7 shows that both studies indicated that females were more often identified than males.

Table 17.7.3.7 Terminating a romantic relationship

Nature of difference				*Post-pubertal*	
				Adult	
More among males					
Not significant					
More among females				**NORTH AMERICA** *United States*: CT Hill 1974; CT Hill, Rubin & Peplau 1976 (undergrad, N = 103)	

17.7.4 Long-Term Sexual Bonds and Marriage

The establishment of long-term relationships with a sexual partner is fairly rare among animals, with the greatest number of exceptions being found among bird species (Black & Hulme 1996; Teitelbaum, Converse & Mueller 2017). Among primates, this tendency is found in humans and a few other species (Fuentes 2002). This sub-section examines sex differences in the formation and maintenance of these relationships primarily among humans.

17.7.4.1 Age of Married or Relative Age When Dating

Many studies have reported sex differences in the relative age of couples when marrying, and a few studies have compared the age of dating couples. In some studies, investigators have been able to access relevant records on age at marriage that were maintained by courthouses or churches several centuries ago, while most recent information has come from self-reports by one or both spouses (or dating couples). Table 17.7.4.1a shows that, with only a few exceptions (all derived from ethnographic records), males throughout the world tend to be older than the females that they date or marry.

Table 17.7.4.1a Age when married or relative age when dating

Nature of difference			*Post-pubertal*		*Wide age range*
			Adolescent	*Adult*	
Males older than females			**AFRICA** *Nigeria*: R Cohen 1967 (Bornu) **NORTH AMERICA** *United States*: de Lissovoy & Hitchcock 1964; de Lissovoy & Hitchcock 1965; VanOss 2006 (dating partners)	**AFRICA** *Egypt*: ME Marks 2011:25 (in 1975: 26M vs. 19F; in 2005 (age at marriage: 28M vs. 22F); *Nigeria*: SR Barrett 1982:22; *Tanzania*: Marlowe 2004:366 (Hadza tribe) **ASIA** *Bangladesh*: Ruback et al. 2002:109*; *China*: Salaff 1976:398 (Hong Kong); *India*: NP Das & Dey 1998; Desai & Andrist 2010; Jayaraj & Subramanian 2004:108; *Japan*: WM Caudill 1969:195; *Malaysia*: Tey et al. 1012:498 (marriage); *Nepal*: MK Choe et al. 2004; *Pakistan*: Sathar & Admed 1992 (average age: 26.6M vs. 21.6F); Ruback et al. 2002:110*; *Taiwan*: Health and Welfare Statistics Association 1997 (2.3 years of difference in age, married couples); *Thailand*: Sobieszczyk et al. 2003:732 **EUROPE** *Germany*: Hönekopp 2006:206; *Hungary*: Bereczkei & Csanaky 1996:Table 3 (among married couples); *Spain*: Gil-Burmann et al. 2002:506; *Sweden*: Dahlstrom & Liljestrom 1967:25; BS Low 1991 **LATIN/CARIBBEAN AMERICA** *Brazil*: Otta et al. 1999* **MIDDLE EAST** *Israel*: Kulik 2004:579 **NORTH AMERICA** *United States*: US Bureau of the Census 1980 (older median age at marriage); PF Secord 1983; US Bureau of the Census 1986:80; Crapo 1990:338; Nielsen 1990:113; Barringer 1991 (average: 26.1M vs. 23.9F); Kenrick	**AFRICA** *Guinea*: Keita 1992; *Kenya*: Whiting 1993:438; *Morocco*: A Walter 1997; *Multiple African Countries*: J Goody 1973:184 **ASIA** *China*: Feng & Quanhe 1996:307 **EUROPE** *Britain*: S Scott & Duncan 1999 (1600-1800); Bozon 1991; *Ireland*: JP Kent 2002:529 **LATIN/CARIBBEAN AMERICA** *Brazil*: Otta et al. 1999* **NORTH AMERICA** *Canada*: Buckle et al. 1996:365; *United States*: TP Monahan & Chancellor 1955:165; Burchinal 1965; JT Landis 1965; JJ Moss 1965; R Parke & Glick 1967; Bayer 1968; Marini 1978b:495 (age at marriage: 22.8M vs. 20.8F); RT Michael & Tuma 1985; VK Oppenheimer 1988; Barringer 1991 (males older when they first get married: 26.1 vs. 23.9); National Center for Health Statistics 1991:Table 1.10; Kenrick & Keefe 1992*; Darroch et al. 1999 (dating couples); US Bureau of the Census 1999 (in 1960: 22.8M vs. 20.3F; in 1998: 26.7M vs. 25.0F); Schoen & Standish 2001 (first marriage, in 1970: 23M vs. 22F; in 1995: 29M vs. 27F); Xu, Hudspeth & Bartkowski 2005; Kruger 2009; MA Fox, Cannolly & Snyder 2015:15 (first marriage, 1950-2003) **OCEANIA** *New Zealand*: TE Moffit et al. 2001:20 **INTERNATIONAL** *Multiple Developing Countries*: Casterline, Williams & McDonald 1986:357 (28/28 countries, N = 48,826M + 48,826F); R Jensen & Thornton 2003;

				& Keefe 1992*; Buckle et al. 1996; TJ Crow 1998:1094* (internet survey); US Bureau of the Census 1995; Shackelford 2000:313 **OCEANIA** *Philippines*: Kenrick & Keefe 1992* (undergrad, on the island of Poro) **INTERNATIONAL** *Multiple Countries*: Kenrick & Keefe 1992*; TJ Crow 1998:1094* (young); CC Weisfeld, Dillion et al. 2011:1167 (5/5 countries); *Multiple Preliterate Societies*: Whyte 1975:223* (61/70 societies); O'Kelly & Carney 1986:29 (foraging societies)	*Multiple Countries*: Bergstrom & Bagnoli 1993:Table B1; Bankole & Singh 1998 (18/18 countries); S Singh et al. 2000:24 (14/14 countries)
Not significant				**INTERNATIONAL** *Multiple Preliterate Societies*: Whyte 1978:223* (7/70 societies)	
Females older than males				**INTERNATIONAL** *Multiple Preliterate Societies*: Whyte 1978:223* (2/70 societies)	

There are a few studies of non-humans regarding sex differences in the relative age of individuals who sexually interact with one another. Interestingly, Table 17.7.4.1b shows that in all studies located, males tended to be significantly older than the females with whom they had sex, thus being in accordance with what has been reported in nearly all the studies of dating and marriage partners.

Table 17.7.4.1b Relative age of mates among non-humans

Nature of difference				*Post-pubertal*	
				Adult	
Males older than females				**INSECT** *Cricket*: Simmons & Zuk 1988; Zuk 1988; Simmons 1995 **BIRD** *Peacock*: Manning 1989; *Pheasant*: Grahn von Schantz 1994	
Not significant					
Females older than males					

17.7.4.2 Ever Married

Considerable research has compared males and females regarding whether or not they were, or at least had ever been, married. As shown in Table 17.7.4.2, the majority of these studies have found greater proportions of males being or have been married when compared to females.

Table 17.7.4.2 Ever married

Nature of difference				*Post-pubertal*	*Wide age range*
				Adult	
More among males				**EUROPE** *Britain*: N Nicholson & West 1988 (managers); Marmot et al. 1991 (among civil servants); Studlar et al. 1998:79*; Emslie et al. 1999* (upper status academic occupations); Emslie et al. 1999b (bank employees); Arber 2004:95 (ages 65 and older); *Germany*: J Smith & Baltes 1998 (elderly); *Spain*: Regidor et al. 2003:397; van Grootheest, Beekman et al. 1999:Table 2 (age 55+, N = 2,626) **MIDDLE EAST** *Israel*: G Kaplan et al. 2010:934 (among Jews: 85%M vs. 80%F, among Arabs: 96%M vs. 77%F) **NORTH AMERICA** *Canada*: Houseknecht et al. 1987 (professional occupations); Greenglass 1988 (managers); Greenglass & Burke 1988 (managers); N Nicholson & West 1988 (managers); Greenglass 1990 (managers); Greenglass 1993 (managers); Tomiak et al. 1997 (among civil servants); Prus & Gee 2003:307 (elderly); *United States*: Lauriat 1959:173;	

(*Continued*)

Table 17.7.4.2 (Continued)

Nature of difference				*Post-pubertal*	*Wide age range*
				Adult	
				Greiner 1985 (among library administrators); Irvine 1985:46 (among library administrators); Long & Fox 1995:56 (among scientists); Soldo et al. 1997 (elderly); Studlar et al. 1998:79*; RB Ness et al. 2000:107 (physicians, 98.7%M vs. 88.7%F); Voelck 2003:400 (library managers); TJ Hoff 2004:306 (physicians); JA Jacob & Wilslow 2004 (among academics working full-time); Mason & Goulden 2004 (among academics working full-time); Noonan et al. 2005:859 (lawyers); Kruger 2009:Figure 1 (after age 45) **OCEANIA** *Australia*: Probert 2005:62 (or are partnered, among college professors) **INTERNATIONAL** *Multiple Countries*: UN Population Division 1999 (age 60+); *Multiple Industrial Countries*: Kinsella & Velkoff 2001 (age 65+)ES	
Not significant				**EUROPE** *Britain*: Emslie et al. 1999* (clerical jobs) **NORTH AMERICA** *United States*: Kruger 2009:Figure 1 (before age 45) **OCEANIA** *Australia*: Studlar et al. 1998:79*	
More among females				**ASIA** *China*: Anson & Sun 2002:1048 (elderly) **NORTH AMERICA** *Canada*: Wattie & Kedward 1985:206 (among schizophrenics, 2.5 to 1); *United States*: Farina et al. 1963; Hobbs & Damon 1996 (elderly); Bhatia et al. 2004 (among schizophrenics, are more likely to get married); Hopcroft 2021:Table 1	**ASIA** *China*: Bullough & Ruan 1994:387

17.7.4.3 Never Married

Evidence pertaining to sex differences in the proportion of each sex who has never been married is summarized in Table 17.7.4.3. One can see that all studies agree that more males than females have never been married.

Table 17.7.4.3 Never married

Nature of difference				*Post-pubertal*	
				Adult	
More among males				**ASIA** *China*: Sha & Wu 1996 (among schizophrenics); Tang et al. 2007:90 (among schizophrenics); *Singapore*: Teoh et al. 2009 **EUROPE** *Spain*: Borrell et al. 2010:88 (43%M vs. 32%F) **NORTH AMERICA** *United States*: ES Mathis 1973; Schoenborn 1981; Olweria, Christos et al. 1999:Table 1	
Not significant					
More among females					

17.7.4.4 Having More Than One Mate (Polygamy)

In a few species of birds, researchers have investigated sex differences in the tendency to have more than one mate. Table 17.7.4.4 shows that males seem to be polygamous to a greater degree than females.

Table 17.7.4.4 Having more than one mate (polygamy) among non-humans

Nature of difference				*Post-pubertal*	
				Adult	
More among males				**BIRD** *Great Reed Warbler*: Nishiumi et al. 1996; *Red-Winged Blackbird*: Weatherhead & Robertson 1979; *Yellow-Headed Blackbird*: CB Patterson et al. 1980	
Not significant					
More among females					

17.7.4.5 Relationship between Marriage and Intelligence

One study was located pertaining to the correlation between intelligence and getting married (as opposed to never marrying). The study revealed distinct patterns for males and females; thus, the findings are presented in a more complex table. One can see in Table 17.7.4.5 that, for males, there was a positive correlation between IQ and getting or being married, while, for females, the correlation was negative.

Table 17.7.4.5 Relationship between marriage and intelligence (for males)

Nature of difference	*Post-pubertal*	
	Adult	
High IQ males more likely married	**EUROPE** *Britain*: MD Taylor, Hart et al. 2005:1624* (IQ measured in childhood)	
No significant difference		
Low IQ males more likely married		
High IQ females more likely married		
No significant difference		
Low IQ females more likely married	**EUROPE** *Britain*: MD Taylor, Hart et al. 2005:1624* (IQ measured in childhood)	

17.7.4.6 Relationship between Marriage and Social Status

Research undertaken to discover if marriage is related to high status has revealed opposite patterns for males and females. Thus, as with the findings on marriage and IQ, the results are presented in a table in which different results for males and females can be presented. As shown in Table 17.7.4.6, studies of males have found that those of high status are more likely to be married (or more likely to have ever been married) relative to males of low status. Among females, the opposite pattern has been observed.

Table 17.7.4.6 Relationship between marriage and social status (for males)

Nature of difference				*Post-pubertal*	
				Adult	
High status males more likely married				**EUROPE** *Britain*: Marmot et al. 1991* (social status, among civil servants); Emslie et al. 1999* (social status); *Scotland*: MD Taylor et al. 2005* (occupational status) **NORTH AMERICA** *United States*: Hopcroft 2021* (personal income)	
No significant difference					
Low status males more likely married					
High status females more likely married					
No significant difference					
Low status females more likely married				**EUROPE** *Britain*: Marmot et al. 1991* (social status, among civil servants); Emslie et al. 1999* (social status); *Scotland*: MD Taylor et al. 2005* (occupational status) **NORTH AMERICA** *United States*: Hopcroft 2021* (personal income)	

This may be explainable in evolutionary terms by stipulating that both sexes have been naturally selected for choosing mates in ways that help to maximize their own reproductive potential. Since females can have and properly care for more offspring if they mate with a devoted and reliable provisioner of resources (rather than trying to secure resources on their own), females should look for loyal males who seems capable of resource procurement. Males, on the other hand, can maximize their reproductive potential by focusing on other traits of prospective mates (such as youth and apparent healthy) (Ellis 2011).

17.7.4.7 Positive Correlation between Marriage and Height

Studies of both sexes have indicated that height is positively correlated with getting married. Table 17.7.4.7 shows that two studies have reported that this association is stronger for males than it is for females.

Table 17.7.4.7 Positive correlation between marriage and height

Nature of difference				*Post-pubertal*	
				Adult	
Stronger for males				**EUROPE** *Britain*: Ben-Shlomo et al. 1993; MD Taylor, Hart et al. 2005:1624	
Not significant					
Stronger for females					

17.7.4.8 Hypergamy

As documented elsewhere in this book, research has repeatedly shown that throughout the world, females are much more likely than males to use social status indicators in choosing males. In other words, females are more likely to prefer mates who exhibit evidence of providing a stable income (Shackelford et al. 2005; Ellis et al. 2008:442). The most widely accepted explanation for this sex difference is rooted in evolutionary theory (Buss 1989). Specifically, the time and energy females *must* devote to having an offspring far exceeds what is required of males, i.e., time-wise: 9 months versus less than an hour!

In most mammalian species, females appear to have evolved tendencies to compensate for this imbalance by seeking mates with the ability to control and share resources and will provide protection to her and the offspring she bears (Edward & Chapman 2011; Ellis 1995). Similarly, among humans, females generally prefer mates who seem to be loyal and capable of providing resources (Townsend et al. 1995; Ellis 2001; Kokko et al. 2003; more evidence on mate preferences appear in Chapter 15). Females who prioritize any other criteria in choosing mates are likely to leave relatively few offspring (and, therefore, few of their genes) in subsequent generations.

If the above reasoning is correct, males will have been favored by natural selection for striving for status to a greater degree than females. Another implication involves a phenomenon known as *hypergamy*. *Hypergamy* refers to the tendency for women to marry up in social status, while males should be less inclined to do so.

Testing the hypergamy hypothesis is confounded by the fact that sex ratios of people who are available to marry at any given point can vary geographically and over time. For example, wars and even imprisonment practices can diminish the proportions of males available for females to choose from. Also, changes in a country's economy can affect the financial fortunes of males in ways that alter their ability to attract females.

Finally, there are various ways to measure social status (and the prospects of attaining status with age). As a result, the table bearing on how sex differences in social status correlates with hypergamy is presented in a format that identifies the various social status measures. Table 17.7.4.8 shows that most studies have indicated that females are more likely than males to "marry up" in social status, although exceptions have been found (especially in terms of finding no significant sex differences).

17.7.4.9 Age at Marriage and Socioeconomic Status

From the standpoint of lifetime fertility, age at the time one first gets married is consequential, particularly for females (Busfield, 1972; Bumpass & Mburugu 1977; Roskaft et al. 1992). And, of course, the number of children a couple has can have substantial influences on socioeconomic status, especially regarding per person income. In light of these relationships, considerable research has been conducted over the years to assess how age at marriage is associated with social status. The results are presented separately according to sex.

Table 17.7.4.9a shows that there is a positive correlation between age at marriage and social status for males. In other words, the older a man is when he first marries, the higher his social status tends to be.

In the case of age at marriage being correlated with social status among females, there is considerably more research available than in the case of males, although this evidence is largely limited to years of education. As shown in Table 17.7.4.9b, most of the evidence suggests that as education goes up in females, their age at marriage tends to also rise. Nevertheless, there are a few studies that have either U-shaped or inverted U-shaped relationships. Also, one study conducted in Nepal indicated that daughters whose parents were high in social status married earlier than daughters of lower-status parents.

17.7.4.10 Contemplating Divorce

A few studies have sought to determine if males or females are more likely to seriously consider getting a divorce from their spouse. Table 17.7.4.10 shows that all the available studies have concluded that married women are more likely than married men to give this option serious consideration.

17.7.4.11 Divorce Initiation/Filing for Divorce

When couples divorce, court documents usually provide information regarding which party initiated the divorce. Several studies have analyzed these documents in order to determine whether husbands or wives are most likely to initiate a divorce. Table 17.7.4.11 indicates that, with the possible exception of divorce among middle-aged and elderly people, females are more likely than males to file for divorce.

Table 17.7.4.8 Relationship between social status and hypergamy

Direction of relationship	*Parental status*	*Adult social status*				
		Years of education		*Income or wealth*		*Multiple or other SES measures*
Males higher in status than the females they marry (hypergamy)	**NORTH AMERICA** *United States*: Hollingshead 1949:231 (dating)	**EUROPE** *Hungary*: Bereczkei & Csanaly 1996 (N = 774M + 1,057F) **NORTH AMERICA** *United States*: Schoen & Wooldredge 1989		**ASIA** *India*: K Davis 1941 (marriage) **EUROPE** *Germany*: Voland & Engel 1990* (land ownership, young brides)		**EUROPE** *Portugal*: Boone 1986 (19th Century) **NORTH AMERICA** *United States*: TC Hunt 1940; Centers 1949; Elder 1969; JW Hudson & Henze 1969; Taylor & Glenn 1976; Glenn & Taylor 1984
Not significant	**NORTH AMERICA** *United States*: Hollingshead 1950			**EUROPE** *Germany*: Voland & Engel 1990* (land ownership, older brides)		**NORTH AMERICA** *United States*: Rubin 1968 (mixed findings)
Females higher than males		**EUROPE** *Portugal*: Correia 2003				

Table 17.7.4.9a Relationship between social status and age at marriage for males

Direction of Relationship		*Adult Social Status*						
		Education	*Occupational Status*	*Income or Wealth*				
Positive		**ASIA** *India*: Hatti & Ohlsson, 1985 **EUROPE** *Hungary*: Bereczkei & Csanaly 1996 (N = 774M + 1,057F) **NORTH AMERICA** *United States*: Sweet & Bumpass 1987 (especially before 1950); Teti et al. 1987*	**NORTH AMERICA** *United States*: Carter & Glick 1970*	**NORTH AMERICA** *United States*: Carter & Glick 1970*; Teti et al. 1987*; Teti & Lamb 1989; Bergstrom & Schoeni 1996; Greenstone & Looney 2012				
Not Significant								
Negative								

17.7.4.12 Reasons for Initiating Divorce Proceedings

One study was located that investigated sex differences in the reason given for initiating divorce proceedings. As shown in Table 17.7.4.12, it indicated that males identified adultery more often while females cited cruelty as the most common reason.

17.7.4.13 Effort Made to Save a Marriage

When someone makes his/her desires for divorce known, the other spouse sometimes seek to prevent the marital dissolution. According to the studies cited in Table 17.7.4.13, wives are more likely to try to save the marriage than are husbands. This finding is rather surprising given that most studies have found females being more likely than males to seek a divorce (as documented in the preceding table).

17.7.4.14 Remarriage Following Divorce or Widowhood

Some research has investigated sex differences among divorcees regarding whether or not they ever remarried. Table 17.7.4.14 shows that greater proportions of males do so than females.

17.7.4.15 Widowhood

Widows (of either sex) are individuals who were once married, but are no longer so due to the death of their spouse. Table 17.7.4.15 shows that all the available studies have concluded that widowhood is more prevalent among females.

Table 17.7.4.9b Relationship between social status and age at marriage for females

Direction of rela-tionship	*Parental status*	*Adult social status*						
		Education		*Income or wealth*				
Positive	**ASIA** *Bangladesh*: LM Bates et al. 2007 (mom's education)	**AFRICA** *Kenya*: Emereuwaonu 1984; Ikamari 2005; *Nigeria*: Cochrane & Farid 1989*; Feyisetan & Pebley 1989; Federal Office of Statistics 1992; *South Africa*: Cochrane & Farid 1989 (blacks); *Tanzania*: Ngallaba et al. 1993:55; *Multiple Sub-Saharan Countries*: Garenne 2004 **ASIA** *India*: Hatti & Ohlsson, 1985; Roy et al. 1991; *Nepal*: MK Choe et al. 2004; *Pakistan*: Sathar et al. 1986; *South Korea*: Kim & Stinner 1980; *Thailand*: Cochran & Nandwani 1981; *Vietnam*: Luc et al. 1993 **EUROPE** *Britain*: Argyle 1994:80; *Germany*: Blossfeld & Jaenichen 1992 **LATIN AMERICA & CARIBBEAN** *Belize*: Ministry of Health 1992; *Mexico*: Lindstrom & Paz 2001; Kroeger et al. 2015* (women born in the 1970s); *Paraguay*: Schoemaker 1981; *Puerto Rico*: Warren 1987 **NORTH AMERICA** *United States*: Lowrie 1965; Call & Otto 1977; De Jong & Sell 1977; Marini 1978:503; VK Oppenheimer et al. 1997; Huber et al. 2010:380 **INTERNATIONAL** *Multiple Countries*: PC Smith 1983; Adlakha et al. 1991; *Multiple Developing Countries*: Singh & Samara 1996; Mensch et al. 2005		**AFRICA** *Multiple Sub-Saharan Countries*: Garenne 2004 **NORTH AMERICA** *United States*: Teti & Lamb 1989; Greenstone & Looney 2012				
Not Significant								
Negative	**ASIA** *Nepal*: Aryal 1991							
U-Shaped		**ASIA** *Thailand*: Montgomery et al. 1988						
Inverted U-Shaped		**LATIN/CARIBBEAN AMERICA** *Mexico*: Kroeger et al. 2015* (women born in the 1950s & 1960s)						

Table 17.7.4.10 Contemplating divorce

Nature of difference			*Post-pubertal*		
				Adult	
More among males					
Not significant					
More among females				**INTERNATIONAL** *Multiple Countries*: CC Weisfeld, Dillion et al. 2011:1168 (among married couples, 5/5 countries)	

Table 17.7.4.11 Divorce initiation/filing for divorce

Nature of difference			*Post-pubertal*		
				Adult	
More among males				**ASIA** *China*: Bullough & Ruan 1994:389* (over age 50)	
Not significant				**EUROPE** *Britain*: Buckle et al. 1996:365* (elderly)	
More among females				**ASIA** *China*: Bullough & Ruan 1994:389* (under age 50) **EUROPE** *Britain*: Buckle et al. 1996:365*; *Germany*: Mohrmann 1992 **NORTH AMERICA** *United States*: WG Beach & Ogburn 1925:195; TP Monahan & Chancellor 1955:169; Goode 1956; US Department of Health, Education, and Welfare 1973; P Brown 1976; L Friedman & Percival 1976; CT Hill et al. 1976 (young); BG Gunter & Johnson 1978:Table 1; Rubin et al. 1981 (among dating couples); RB Dixon & Weitzman 1982; Albrecht et al. 1983; Pettit & Bloom 1984; LE Black et al. 1991; Gander 1992:54; Kitson 1992; Braver et al. 1993; Chused 1994; Brinig & Allen 2000:159; Trudel 2002 (among married couples, considered divorce or separation) **INTERNATIONAL** *Multiple Countries*: Betzig 1989	

Table 17.7.4.12 Reasons for initiating divorce proceedings

Nature of difference			*Post-pubertal*		
				Adult	
More among males				**EUROPE** *Britain*: Buckle et al. 1996* (adultery by the spouse)	
Not significant					
More among females				**EUROPE** *Britain*: Buckle et al. 1996* (cruelty by the spouse)	

Table 17.7.4.13 Effort made to save a marriage

Nature of difference					*Wide age range*
More among males					
Not significant					
More among females					**NORTH AMERICA** *United States*: Canary & Stafford 1992; Ragsdale 1996; Stafford et al. 2000; Canary et al. 2002

Table 17.7.4.14 Remarriage following divorce or widowhood

Nature of difference			*Post-pubertal*		
				Adult	
More among males				**EUROPE** *Multiple European Countries*: Seccombe 1992:245 (16th-19th Century) **NORTH AMERICA** *United States*: PH Jacobson 1959:69; Ross & Sawhill 1975; P Glick 1980; Beckman & Amaro 1986; Robbins 1989; KR Smith et al. 1991 (elderly widowers); Cherlin 1992; SC Clarke 1995; Buckle et al. 1996; Hopcroft 2021 (especially if high in income)	
Not significant					
More among females					

Table 17.7.4.15 Widowhood

Nature of difference			*Post-pubertal*		
				Adult	
More among males					
Not significant					
More among females				**ASIA** *Thailand*: Sobieszczyk et al. 2003:708 (elderly); *Vietnam*: J Friedman et al. 2003:600 (elderly) **MIDDLE EAST** *Israel*: Carmel et al. 2007 (elderly) **EUROPE** *Britain*: Scott & Wenger 1995 (elderly); Arber 2004:95 (ages 65 and over) **NORTH AMERICA** *United States*: ES Mathis 1973; Hobbs & Damon 1996; Strawbridge et al. 1997:960; Dupre et al. 2006:151	

17.7.4.16 Financial Consequences of Divorce

Some research has sought to determine which sex is better off financially following a divorce. One can see in Table 17.7.4.16 that most of the available evidence indicates that males fare better financially than do females following a divorce. However, the sex differences are likely to be affected by a country's laws on how current and future assets are allocated following a divorce, especially if children are involved.

Table 17.7.4.16 Financial consequences of divorce

Nature of difference			*Post-pubertal*		*Wide age range*
				Adult	
Males better off					**NORTH AMERICA** *United States*: H Carter & Glick 1970; R Hampton 1975; Ross & Sawhill 1975; GJ Duncan & Hoffman 1985; LJ Weitzman 1985; GJ Duncan & Hoffman 1988
Not significant					
Females better off				**EUROPE** *Netherlands*: Poortman 2000	

17.7.4.17 Relationship between Being Married and Life Expectancy

Research has shown that, on average, married people live longer than do those who are single or divorced (Goodwin, Hunt et al. 1987; DB Krupp 2012). As shown in Table 17.7.4.17, most studies have found this relationship to be stronger for males than for females, while the remaining study reported no significant difference.

Table 17.7.4.17 Relationship between being married and life expectancy

Nature of difference			*Post-pubertal*		
				Adult	
Stronger for males				**EUROPE** *Britain*: Der & Bebbington 1987; Bebbington & Tansella 1989 **NORTH AMERICA** *United States*: Gove 1972; Weissman et al. 1987; Gater 1989	
Not significant				**NORTH AMERICA** *Canada*: DB Krupp 2012:1412	
Stronger for females					

18 Acquiring, Selling, and Consuming Behavior

The buying, selling, and consuming goods and services are prominent features of human behavior, especially for those living in agrarian and industrial societies. A wide range of activities are covered in this chapter. They include shopping, consuming foods and drugs, and the ownership of weapons. Of course, the focus throughout this chapter is on how males and females differ in all of these activities.

18.1 Assessing and Acquiring Goods and Services

Numerous types of studies have been undertaken to evaluate how people decide what goods and services to purchase. Findings regarding sex differences in this regard are reported below.

18.1.1 Shopping and Purchasing Behavior

Some studies have compared males and females regarding their consuming behavior. Results are summarized in the following tables.

18.1.1.1 Shopping in General

hopping is a common activity found throughout the world. Except for shopping online (which will be discussed separately in a subsequent table), shopping typically involves strolling or driving from one retail store to another looking for necessary and attractive items to purchase.

In evolutionary terms, one research team proposed that shopping is similar to foraging for edible fruits and vegetables among hunter-gatherers (Kruger & Byker 2009). Accordingly, since females do most of the foraging in hunter-gatherer societies (while males do most of the hunting, as documented in Chapter 20), one would expect females to engage in more shopping behavior than males as an extension of our species' evolutionary past.

Based on both self-reports and direct observation, substantial research has investigated sex differences in amount of time people spend shopping. As

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Table 18.1.1.1 Shopping in general

Nature of difference			*Post-pubertal*		*Wide age range*
			Adolescent	*Adult*	
More among males					
Not significant			**NORTH AMERICA** *United States*: JF Peters 1989*		
More among females			**NORTH AMERICA** *United States*: Cogle & Tasker 1982; Mauldin & Meeks 1990; Chen-Yu & Seock 2009 (for clothing) **OCEANIA** *Australia*: Garton & Pratt (N = 217); Garton & Pratt 1991 (N = 1,248)	**ASIA** *China*: L Ellis, Abild et al. 2012:345* (direct observation); *India*: Buttle 1992; *Laos*: L Ellis, Abild et al. 2012:345* (direct observation); *Malaysia*: L Ellis, Abild et al. 2012:345* (direct observation) **EUROPE** *Austria*: Sahatzer, Rust & Elmadfa 2010; *Britain*: Gershuny & Robinson 1988:548; Scherhorn et al. 1990 (compulsive shopping, 85%F); Shoaf et al. 1995 (compulsive shopping); Dittmar et al. 2004 (conventional shops); *Germany*: O'Guinn & Faber 1989 (compulsive shipping, 92%F); *Spain*: L Ellis, Abild et al. 2012:345* (direct observation) **MIDDLE EAST** *Turkey*: Ellis, Abild et al. 2012:345* (direct observation) **NORTH AMERICA** *Canada*: E Fischer & Arnold 1990 (Christmas shopping); Laroche et al. 2000 (Christmas purchases); L Ellis, Abild et al. 2012:345* (direct observation); *United States*: Sanik 1981 (for groceries, self-report); Putnam & Davidson 1987; JF Peters 1989* (with children, for clothing); Fischer & Arnold 1990 (Christmas shopping); Juster & Stafford 1991:Table 4; Dholakia 1999 (more so for clothes than for groceries); Hayhoe et al. 2000 (undergrad, for bargains); McCall & Eckrich 2006 (undergrad); Kruger & Byker 2009 (recreational and social shopping, undergrad, N = 467); L Ellis, Abild et al. 2012:345* (direct observation); R Goldsmith 2016:Table 3 (self-report)	**EUROPE** *Germany*: Scherhorn et al. 1990 **NORTH AMERICA** *United States*: O'Guinn & Faber 1989; Montello et al. 1999

indicated in Table 18.1.1.1, the evidence is very consistent in indicating that females spend more time shopping than do males, particularly among adults.

18.1.1.2 Shopping Online

As use of the internet has grown, a new form of shopping, usually called *online shopping*, has emerged. Already, several studies have investigated the association between online shopping and sex. As can be seen by examining Table 18.1.1.2, the findings stand in sharp contrast to the preceding tables (regarding conventional forms of shopping). One can see that most studies have concluded that males are more likely to devote time to online shopping and make online purchases than females.

Table 18.1.1.2 Shopping online

Nature of difference			*Post-pubertal*		*Wide age range*
				Adult	
More among males				**EUROPE** *Britain*: M Brown et al. 2003; Dittmar et al. 2004 **NORTH AMERICA** *United States*: Bartol-Sheehan 1999; Korgaonkar & Wolin 1999; Li et al. 1999; S Rodgers & Sheldon 1999; Weiser 2000:174; Kwak et al. 2002; Van Slyke et al. 2002 (expecting to shop online); S Rodgers & Harris 2003:326 (number of purchases); Stafford et al. 2004; Susskind 2004 **INTERNATIONAL** *Internet Survey*: Kwak et al. 2002	**INTERNATIONAL** *Multiple Countries*: Briones 1998; Bartel-Sheehan 1999
Not significant				**ASIA** *Singapore*: Teo & Lim 2000	
More among females				**NORTH AMERICA** *United States*: Rohm & Swaminathan 2004	

18.1.1.3 Purchasing Goods and Services in General

Table 18.1.1.3 pertains to sex differences in the making of actual purchases, as opposed to shopping for goods and services. Of course, the specific type of items or services purchased is also important to consider. In any case, all the available research indicates that females make more purchases than do males.

18.1.1.4 Brand Sensitivity

Brand sensitivity refers to the tendency to consider the reputation of the manufacturer or seller when deciding whether or not to purchase a

particular product or service. As shown in Table 18.1.1.4, studies have indicated that females are more brand sensitive than males.

Table 18.1.1.3 Purchasing goods and services in general

Nature of difference			*Post-pubertal*		
			Adolescent	*Adult*	
More among males					
Not significant					
More among females			**NORTH AMERICA** *United States*: FJ Chaloupka 1999 (tobacco products)	**NORTH AMERICA** *United States*: KE Walker & Woods 1976; RE Goldsmith et al. 1987:417 (clothing purchases, N = 308); Fram & Axelrod 1990 (food); Yankelvich 1993 (87%F)	

Table 18.1.1.4 Brand sensitivity

Nature of difference				*Post-pubertal*	
				Adult	
More among males					
Not significant					
More among females				**NORTH AMERICA** *United States*: Beaudoin & Lachance 2006 (for clothing); Stokburger-Sauer & Teichmann 2013 (attracted to luxury brands more); Workman & Lee 2013	

18.1.1.5 Conspicuous Consumption

The concept of conspicuous consumption refers to the tendency to own (or at least seek to own) expensive products in ways that suggest one has little concern with their price. Table 18.1.1.5 shows that two studies have indicated that males are more prone toward conspicuous consumption than are females.

Table 18.1.1.5 Conspicuous consumption

Nature of difference				*Post-pubertal*	
				Adult	
More among males				**NORTH AMERICA** *United States*: B Segal & Podoshen 2012; Y Wang & Griskevicius 2014	
Not significant					
More among females					

18.1.1.6 Possessing or Using a Credit Card

Two studies were located that investigated whether males or females were more likely to have and/or use a credit card, instead of using cash to make purchases. Table 18.1.1.6 shows that both studies indicated that females use credit cards more than do males.

Table 18.1.1.6 Possessing or using a credit card

Nature of difference			*Post-pubertal*		
				Adult	
More among males					
Not significant					
More among females				**NORTH AMERICA** *United States*: Hayhoe et al. 2000 (undergrad); McCall & Eckrich 2006 (undergrad)	

18.1.1.7 Buying Extended Warranties

When buying products intended to last for many years, individuals are often given the opportunity to purchase an extended warranty. One study, cited in Table 18.1.1.7, concluded that females were more likely to purchase extended warranties than were males.

Table 18.1.1.7 Buying extended warranties

Nature of difference			*Post-pubertal*		
				Adult	
More among males					
Not significant					
More among females				**NORTH AMERICA** *United States*: T Cen et al. 2009	

18.1.1.8 Price Consciousness

Price consciousness refers to the tendency to consider price differentials between items or services when deciding whether or not to make a purchase. Table 18.1.1.8 shows that one study concluded that females seemed to be more price conscious than was the case for males.

Table 18.1.1.8 Price consciousness

Nature of difference			*Post-pubertal*		
				Adult	
More among males					
Not significant					
More among females				**NORTH AMERICA** *United States*: E Sherman et al. 2001 (elderly, retail merchandise)	

18.1.1.9 Price Paid for Goods or Services

Three studies compared males and females regarding the average price paid for automobiles that they purchase. One can see in Table 18.1.1.9 that all three studies concluded that females paid more than did males. Assuming this finding is correct, it may at least partly reflect the tendency for males to be more competitive than females (see Chapter 16), and thus enjoy the give-and-take bartering process more.

Table 18.1.1.9 Price paid for good or services

Nature of difference			*Post-pubertal*		
				Adult	
Males pay more					
Not significant					
Females pay more				**NORTH AMERICA** *United States*: Ayres 1991 (automobiles); Ayres 1995 (automobiles); Ayres & Siegleman 1995 (automobiles)	

18.1.1.10 Paying Finance Charges

When making purchases, especially of expensive items or services, individuals often extend their payments over several months or even years. Doing so often requires paying extra in the forms of what are known as *finance charges*. Table 18.1.1.10 shows that one study concluded that females tend to pay more finance changes than do males.

18.1.1.11 Factors Considered before Making Purchases

A couple of studies sought to determine if males and females differ in terms of the number of factors they take into account before making

Table 18.1.1.10 Paying finance charges

Nature of difference			*Post-pubertal*		
				Adult	
More among males					
Not significant					
More among females				**NORTH AMERICA** *United States*: Hayhoe et al. 2000 (undergrad)	

purchases. Table 18.1.1.11 shows that females seem to weigh more factors than do males.

Table 18.1.1.11 Factors considered before making purchases

Nature of difference			*Post-pubertal*		
				Adult	
More among males					
Not significant					
More among females				**NORTH AMERICA** *United States*: Meyers-Levy & Maheswaran 1991; Meyers-Levy & Sternthal 1991	

18.1.1.12 Information Considered before Making Purchases

Studies of sex differences in the amount of information sought before making a purchase are summarized in Table 18.1.1.12. One can see that they all suggest that females usually seek (or obtain) more information about products that they want to buy than do males.

Table 18.1.1.12 Information considered before making purchases

Nature of difference			*Post-pubertal*		
				Adult	
More among males					
Not significant					
More among females				**NORTH AMERICA** *United States*: Meyers-Levy 1988 (both ads and informal word-of-mouth); Putrevu 2001; Kempf et al. 2006	

18.1.1.13 Price Elasticity or Income Elasticity

Price elasticity refers to the range in prices that can be set without significantly affecting the purchasing decision of customers. As shown in Table 18.1.1.13, the evidence of any sex differences in price elasticity is mixed.

Table 18.1.1.13 Price elasticity or income elasticity

Nature of difference			*Post-pubertal*		
				Adult	
More among males				**NORTH AMERICA** *United States*: Goel & Nelson 2005 (tobacco purchases, price-sensitivity)	
Not significant					
More among females				**NORTH AMERICA** *United States*: Farrelly et al. 2001 (price elasticity, for cigarettes among smokers); Cox & Deck 2006 (income elasticity, when donating to charity)	

18.1.1.14 Having Health Insurance

In a couple of studies, sex differences in having health insurance were assessed among adults. Table 18.1.1.14 indicates that findings vary according to country (and possibly periods of time when the studies were conducted).

Table 18.1.1.14 Having health insurance

Nature of difference			*Post-pubertal*		
				Adult	
More among males				**NORTH AMERICA** *United States*: Verbrugge 1989:287	
Not significant				**EUROPE** *Spain*: Borrell et al. 2001:119 (N = 12,245)	
More among females					

18.1.1.15 Pet Ownership

Some research has assessed sex differences in the tendency to own one or more pets. As shown in Table 18.1.1.15, no significant differences have been detected.

Table 18.1.1.15 Pet ownership

Nature of difference			*Post-pubertal*		
				Adult	
More among males					
Not significant				**EUROPE** *Northern Ireland*: Wells & Hepper 1997 **NORTH AMERICA** *United States*: Marx, Stallones et al. 1988 (ages 21–64, phone survey); Poresky & Daniels 1998 (phone survey) **OCEANIA** *Australia*: Parslow, Jorm et al. 2005 (ages 60–65, N = 2,552)	
More among females					

18.1.2 Ingesting Behavior

wStudies of sex differences in actual drinking or eating various substances are reviewed in the following section. Not included is the ingesting of alcohol and other drugs (which are given attention elsewhere in this chapter).

18.1.2.1 Amount of Food Consumed

Studies undertaken to determine which sex consumes more food (often of some specific types) have reported sex differences. This evidence should be considered in the context of noting that males tend to be larger and more active than females, thus, probably needing to consume more calories. As shown in Table 18.1.2.1a, evidence of sex differences in the consumption of various type of foods is mixed.

Research findings of sex differences in the quantity of food consumed among various species of non-humans are summarized in Table 18.1.2.1b. One can see the findings have been mixed, albeit a majority of studies indicate that males consume more than do females.

18.1.2.2 Calories Consumed

In scientific terms, a calorie is the amount of heat needed to raise the temperature of one gram of water by one degree centigrade. If individuals consume more calorie-rich food that the amount that is used by their bodies to function each day, the excess calories will be stored as fat. All foods contain calories, albeit some much more than others. As shown in Table 18.1.2.2, most studies have concluded that males tend to consume more calories than do females.

Table 18.1.2.1a Amount of food consumed

Nature of difference	*Pre-pubertal*		*Post-pubertal*		*Wide age range*
		Child	*Adolescent*	*Adult*	
More among males		**EUROPE** *Britain*: Sahota et al. 2001 (bread & snack foods) **LATIN/ CARIBBEAN AMERICA** *Chile*: Olivares et al. 2004:1281 (bread & snack foods) **NORTH AMERICA** *United States*: Zelig 1962 (milk)		**ASIA** *Bangladesh*: Pitt et al. 1990 (calories)	**NORTH AMERICA** *United States*: LJ Roberts 1944; Frazao & Cleveland 1994 (fat & cholesterol)
Not significant					
More among females			**EUROPE** *France*: Nu, Macleod & Barthelemy 1996 (snacks, ages 10–20, N = 222)	**ASIA** *South Korea*: MS Lee & Kwak 2006 (snacks, undergrad, N = 104M + 229F, 27.1%M vs. 50.8%F)	

Table 18.1.2.1b Amount of food consumed by non-humans

Nature of difference	*Pre-pubertal*		*Post-pubertal*		
		Child		*Adult*	
More among males		**UNGULATE** *Deer*: Nordan et al. 1970; Robbins & Moen 1975		**RODENT** *Mouse*: LC Klein, Stine et al. 2004:17; *Rat*: GH Wang 1924; Leshner & Collier 1973 (young, proportion of protein) **UNGULATE** *Sheep*: Morrison 1948 (age & weight controlled)	
Not significant					
More among females				**RODENT** *Hamster*: K Kowalewski 1969	

18.1.2.3 Time Spent Eating or Grazing in General

The types of animals that engage in grazing are mainly ungulates (hoofed animals). Table 18.1.2.3 shows that findings regarding sex differences in the amount of time spent grazing have been mixed. Some

Table 18.1.2.2 Calories consumed

Nature of difference			*Post-pubertal*		
				Adult	
More among males				**NORTH AMERICA** *United States*: Basiotis et al. 1989; Phillips et al. 1993 (while running, N = 6M + 6F); Huang, Song et al. 1994 (undergrad, calories); McKenzie et al. 2000 (while cycling, N = 6M + 6F); Lemont et al. 2001 (while cycling); Lamont et al. 2003 (while cycling)	**ASIA** *Russia*: Jahns et al. 2004:3118 (ages 9–18) **NORTH AMERICA** *United States*: Jahns et al. 2004:3118 (ages 9–18) **OVERVIEW** *Literature Review*: BJ Rolls, Fedoroff & Guthrie 1991
Not significant				**NORTH AMERICA** *United States*: Bowtell et al. 1998 (while walking, N = 3M + 1F)	
More among females					

of the inconsistencies may be associated with the abundance of food in areas where males and females graze and in seasonally related needs for calories.

Table 18.1.2.3 Time spent eating or grazing among non-humans

Nature of difference			*Post-pubertal*		
				Adult	
More among males				**UNGULATES** *Bighorn Sheep*: Shank 1982 (winter); *Red Deer*: Clutton-Brock et al. 1982; *Soay Sheep*: Perez-Barberia & Gordon 1999:264	
Not significant				**UNGULATES** *Black Tailed Deer*: Weckerly 1993	
More among females				**UNGULATES** *Bighorn Sheep*: Geist & Petocz 1977 (in food-abundant areas); *Chamois*: Perez-Barberia et al. 1997; *Giraffe*: Leuthold & Leuthold 1978; Pellew 1984; Ginnett & Demment 1997; *Mule Deer*: Bowyer 1984 (in food-abundant areas); *Red Deer*: WN Charles et al. 1977 (in food-abundant areas); A Watson & Staines 1978 (winter); Staines et al. 1982 (winter); *White-Tailed Deer*: Beier 1987 (in food-abundant areas); *Waterbuck*: Spinage 1968	

18.1.2.4 Amount of Liquids Consumed

Findings from studies of sex differences in the consumption of liquids are summarized in Table 18.1.2.4a. One can see that the results have not been consistent.

Table 18.1.2.4a Amount of liquids consumed

Nature of difference			*Post-pubertal*		
			Adolescent	*Adults*	
More among males			**EUROPE** *Sweden*: Forshee & Storey 2003 (soft drinks & juice); Vagstrand et al. 2007:523 (soft drinks & juice)		
Not significant					
More among females				**NORTH AMERICA** *United States*: LB Baker et al. 2005 (total liquids consumed after exercise with body weight sex differences controlled)	

Research undertaken to determine if males or females consume greater amounts of liquids among non-humans is shown in Table 18.1.2.4b. The table suggests that, at least among rats, evidence for sex differences has been mixed.

Table 18.1.2.4b Amount of liquids consumed among non-humans

Nature of difference			*Post-pubertal*		*Wide age range*
				Adult	
More among males				**RODENT** *Rat*: Valenstein et al. 1967 (water); Krecek 1973 (water)	
Not significant					
More among females				**RODENT** *Rat*: YX Wang et al. 1996 (water consumption per day)	**RODENT** *Rat*: Dow-Edwards et al. 1989 (water); McGivern & Henschel 1990 (water); McGivern et al. 1996 (water); McGivern et al. 1998 (water)

18.1.3 Types of Foods Consumed

Some research has investigated sex differences in the types of foods consumed. Results appear in the following tables.

18.1.3.1 Being a Vegetarian

Research findings that were located on sex differences in vegetarianism (or the avoidance of foods from animals, sometimes even animal products such as milk and eggs) are summarized in Table 18.1.3.1. One can see that greater propositions of females are vegetarians than males.

Table 18.1.3.1 Being a vegetarian

Nature of difference			*Post-Pubertal*		*Wide age range*
				Adult	
More among males					
Not significant					
More among females				**EUROPE** *Britain*: Cappuccio et al. 1998; *Croatia*: Lovrenčić, Gerić 2020	**OVERVIEW** *Literature Review*: MB Ruby 2012:148

18.1.3.2 Eating Insects

Research findings having to do with insect eating among various species of non-human primates are presented in Table 18.1.3.2. The table suggests that in all cases, females were observed consuming insects more than in the case for males.

Table 18.1.3.2 Eating insects (or other invertebrates) among non-humans

Nature of difference			*Post-pubertal*		*Wide age range*
				Adult	
More among males					
Not significant					
More among females				**PRIMATE** *Chimpanzee*: McGrew 1979	**PRIMATE** *Cebus Olivaceus*: Fragaszy 1984; *Chimpanzee*: Uehara 1986 (termites); Lonsdorf 2005 (termites); *Wedge-Capped Capuchin*: Fragasyz & Boinski 1995:346

18.1.3.3 Eating Fruits and Vegetables

Substantial research has been reported on sex differences in the consumption of fruits and vegetables. One can see in Table 18.1.3.3a that most, but not all, of the studies indicate that females consume more fruits and vegetables than do males.

Studies of the consumption of fruits and vegetables by various species of non-human primates have also been reported. Table 18.1.3.3b shows that, as with humans, all of these studies indicate that females consume these categories of food to a greater degree than do males.

Table 18.1.3.3a Eating fruits and vegetables

Nature of difference			*Post-pubertal*		*Wide age range*
			Adolescent	*Adult*	
More among males				**NORTH AMERICA** *United States*: Olfert, Barr et al. 2019 (undergrad, N = 378M + 744F)	
Not significant				**NORTH AMERICA** *United States*: Alley & Burroughs 1991:207 (undergrad, vegetables)	
More among females			**EUROPE** *Britain*: Crawley 1993 (fruits); *Finland*: EB Ross, Hirvonen et al. 2001 (raw vegetables); *Sweden*: Samuelson et al. 1996 (fruits); Vagstrand et al. 2003:523 (fruits)	**AFRICA** *Tanzania*: JC Berbesque & Marlowe 2009:608 (Hadza tribe, N = 45M + 49F) **ASIA** *Thailand*: Nanakorn, Osaka et al. 1999 (undergrad, fruits, N = 155M + 384F) **MIDDLE EAST** *Turkey*: Ozcelik & Akan 2007:48 (fruit, N = 200M + 200F) **ASIA** *South Korea*: MS Lee & Kwak 2006 (ages 14–68, N = 303 **EUROPE** *Britain*: Baker & Wardle 2003; Beardsworth et al. 2002:480 (N = 177M + 244F) **NORTH AMERICA** *United States*: Wyant & Meiselman 1984 (military personnel); Huang, Song et al. 1994 (undergrad, vegetables) **OCEANIA** *Australia*: G Turrell 1997 (preferences, N = 330) **INTERNATIONAL** *Multiple Countries*: Wardle, Haase et al. 2004:109 (23 countries, undergrad, N = 8,482M + 10,816F)	**EUROPE** *Britain*: LJ Cooke & Wardle 2005:744 (ages 4–16, N = 564M + 639F) **NORTH AMERICA** *United States*: AW Logue & Smith 1986 (ages 14–68, N = 303); NL Caine-Bish & Scheule 2009 (3rd-12th graders, N = 1,818) **OVERVIEW** *Literature Review*: BJ Rolls, Fedoroff & Guthrie 1991; Kiefer, Rathmanner & Kunze 2005

18.1.3.4 Eating Meat

Considerable research has sought to determine if sex differences exist in the consumption of meat. In the present context, *meat* normally refers to any digestible parts of a vertebrate animal (thus normally excluding insects or other invertebrates). Table 18.1.3.4a shows that among humans, males have been repeatedly found to have a stronger tendency toward meat consumption than is the case for females.

Some studies have been conducted among various species of non-human primates to assess sex differences in meat consumption. As shown

Table 18.1.3.3b Eating fruit and vegetables among non-humans

Nature of difference			*Post-pubertal*		
				Adult	
More among males					
Not significant					
More among females				**PRIMATE** *Brown Capuchin Monkey*: J Terborgh 1983; *Tufted Capuchin Monkey*: I Agostini & Visalberghi 2005; *Wedge-Capped Capuchin Monkey*: DM Fragaszy 1986; JG Robinson 1986; DM Fragaszy & Boinski 1995; *White-faced Capuchin Monkey*: LM Rose 1994; KC Mackinnon 1995	

Table 18.1.3.4a Eating meat

Nature of difference			*Post-pubertal*		*Wide age range*
				Adult	
More among males				**AFRICA** *Tanzania*: JC Berbesque & Marlowe 2009:608 (Hadza tribe, N = 45M + 49F); Berbesque, Marlowe & Crittenden 2011:Figure 3 (Hadza tribe) **EUROPE** *Britain*: Beardsworth & Bryman 1999 (undergrad, consumption); Beardsworth et al. 2002:480 (N = 177M + 244F); Beardsworth & Bryman 2004 **MIDDLE EAST** *Turkey*: Ozcelik & Akan 2007:48 (N = 200M + 200F) **NORTH AMERICA** *United States*: Wyant & Meiselman 1984 (military personnel); McClelland, Demark-Wahnefried et al. 1998 (among blacks, meat in general); Shiferaw, Verrill et al. 2012:Table 2; Olfert, Barr et al. 2019 (undergrad, N = 378M + 744F, percent energy from fat); *U.S. & Canada Combined*: Wansink, Cheney & Chan 2003:743 (N = 1,416, preference for meat-based comfort food) **OCEANIA** *Australia*: Hayley, Zinkiewicz & Hardiman 2015 (consumption, N = 79M + 121F) **INTERNATIONAL** *Multiple Countries*: Wardle, Haase et al. 2004:109 (23 countries, undergrad, N = 8,482M + 10,816F); Prattala et al. 2007 (including fish)	**EUROPE** *Britain*: LJ Cooke & Wardle 2005:744 (ages 4–16, N = 564M + 639F) **NORTH AMERICA** *United States*: AW Logue & Smith 1986 (ages 14–68, N = 303); Caome-Bish & Scheule 2009 (3rd-12th graders, N = 1,818); Ritzel & Mann 2021:8 (ages 5–80, especially after puberty) **OVERVIEW** *Literature Review*: BJ Rolls, Fedoroff & Guthrie 1991; Kiefer, Rathmanner & Kunze 2005
Not significant					
More among females					

in Table 18.1.3.4b, all these studies have indicated that, just as with humans, males eat more meat than do females.

Table 18.1.3.4b Eating meat among non-humans

Nature of difference			*Post-pubertal*		
			Adolescent	*Adult*	
More among males			**PRIMATE** *Tufted Capuchin*: I Agostini & Visalberghi 2005	**PRIMATE** *Brown Capuchin Monkey*: J Terborgh 1983; *Cebus Olivaceus*: Fragaszy 1984; *Chimpanzee*: Takahata et al. 1984:226; *Wedge-Capped Capuchin*: DM Fragaszy 1986; JG Robinson 1986; DM Fragaszy & Boinski 1995:346; *White-Faced Capuchin*: LM Rose 1994; KC Mackinnon 1995	
Not significant					
More among females					

18.1.3.5 Fat Consumption

Two studies were located regarding sex differences in fat consumption. As shown in Table 18.1.3.5, both studies indicate that males consume higher quantities of fat than do females. This sex difference coincides with evidence that males also have a greater preference for dietary fat, as presented in another chapter.

Table 18.1.3.5 Fat consumption

Nature of difference					*Wide age range*
More among males					**NORTH AMERICA** *United States*: Polednak 1997a (among Hispanics); Huang, Song et al. 1994 (undergrad)
Not significant					
More among females					

18.1.3.6 Saccharin Consumption

Sex differences in the consumption of saccharin (an artificial sweetener) have been reported in a few rodent species. As shown in Table 18.1.3.6, these studies have concluded that such consumption is more common in females than in males.

Table 18.1.3.6 Saccharin consumption among non-humans

Nature of difference			*Post-pubertal*		
				Adult	
More among males					
Not significant					
More among females				**RODENT** *Hamster*: I Zucker et al. 1972; *Rat*: Valenstein et al. 1967b; RF McGivern et al. 1984a; S Baron et al. 1995	

18.1.3.7 Salt Consumption

Research findings on sex differences in salt consumption was limited to rats. As shown in Table 18.1.3.7, all these studies have concluded that females consume more salt than do males.

Table 18.1.3.7 Salt consumption among non-humans

Nature of difference			*Post-pubertal*		
				Adult	
More among males					
Not significant					
More among females				**RODENT** *Rat*: Valenstein et al. 1967 (young); Krecek et al. 1972 (young); Krecek 1973 (young); Sakai et al. 1989; Frankmann et al. 1991; SY Chow et al. 1992; FW Flynn et al. 1993; KS Curtis & Contreras 2003; Leshem et al. 2004	

18.1.4 Use of Health and Beauty Products

Among humans, the consumption and use of various health and beauty products is common. Studies of sex differences in this regard are presented below.

18.1.4.1 Utilizing Cosmetics

Two studies were located pertaining to sex differences in the use of cosmetics. Table 18.1.4.1 shows that both studies concluded that this custom was more common among females than among males.

18.1.4.2 Ingesting Medications (Legal Drugs) in General

A substantial number of studies of sex differences in the consumption of pharmaceutical drugs have been published. These medications are

Table 18.1.4.1 Utilizing cosmetics

Nature of difference			*Post-pubertal*		
				Adult	
More among males					
Not significant					
More among females				**INTERNATIONAL** *Multiple Countries*: Corson 1972; Gunn 1973	

usually prescribed by a physician that are not taken as a way of getting high or intoxicated. As shown in Table 18.1.4.2, except during childhood, all studies have indicated that females take more medications than do males.

Table 18.1.4.2 Ingesting medications (legal drugs) in general

Nature of difference	*Pre-pubertal*		*Post-pubertal*		*Wide age range*
		Child	*Adolescent*	*Adult*	
More among males					
Not significant		**NORTH AMERICA** *United States*: Rabin & Bush 1975*			
More among females			**NORTH AMERICA** *United States*: Rabin & Bush 1975*	**EUROPE** *Sweden*: Thilers et al. 2006:Table 2 (N = 1,107M + 1,276F) **NORTH AMERICA** *United States*: Abelson et al. 1973; Choi 1973; H Parry et al. 1973; Rabin & Bush 1975* (young, middle age & elderly); P Bush & Rabin 1976; Rabin & Bush 1976; Suffet & Brotman 1976; PJ Bush & Rabin 1977 (excluding oral contraceptives); Rabin 1977; P Bush & Osterweis 1978; Verbrugge 1985:160; Verbrugge 1985:162 (psychotropics); Hibbard & Pope	**NORTH AMERICA** *United States*: Mellinger et al. 1974; Warheit et al. 1976; Choi 1977; Nathanson 1977a; Glickman 1978; Koch & McLemore 1978; C Wilder 1978; Verbrugge 1982b

(*Continued*)

Table 18.1.4.2 (Continued)

Nature of difference	*Pre-pubertal*		*Post-pubertal*		*Wide age range*
		Child	*Adolescent*	*Adult*	
				1986; Verbrugge 1989:287 **OCEANIA** *Philippines*: Hardon 1987 **INTERNATIONAL** *Multiple Countries*: Obermeyer et al. 2004:62; Maylor et al. 2007:239 (excluding contraceptives)	

18.1.4.3 Consuming Non-prescription (Over-the-Counter) Drugs

In a few studies, researchers have sought to determine if there are sex differences in the consumption of various non-prescription (over-the-counter) medications. One can see in Table 18.1.4.3 that all these studies have concluded that females are more likely to do so than males.

18.1.4.4 Consuming Vitamins and Nutritional Supplements

The practice of supplementing one's diet with vitamins and other nutrients not contained in the food one eats is fairly common. As shown in Table 18.1.4.4, the available studies on sex differences in this regard have been mixed.

18.1.4.5 Consuming Prescription Drugs in General

Sex differences in the use of prescription drugs have been substantially investigated. As shown in Table 18.1.4.5, most studies have found that females consume (or purchase) prescription drugs to a greater extent than males, with just a couple of studies reporting no significant sex differences.

18.1.4.6 Consuming Psychotropic Prescription Drugs

Drugs that have substantial effects upon mood or behavior that are typically prescribed by physicians for these purposes are known as *psychotropic drugs*. As shown in Table 18.1.4.6, most of the available research has indicated that more females than males regularly consume these medications.

Table 18.1.4.3 Consuming non-prescription (over-the-counter) drugs

Nature of difference	*Pre-pubertal*		*Post-pubertal*		*Wide age range*
	Infant/Toddler	*Child*	*Adolescent*	*Adult*	
More among males					
Not significant					
More among females	**NORTH AMERICA** *United States*: PJ Bush & Rabin 1976*	**NORTH AMERICA** *United States*: PJ Bush & Rabin 1976*	**NORTH AMERICA** *United States*: PJ Bush & Rabin 1976*	**EUROPE** *Netherlands*: Gijsbers van Wijk 1991* **NORTH AMERICA** *United States*: PJ Bush & Rabin 1976*; PJ Bush & Rabin 1977 (excluding oral contraceptives); PJ Bush & Osterweis 1978	**NORTH AMERICA** *United States*: Knapp & Knapp 1972; PJ Bush & Rabin 1976*

Table 18.1.4.4 Consuming vitamins and nutritional supplements

Nature of difference	*Pre-pubertal*		*Post-pubertal*		*Wide age range*
		Child		*Adult*	
More among males		**EUROPE** *Netherlands*: Wiersinga et al. 2001 (iodine)		**NORTH AMERICA** *United States*: Michaud et al. 2005 (carbohydrates)	**INTERNATIONAL** *Multiple Countries*: Jahns et al. 2004:3118 (protein, carbohydrates, and calcium, U.S. and Russia, ages 9–18)
Not significant					
More among females				**EUROPE** *Britain*: AR Ness et al. 1999; Cappuccio et al. 2001 **NORTH AMERICA** *United States*: Schoenborn et al. 1981; Karasik et al. 2003:311 (calcium); Cleary, Zaborski & Ayamian 2004:56 (vitamins); Radimer et al. 2004 (47%M vs. 57%F)	

Table 18.1.4.5 Consuming prescription drugs

Nature of difference			*Post-pubertal*		*Wide age range*
			Adolescent	*Adult*	
More among males					
Not significant			**NORTH AMERICA** *Canada*: Popham 1970	**NORTH AMERICA** *United States*: Mant et al. 1983; Cleary, Zaborski & Ayamian 2004:50 (blood pressure medicine, by persons with high BP)	
More among females				**EUROPE** *Denmark*: Linjakumpu et al. 2002; *Netherlands*: Gijsbers van Wijk 1991*; *Sweden*: Jorgensen et al. 2001 **MIDDLE EAST** *Israel*: Benyamini et al. 2003 (elderly) **NORTH AMERICA** *Canada*: Cooperstock 1971 (prescription); RG Smart & Fejer 1972; Cooperstock	**EUROPE** *Britain*: M Blaxter 1990 **NORTH AMERICA** *United States*: Sheehan & Sheehan 1987* (among anxiety patients); Simoni-Wastila 2000:291

(*Continued*)

Table 18.1.4.5 (Continued)

Nature of difference			*Post-pubertal*		*Wide age range*
			Adolescent	*Adult*	
				1976; Juster, Raymond et al. 2016:Table 1 (N = 60M + 144F); *United States*: Mellinger et al. 1974 (ages 18–74, higher expenditures); Rabin & Bush 1975 (higher expenditures); R Andersen et al. 1976; PJ Bush & Rabin 1976 (over the counter); Rabin & Bush 1976 (higher expenditures); JW Choi 1977 (higher expenditures); Rabin 1977 (higher expenditures); PJ Bush & Osterweis 1978 (higher expenditures); Wilder 1978 (higher expenditures); Fidell 1981 (abusive use); Kasper 1982; H Koch 1982:6; Verbrugge 1982b (higher expenditures); CM Roe et al. 2002; Murtagh & Hubert 2004:1409 (elderly); H Tabenkin et al. 2004	

Table 18.1.4.6 Consuming psychotropic prescription drugs

Nature of difference				*Post-pubertal*	*Wide age range*
				Adult	
More among males				**NORTH AMERICA** *United States*: Opolka et al. 2003:637* (haloperidol, among schizophrenics)	
Not significant				**NORTH AMERICA** *United States*: Mant et al. 1983; Robbins & Clayton 1989:207 (elderly, psychoactive drugs); Roeloffs et al. 2001:1252 (among depressed patients); Satre et al. 2004:640 (elderly, among alcohol abusers)	
More among females				**EUROPE** *Britain*: Ashton 1991 (psychotropic drugs); *Sweden*: Bergh et al. 2003 (elderly); Byqvist 2006:1822 (sedatives & tranquilizers); *Multiple European Countries*: Balter et al. 1974 (psychotropic)	**EUROPE** *Italy*: Olfson et al. 1998 (antidepressants); Pietraru et al. 2001 (antidepressants); Barbui et al. 2003 (antidepressants);

(*Continued*)

Table 18.1.4.6 (Continued)

Nature of difference			*Post-pubertal*		*Wide age range*
				Adult	
				MIDDLE EAST *Lebanon*: Karam et al. 2000:192 (undergrad, barbiturates) **NORTH AMERICA** *Canada*: Cooperstock 1971; Cooperstock 1974; Cooperstock 1978; Juster, Raymond et al. 2016:Table 1 (N = 60M + 144F; 11.7%M vs. 28.5%F); *United States*: Gurin et al. 1960; Manheimer et al. 1968 (prescription psychotropics); CD Chambers 1971 (prescription); Parry et al. 1973 (prescription psychotropics); Suffet & Brotman 1976; Gomberg 1979:208 (prescription psychotropics); Cafferata et al. 1983; Pascale & Evans 1993:113 (barbiturates); Szwabo 1993 (elderly, benzodiazepine); Ronfeld et al. 1997 (sertraline); Fingerhood 2000 (elderly, benzodiazepine); Opolka et al. 2003:637* (olanzapine, schizophrenics); Tabenkin et al. 2004 (antidepressants); K Holloway & Bennett 2007 (benzodiazepine, among arrestees, urinalysis) **INTERNATIONAL** *Multiple Countries*: Linden et al. 1999	*Netherlands*: Van der Waals et al. 1993; *Sweden*: TM Jorgensen et al. 1993; Takala et al. 1993 **NORTH AMERICA** *United States*: Abelson et al. 1973; Mellinger et al. 1978; Cottler & Robins 1983; KB Wells et al. 1985; Svarstad et al. 1987; Hohmann 1989; Cafferata & Meyers 1990; Swartz et al. 1991b; Willcox et al. 1994; Simoni-Wastila 1998 **OCEANIA** *Australia*: IL Rowe 1973 **INTERNATIONAL** *Multiple Countries*: Linden et al. 1999 (psychotropic drugs); Sim et al. 2006:433 (5/5 countries, antidepressants)

18.1.4.7 Consuming Pain Relievers

Studies of sex differences in the consumption of pain relievers (analgesics) are summarized in Table 18.1.4.7. It indicates that females are usually more likely to consume these types of medications.

18.1.4.8 Consuming Medications as Instructed

Several studies have investigated sex differences in tendencies to consume medications as specifically prescribed by the physician or healthcare provider. As shown in Table 18.1.4.8, most studies have found no significant sex differences in this regard.

18.1.5 Alcohol Ingesting (Excluding Alcoholism)

Alcohol ingestion is common throughout most human populations. Below, studies are cited that have compared males and females with reference to alcohol consumption in general, along with drinking to and

Table 18.1.4.7 Consuming pain relievers

Nature of difference				*Post-pubertal*	
				Adult	
More among males				**ASIA** *China*: Chia et al. 2002 (opioids, post-operatively)	
Not significant					
More among females				**EUROPE** *Sweden*: Antonov & Isacson 1996 (analgesics); HI Andersson et al. 1999 (analgesics); Grossi et al. 2000:313 (analgesics) **NORTH AMERICA** *United States*: Krupka et al. 1978 (aspirin, young adult); Prather & Fidell 1978; Vener et al. 1982 (young adult); H Taylor & Curran 1985	

Table 18.1.4.8 Consuming medications as instructed

Nature of difference				*Post-pubertal*	
				Adult	
More among males				**EUROPE** *Britain*: Luntz & Austin 1960 (chemotherapy for tuberculosis); Morrow & Rabin 1966 (isoniazid)	
Not significant				**EUROPE** *Britain*: Willcox et al. 1965 (psychiatric out-patients) **NORTH AMERICA** *United States*: ME MacDonald 1962 (rheumatic fever patients); JD Watkins et al. 1966 (diabetic patients); Charney et al .1967 (oral penicillin); Maddock 1967 (isoniazid and amino salicylic acid); MS Davis 1968; Neely & Patrick 1968 (elderly)	
More among females					

beyond the point of intoxication. Incidentally, alcoholism is covered in Chapter 14 as a form of behavioral disorder.

18.1.5.1 Alcohol Consumption in General

A tremendous amount of research has compared the sexes regarding the overall tendency to drink alcohol, so much so that the findings are presented in two tables. One table pertains only to adolescents while the other one is for adults along with multiple age groups. By examining Table 18.1.5.1a, one can see that the majority of studies of adolescents have concluded that males are more likely than females to at least occasionally drink alcohol.

Table 18.1.5.1a Alcohol consumption in general (by adolescents)

Nature of difference	*Post-pubertal*
	Adolescent
More among males	**AFRICA** *Kenya*: Mugisha et al. 2003:235*; *South Africa*: AJ Flisher et al. 2003:61 (among blacks) **ASIA** *China*: Lo & Globetti 1999 (high school, Hong Kong); Lo & Globetti 2000:1299; *Malaysia*: Barus et al. 2013; *Russia*: Knyazev 2004:315; Knyazev, Slobodskaya et al. 2004:833* **EUROPE** *Britain*: PM Kohn & Annis 1977; Bagnall 1988 (age 13); *Estonia*: Merenakk et al. 2003:1509; *France*: Bailly et al. 1993; Choquet & Ledoux 1994; Arvers & Choquet 1999*; Chau et al. 2007:329; *Germany*: E Lange 1991; Wiesner et al. 2007; *Italy*: Vescio et al. 2003:1053; *Netherlands*: JF van den Berg, Miedema et al. 2009 (ages 59–97); Platje, Popme et al. 2015:Table 1 (N = 144M + 115F); *Norway*: Pedersen & Kolstad 2000 (among Muslim immigrants); Oia 2003 (among immigrants); Amundsen et al. 2005:1458; *Spain*: Villalbi 1995; Cano-Pumaraga, Barbe et al. 2017:Table 1 (N = 505M + 650F, 56%M vs. 28% F); *Sweden*: Hibell et al. 2000*; Svensson 2000; *Multiple European Countries*: Hibell et al. 2000* (in 29/30 countries) **LATIN/CARIBBEAN AMERICA** *Brazil*: Micheli & Formigoni 2004:Table 2 (ages 10–19) **NORTH AMERICA** *Canada*: Wilsnack & Wilsnack 1978:1860; GE Barnes, Mitic et al. 2009; *United States*: AD Slater 1952; Ullman 1957 (high school); Maddox & McCall 1964; Forslund & Gustafson 1970 (high school); Wechsler & Thum 1973; Wechsler & Thum 1974; Rachal et al. 1975; Wechsler & McFadden 1976; Weller & Lorch 1977 (in same-sex groups); Lassey & Carlson 1979; WR Downs & Robertson 1982; Levenson et al. 1983; RA Zucker & Harfort 1983:978; KN Thompson & Wilsnack 1984:37; WR Downs 1987; JH Palmer & Ringwalt 1988:289 (N = 10,259); Fagan & Pabon 1990:331; Farrow & Brissing 1990 (before driving); Windee 1990:88 (without parent's permission); Lex 1991:122 (self-report); Pascale & Evans 1993:113; Liu & Kaplan 1996; Substance Abuse and Mental Health Services Administration 1996; RD Walker et al. 1996 (among Native Americans); JA Lee et al. 1997; HR White & Huselid 1997; JG Barber et al. 1998; Novins & Mitchell 1998; Alaniz et al. 1999 (Mexican-Americans); Grunbaum et al. 2000 (alternative school attendees); CS Martin et al. 2000; Pate et al. 2000:908; GM Barnes et al. 2002:163; Colder et al. 2002; Zapert et al. 2002:843; L Johnston et al. 2003* (from 1975-2001); TF Locke 2003:55; KE Miller et al. 2003; Wainright & Patterson 2006:529 (self-report); Balsa, Giuliano & French 2011:Table 1 (N = 2,049M + 2,243F) **OVERVIEW** *Literature Review*: BG Simons-Morton et al. 2009
Not significant	**EUROPE** *Multiple European Countries*: Hibell et al. 2000* (in 1/30 countries) **NORTH AMERICA** *United States*: Knupfer 1964; Newcomb et al. 1986; Newcomb & McGee 1989; Dolcini & Adler 1994:500; Simons-Morton et al. 1999 (8th graders); Pirkis et al. 2003:282* (ever use & use in the past 30 days) **OCEANIA** *Australia*: Pirkis et al. 2003:282* (ever use & use in the past 30 days)
More among females	**EUROPE** *Britain*: D Best et al. 2001:54; *Sweden*: Byqvist 1999 **NORTH AMERICA** *United States*: Pollock 1969 (college freshmen, 62%M vs. 68%F); L Johnston et al. 2003* (in 2002)

Findings from the numerous studies of sex differences in alcohol consumption among adults as well as persons regardless of age are summarized in Table 18.1.5.1b. One can see that the vast majority of studies have indicated that males are more likely to consume alcohol than is true for females. Nonetheless, there are some exceptions, particularly among college students in recent years.

Table 18.1.5.1b Alcohol consumption in general by adults and samples with a wide age range

Nature of difference	*Post-pubertal*	*Wide age range*
	Adult	
More among males	**AFRICA** *Cameroon*: Fezeu et al. 2006:108; *Kenya*: Odek-Ogunde & Pande-Leak 1999 (undergrad); Mugisha et al. 2003:235* (young); *Nigeria*: Oshodin 1982 (undergrad); Alagh & Omokhodion 2004 (undergrad); *South Africa*: Peltzer et al. 2002:109 (undergrad) **ASIA** *China*: Colon & Wuollet 1994; Anson & Sun 2002:1046; Ng et al. 2006:430 (29%M vs. 7%F, N = 534M + 2,786F); *Japan*: Suwake 1985:128; Saito, Yonemasu & Inami 2003:Table 1 (elderly, N = 398M + 655F, rural); Takahashi, Jang et al. 2020:Table 1*; *India*: G Singh & RP Singh 1979 (undergrad); Parameswaran & Rao 1983 (undergrad); *Russia*: Simpura et al. 1997; Bobak et al. 1999; Malyutina et al. 2001; Knyazev et al. 2004:833* (young); *Singapore*: Isralowitz & Hong 1989 (undergrad); Teoh et al. 2009:Table 10 (regular consumption); *South Korea*: Jeon, Jang et al. 2007:S336 (elderly); Jeong, Choi et al. 2008:Table 1 (N = 1,417); Supartini, Oishi & Yagi 2017:Table 1; Takahashi, Jang et al. 2020:Table 1*; *Thailand*: Mougne et al. 1982; Nanakorn et al. 1999 (undergrad) **EUROPE** *Britain*: Edwards et al. 1972; Orford et al. 1974 (undergrad); M Morgan et al. 1977; Cartwright et al. 1978; Anderson 1984 (undergrad); Orford & Keddie 1985 (positive reasons); Fillmore et al. 1991; Ingle & Furnham 1996 (undergrad); Valliant & Scalan 1996 (undergrad); Gershuny 2000 (percent of leisure time); Beardsworth & Bryman 2002; El Ansari et al. 2011 (undergrad); *Denmark*: TK Jensen et al. 1998:995; *Finland*: Haavio-Mannila et al. 1990 (undergrad); *France*: Dufouil et al. 1997:407 (N = 574M + 815F); Arvers & Choquet 1999*; Herttua et al. 2007:458; *Germany*: C Stock et al. 2001 (undergrad, N = 288M + 362F); Lotze, Domin et al. 2019:Table 3 (ages 21–90, N = 2,838); *Ireland*: PS Parfrey 1977 (undergrad); *Kosovo*: Ahern et al. 2004:768 (20.7%M vs. 3.7%F are current drinkers); *Netherlands*: Neve et al. 1996; de Bruin et al. 2005:658; *Norway*: Keller & Gurioli 1976; *Poland*: RC Engs et al. 1991* (per week); *Scotland*: Dight 1976; *Sweden*: P Milton 1994; Romelsjo & Lundberg 1996:1317; Byqvist 1999; Bendtsen et al. 2002:24 (parents of alcoholics); Von Bothmer & Fridlund 2005 (undergrad); Larsson, Kroll et al. 2012:592 (N = 774M + 971F); Waern, Marlow et al. 2014 (elderly); *Multiple European Countries*: K Bloomfield, Gmel et al. 2001	**AFRICA** *Nigeria*: Gureje, Degenhardt et al. 2007 (self-report) **ASIA** *India*: G Singh 1989 **EUROPE** *Britain*: Orford & Keddie 1985; Schoenborn 1986; KM Filmore 1987a; KM Filmore 1987b; Chou & Pickering 1992; DA Dawson & Archer 1992; KM Filmore et al. 1992; DA Dawson 1993; Marmot & D Smith 1997; *Denmark*: Saelan et al. 1992; *Finland*: Pietinen et al. 1996a; Helakorpi et al. 1999; *Netherlands*: Neve et al. 1996; Bongers & van Oers 1998:283 (self-report); Holly & Wittchen 1998; *Spain*: Alvarez & del Rio 1994; *Multiple European Countries*: Hupkens et al. 1993 **MIDDLE EAST** *Israel*: Rahan et al. 1999:1215; *Jordon*: S Weiss et al. 1999:189 **NORTH AMERICA** *Canada*: Bondy 1993; Single & Wortley 1993; Kunz & Glesbrecht 1999 (Indo-Pakistanis in Canada); *United States*: Forslund & Gustafson 1970; Warheit et al. 1976:228; Mail & McDonald 1980 (Native Americans); Lee-Feldstein & Harburg 1982:828; ME Hilton 1987; US Department of Health & Human Services 1987b:20; ME Hilton 1988a, ME Hilton 1988b; Robins 1989; Markides et al. 1990 (Mexican Americans); Caetano & Kaskutas 1995:560; Califano 1996; Minugh et al. 1998:491; Chatham et al. 1999 (heroin addicts); Schulenberg & Maggs 2002; Kafai & Ganji 2003:15 (self-report) **OCEANIA** *Australia*: T Stockwell et al. 2004 **INTERNATIONAL** *Multiple Countries*: Degenhardt et al. 2008 (self-report); G Rahav,

(*Continued*)

Table 18.1.5.1b (Continued)

Nature of difference	*Post-pubertal*	*Wide age range*
	Adult	
	LATIN/CARIBBEAN AMERICA *Brazil*: Kerr-Correa, Igami et al. 2007; *Colombia*: G Marin 1976 (undergrad) **MIDDLE EAST** *Lebanon*: Karam et al. 2000:192 (undergrad) **NORTH AMERICA** *Canada*: Lamontagne et al. 1979 (undergrad); JE Lapp 1984 (undergrad); Single & Wortley 1993; Svenson et al. 1994 (undergrad); Adlaf & Smart 1995 (elderly); Gliksman et al. 1997 (undergrad); DeWit et al. 1999:110 (Aboriginal Americans); Bonin et al. 2000:155; M Denton et al. 2004:2592 (regular or occasional); KA Dawson et al. 2007:39 (undergrad, self-report); *United States*: R Straus & Bacon 1953 (undergrad); Cahalan & Cisin 1968; Cahalan et al. 1969; EM Rogers 1970 (undergrad, 61%M vs. 38%F); DJ Hanson 1974 (undergrad, 80%M vs. 73%f); Glassco 1975 (college senior, 85%M vs. 82%F); G Marin 1976 (undergrad); Wechsler & McFadden 1976; Engs 1977:2151 (undergrad, 82%M vs. 75%F); Hockhauser 1977 (undergrad); CR Cloninger, Christianson et al. 1978:Table 2; Hinrichs & Haskell 1978 (undergrad); Marini 1978b:495; MS Kaplan 1979 (undergrad); Wechsler & McFadden 1979 (undergrad); Biber et al. 1980:350 (undergrad, N = 195); Ferrence 1980 (undergrad); Iutcovich & Iutcovich 1982 (undergrad); PB Johnson 1982; Kozicki 1982 (undergrad); Mougne et al. 1982; Trotter 1982 (undergrad); Barnes & Welte 1983 (undergrad); KH Beck 1983 (undergrad); Mills & McCarthy 1983 (undergrad); JS Peterson & Allen 1983 (undergrad); Achalu & Duncan 1984 (undergrad, exchange students from Nigeria); SP Hughes & Dodder 1984 (undergrad); KG Ratliff & Burkhart 1984 (undergrad, N = 70M + 70F); Wilsnack et al. 1984 (undergrad); Shore 1985; Beckman & Amaro 1986 (alcoholics); Richman & Flaherty 1986 (medical school); M Temple 1986 (undergrad); AD Berkowitz & Perkins 1987 (undergrad); Chomak & Collins 1987; WR Downs 1987; Lennon 1987:295; Engs & Hanson 1988 (undergrad); LN Robins et al. 1988; Van Thiel & Gavaler 1988 (daily consumption, among alcoholics); Carver et al. 1989; Haworth-Hoeppner et al. 1989 (undergrad); AA Moore et al. 1989 (elderly); Robbins 1989:117; Mercer & Khavari 1990 (undergrad); TM O'Hare 1990 (undergrad); Wilks & Callan 1990; RC Engs et al. 1991* (more per week); Lex 1991:122 (self-report); RJ Williams & Wortley 1991 (young); ML Cooper et al. 1992 (undergrad); DA Dawson & Archer 1992 (among non-alcoholics); JD Hawkins et al. 1992; Parker & Harford 1992; Almog et al. 1993; DA Dawson	Wilsnack et al. 2006:50 (23/23 countries) **OVERVIEW** *Literature Review*: Blane & Hewitt 1977 (1960-1975, sex difference narrowed during this period); LT Brady & Randall 1999:242

	1993; WC Gross 1993 (undergrad); CA Robbins & Martin 1993; Bliss & Crown 1994:230; AC Brooks 1994; DA Dawson et al. 1995; Lo 1995 (undergrad); BS Thomas 1995; Wechsler et al. 1995 (undergrad); JL York 1995 (among alcoholics & social drinkers); WL Adams et al. 1996 (elderly); Liu & Kaplan 1996; Ray & Gold 1996 (undergrad); RJ Williams & Ricciardelli 1996; Fillmore et al. 1997 (among drinkers); Polednak 1997 (among Hispanics); WA Clark 1998 (undergrad); Grunbaum et al. 1998:155 (whites); Lo & Bissler 1998 (undergrad); Minugh et al. 1998 (moderate consumption); Paulson et al. 1998; Wechsler et al. 1998; RJ Williams et al. 1998; McCreary et al. 1999; Treno et al. 2000:544; Anding et al. 2001 (undergrad); Roeloffs et al. 2001 (depressed patients); Taaffe et al. 2001:Table 1 (elderly); Carr et al. 2002* (undergrad, Jewish sample); Casswell et al. 2002 (ages 18–26); SL Lawyer et al. 2002; O'Malley & Johnston 2002:31; Wechsler et al. 2002:209; Karasik et al. 2003:311; AM White et al. 2003; Graham et al. 2004; Green et al. 2004; Murtagh & Hubert 2004:1409 (elderly); Stranges et al. 2004:951 (middle age/elderly, past 30 days); GA Laughlin et al. 2007:460 (elderly); Kenney, LaBrie et al. 2012:Table 1 (N = 261); SCM Roberts 2012 **OCEANIA** *Australia*: P Wilkinson et al. 1969; P Wilkinson et al. 1971; Engs 1982 (undergrad); JP Connor et al. 1999; T Stockwell et al. 2002; *New Zealand*: Casswell et al. 1993; M McPherson et al. 2004; *Tonga*: Finau et al. 1982 (urban areas) **INTERNATIONAL** *Multiple Countries*: Helzer & Canino 1992; Wiesenthal 2000; Holmila & Raitasalo 2005:1763; Erol & Karpyak 2015:Table 1; G Rahav, Wilsnack et al. 2006:50(23/23 countries); Li et al. 2010 (self-report); *Multiple Western Countries*: Wilsnack, Vogeltanz et al. 2000:Tables 1–5 (more & more frequently); Knibbe & Bloomfield 2001	
Not significant	**NORTH AMERICA** *United States*: JR Penn 1974 (undergrad); DJ Hanson 1977 (undergrad); E Banks & Smith 1980 (undergrad); Reiskin & Wechsler 1981 (undergrad, students seeking mental health services); Kodman & Stumak 1984 (undergrad); Carr et al. 2002* (middle age and older, Jewish sample); Windle 2003 (undergrad); Marczinski et al. 2005:388 (undergrad, per week, among drinkers, adjusted for body weight)	**EUROPE** *Slovenia*: Kolsek 1994:55 **NORTH AMERICA** *United States*: Gabrielli & Plomin 1985:28 (weight-corrected)
More among females	**NORTH AMERICA** *United States*: MB Pollock 1969 (undergrad); Kuder & Madson 1976 (undergrad) Strange & Schmidt 1979 (undergrad); Friend & Koushki 1984 (undergrad)	

Considerable research on sex differences in alcohol consumption among rodents has taken place. Table 18.1.5.1c reveals that the vast majority of studies among rodents have found females voluntarily ingesting more alcohol than do males. This sex difference becomes slightly greater when adjustments are made for sex differences in body weight (which favor males).

Table 18.1.5.1c Alcohol consumption in general among non-humans

Nature of difference			*Post-Pubertal*		*Wide age range*
			Adolescent	*Adult*	
More among males			**RODENT** *Rat*: FE Lancaster 1998* (animals separated from mother neonatally)	**RODENT** *Hamsters*: HB Moss et al. 1987; *Rat*: Webb et al. 2002	
Not significant			**RODENT** *Rat*: FE Lancaster 1998* (with repeated exposure)	**RODENT** *Rat*: Juarez & Barrios deTomasi 1999* (absolute volume); Sluyter et al. 2000* (strain with low susceptibility to apomorphine)	
More among females				**PRIMATE** *Vervet Monkey*: J Juarez et al. 1993 **RODENT** *Mice*: Blednov et al. 2001; *Rat*: Li & Lumeng 1984; N Adams et al. 1991; FE Lancaster & Spiegel 1992a:415 (per body weight, greater increase in intake with higher alcohol concentrations); FE Lancaster & Speigel 1992b:9 (per body weight); BA Blanchard et al. 1993 (voluntarily); N Adams 1995 (after tail pinch); BA Blanchard & Glick 1995 (voluntarily); BC Jones & Whitfield 1995; FE Lancaster et al. 1996 (with juvenile exposure to non-alcoholic beer); Melo et al. 1996; Almeida et al. 1998; Dess et al. 1998 (rats bred for high saccharin intake); FE Lancaster 1998* (with or without neonatal handling); Peirce et al. 1998; Grahame et al. 1999; Juarez & Barrios de Tomasi 1999* (per body weight); Sluyter et al. 2000* (rats bred for high morphine preference); Cailhol & Mormede 2001; Sarviharju et al. 2001; M Ford et al. 2002; Piano et al. 2005	**RODENT** *Rat*: Li & Lumeng 1984; RJ Blanchard et al. 1987; N Adams et al. 1991; Mankes et al. 1991; N Adams 1995 (Maudsley strain); FE Lancaster et al. 1996

18.1.5.2 Trends toward Sex Equality in Alcohol Consumption

A few studies have sought to determine if there has been any significant movement toward greater sex equality in alcohol consumption over the years. As shown in Table 18.1.5.2, these studies have indicated that there has been some modest narrowing of the gender gap, at least in the United States since the 1950s.

Table 18.1.5.2 Trends toward sex equality in alcohol consumption

Nature of difference	*Post-pubertal*		
		Adult	
Increase in similarity		**NORTH AMERICA** *United States*: Cahalan et al. 1969; Wechsler & McFadden 1976; WR Downs 1987; HR White & Huselid 1997	
Not significant			
Decrease in similarity			

18.1.5.3 Amount or Frequency of Alcohol Consumed

Table 18.1.5.3 shows that studies of the amount of alcohol consumed usually in a given unit of time (such as a typical week) have nearly unanimously concluded that males on average consume greater quantities of alcohol than do females. It should be noted that several studies (reviewed in Chapter 2) have indicated that females metabolize alcohol more quickly (also see Lex 1991:124), which could affect the amount of alcohol consumed. Also, males tend to weigh more than females (reviewed in Chapter 1). For both of these reasons, there may be physiological reasons for expecting males to consume more alcohol than females.

To assess sex differences in alcohol consumption among non-humans, researchers typically provide caged animals with a choice of two water sources: one containing water along and the other one containing water with 5% (or more) alcohol. Over time, animals usually settle into a fairly consistent proportional preference for these two liquid sources ranging all the way from 100% for the water-only container to 100% for the water-plus-alcohol container. As shown in Table 18.1.5.3b, studies have indicated that unlike studies of humans, sex differences in alcohol consumption among non-humans appear to favor females (particularly with adjustments are made for sex differences in body size).

Table 18.1.5.3 Amount or frequency of alcohol consumed

Nature of difference			*Post-pubertal*		*Wide age range*
			Adolescent	*Adult*	
More among males			**ASIA** *China*: Li et al. 1996 **EUROPE** *Iceland*: JE James & Kristjansson 2015:Table 1 **NORTH AMERICA** *United States*: Wilsnack & Wilsnack 1978 (undergrad); Wechsler & McFadden 1976; Huselid & Cooper 1992	**ASIA** *China*: Hao et al. 1995; Lu et al. 1997 (undergrad); Hao et al. 1999; Hao et al. 2001; *Russia*: Koposov et al. 2002; *Singapore*: Israwlowitz & Hong 1989 (undergrad) **EUROPE** *Britain*: Orford et al. 1974 (undergrad); Smart & Schmidt 1975 (undergrad); P Anderson 1984 (undergrad); Orford & Keddie 1985 (among persons who drink); DA Dawson & Archer 1992; DA Dawson 1993; Whichelow 1993; Valliant & Scanlan 1996 (undergrad); Ely et al. 1999:896; Hoshi et al. 2006:296 (more in a given period of time); Nesic & Duka 2006 (undergrad, among heavy drinkers, when under stress); Cappuccio et al. 2007:698; *Finland*: Pitkanen, Lyyra & Pulkinen 2005:Table 1 (quantity per year, N = 176M + 155F); *Spain*: Alvarez & del Rio 1994 (); *Sweden*: Cabrera et al. 2003:886 (elderly) **NORTH AMERICA** *Canada*: Gliksman et al. 1997 (undergrad); Denton et al. 2004:2592 (regular drinking, 92%M vs. 48%F); BI Goldstein 2006 (undergrad, N = 108); *United States*: R Straus & Bacon 1953 (undergrad); M Bacon & Jones 1968 (undergrad); Rachel et al. 1975 (undergrad); Kuder & Madson 1976 (undergrad); Engs 1977 (undergrad); Hockhauser 1977 (undergrad); FE Hill & Bugen 1979 (undergrad); MS Kaplan 1979 (undergrad); Roizen et al. 1979 (undergrad); Scheller-Gilkey et al. 1979 (undergrad); Strange & Schmidt 1979 (undergrad); Wechsler & McFadden 1979 (undergrad); Biber et al. 1980 (undergrad); RA Perkins et al. 1980 (heavy consumption, undergrad); TC Harford & Gerstel 1981; Wechsler & Rohman 1981 (undergrad); Iutcovich & Iutcovich 1982 (undergrad); Trotter 1982 (undergrad); GM Barnes & Welte 1983 (undergrad); KH Beck 1983 (undergrad); JS Peterson & Allen 1983 (undergrad); S Crawford & Ryder 1986 (among alcoholics); Mooney et al. 1987; Landrine et al. 1988; C Robbins 1989; DS Freedman et al. 1990; ML Cooper et al. 1992; HW Perkins 1994:195 (undergrad); C Ross & Bird 1994; Lo 1995	**NORTH AMERICA** *United States*: Flor, Lynam et al. 2004 (adolescent & young adult, N = 481); Christie-Mizell & Peralta 2009 **OCEANIA** *New Zealand*: M McPherson, Casswell & Pledger 2004 (converging trend between 1995 & 2000) **INTERNATIONAL** *Multiple Societies*: MK Bacon 1973

				(undergrad); Fennell 1997 (undergrad); Wechsler et al. 1998 (undergrad); Weingardt et al. 1998:159 (undergrad, both daily & episodically, N = 34M + 47F); Nagoshi 1999:299 (undergrad, self-report, among alcohol-users); Goodman-Gruen & Barrett-Connor 2000:913; Trockel et al. 2000 (undergrad); Giancola 2002:1354 (more per week, social drinkers, N = 111M + 93F); O'Malley & Johnston 2002 (undergrad); JG Murphy et al. 2005:186 (per week); Hicks & Miller 2006:25 (heavy drinkers, undergrad); Laughlin et al. 2006:508 (at least once per day, elderly); Abdullah, Khera et al. 2007:Table 1; Peralta et al. 2010 (undergrad) **OCEANIA** *Australia*: Engs 1982 (undergrad); RJ Williams & Ricciardelli 1999:327 (undergrad) **INTERNATIONAL** *Multiple Countries*: World Health Organization 2001; G Rahav, Wilsnack et al. 2006:51 (heavy drinkers)	
Not significant				**NORTH AMERICA** *United States*: Reiskin & Wechsler 1981 (among undergrad students utilizing mental health services)	
More among females					

Table 18.1.5.3b Amount or frequency of alcohol consumed among non-humans

Nature of difference			*Post-pubertal*		
			Adolescent	*Adult*	
More among males					
Not significant				**RODENT** *Rat*: Juarez & Barrios de Tomasi 1999* (not adjusted for sex difference in body size)	
More among females			**RODENT** *Rat*: FE Lancaster et al. 1996	**PRIMATE** *Vervet Monkey*: Juarez et al. 1993 **RODENT** *Rat*: FE Lancaster & Ppiegel 1992; RD Myers et al. 1998; Juarez & Barrios de Tomasi 1999* (adjusted for smaller female body size)	

18.1.5.4 Alcohol Abstinence

Persons who abstain from consuming alcohol entirely (or nearly so) are often known as *abstainers*. Table 18.1.5.4 indicates that females are more likely to be abstainers than are males. The only exception was one study reporting no significant difference among adolescents.

18.1.5.5 Alcohol Required for Drunkenness

One study was located that sought to determine if males and females differ regarding the amount of alcohol required to achieve comparable degrees of drunkenness. As shown in Table 18.1.5.5, the study concluded that males needed to drink more alcohol than females to reach the same level of intoxication.

18.1.5.6 Age of Onset of Alcohol Consumption

Several studies have sought to determine if one sex begins drinking alcohol at an earlier age than the other sex. By examining Table 18.1.5.6, one can see that all but two of the pertinent studies has concluded that males begin drinking at significantly earlier ages.

18.1.5.7 Alcohol-Related Problems

Drinking to the point of being drunk, getting into fights when drinking, or failing to remember what happened the day following "a night on the town" would all be considered examples of what can be termed "alcohol-related problems." As shown in Table 18.1.5.7, the majority of studies have concluded that such problems are more common among males than among females.

Table 18.1.5.4 Alcohol abstinence

Nature of difference			*Post-pubertal*		*Wide age range*
			Adolescent	*Adult*	
More among males					
Not significant			**NORTH AMERICA** *United States*: Hops et al. 1999:25		
More among females			**LATIN/CARIBBEAN AMERICA** *Mexico*: Ritterman et al. 2009 **NORTH AMERICA** *United States*: RA Zucker & Harfort 1983:978	**AFRICA** *Cameroon*: Fezeu et al. 2006:108 (63%M vs. 71%F, N = 1,301M + 1,530F) **ASIA** *Japan*: Saito, Yonemasu & Inami 2003:Table 1 (elderly, N = 398M + 655F, rural); Takahashi, Jang et al. 2020:Table 1*; *Russia*: Bokar et al. 1998:272 (N = 731M + 868F); *South Korea*: Takahashi, Jang et al. 2020:Table 1* **EUROPE** *Britain*: Ely et al. 1999:896; Beardsworth & Bryman 2002; *France*: Dufouil et al. 1997:407 (13%M vs. 38%F, N = 574M + 815F); *Sweden*: Bergmark 2004 **NORTH AMERICA** *Canada*: M Denton et al. 2004:2592 (5%M vs. 11%F); *United States*: R Straus & Bacon 1953 (undergrad); RC Engs 1977:2152 (undergrad, 17%M vs. 24% F); US Department of Health and Human Services 1983; ME Hilton 1991a (fewer than 12 drinks per year); York & Welte 1993:748 (undergrad); DA Dawson et al. 1995 (fewer than 12 drinks per year); Fennell 1997 (undergrad); Weisner et al. 2003 (among former alcoholics); Satre et al. 2004 (among former alcoholics); Stranges et al. 2004:951 (middle age/ elderly); Hicks & Miller 2006:25 (undergrad, 14%M vs. 34% F); Satre et al. 2007 (among former alcoholics 7 years after treatment, 54%M vs. 76%M)	**ASIA** *China*: Yi et al. 2003:77 **NORTH AMERICA** *United States*: Riley & Marden 1947; Riley et al. 1948; Maxwell 1952; Maxwell 1958; Mulford & Miller 1963a; Knupfer & Room 1964; Mulford 1964; Cahalan & Cisin 1968; Room 1972; Barnes & Russell 1978; Celentano & McQueen 1978a; Celentano & McQueen 1978b; Wechsler et al. 1978 **INTERNATIONAL** *Multiple Countries*: Wilsnack et al. 2000

Table 18.1.5.5 Alcohol required for drunkenness

Nature of difference			*Post-pubertal*		
				Adult	
More among males				**EUROPE** *Britain*: Dawson & Archer 1992	
Not significant					
More among females					

Table 18.1.5.6 Age of onset of alcohol consumption

Nature of difference			*Post-pubertal*		*Wide age range*
			Adolescent		
Earlier among males			**EUROPE** *Norway*: Pedersen & Skrondal 1998 (N = 216M + 249F)		**EUROPE** *Britain*: Wanberg & Knapp 1970; *Finland*: Lintonen, Rimpela et al. 2000; Pitkanen 1999 **LATIN/CARIBBEAN AMERICA** *Mexico*: Wagner & Velasco-Mondragon et al. 2005; Kulis et al. 2008 **NORTH AMERICA** *United States*: J Wall 1937; Lisansky 1957 (young); Winokur & P Clayton 1968; Rimmer, Pitts et al. 1971; G Garrett & H Bahr 1973; Bromet & Moos 1976; Anglin et al. 1987b (among drug addicts); Hser et al. 1987c (among drug addicts); Piazza et al. 1989 (among alcoholics); Pope et al. 1994:359; JL York 1995 (both alcoholics & social drinkers); SC Duncan et al. 1996; B Grant & Dawson 1997; CL Randall et al. 1999 (excessive alcohol consumers); Flory, Lynam et al. 2004 (N = 481)
Not significant					**EUROPE** *Finland*: Pitkanen, Lyyra & Pulkinen 2005:Table 1 (ages 15.3M vs. 15.6F, N = 176M + 155F) **NORTH AMERICA** *United States*: Giancola 2002:1354 (among social drinkers, N = 111M + 93F)
Earlier among females					

18.1.5.8 Light to Moderate Drinking

Drinking an alcohol-containing beverage just once or twice a week, especially on social occasions, such as when visiting friends or going to a

Table 18.1.5.7 Alcohol-related problems

Nature of difference			*Post-pubertal*		*Wide age range*
			Adolescent	*Adult*	
More among males			**NORTH AMERICA** *United States*: HR White 1987	**EUROPE** *Britain*: Smart et al. 1991; AW Chan et al. 1994; Ely et al. 1999:897; *Ireland*: Farragher et al. 1994 (elderly); *Multiple European Countries*: K Bloomfield, Gmel et al. 2001 **NORTH AMERICA** *Canada*: McCreary et al. 1999; *United States*: Kuder & Madson 1976 (undergrad); Reiskin & Wechsler 1981 (undergrad); Walfish et al. 1981 (undergrad); P Johnson 1982; Kozicki 1982 (undergrad); Levenson et al. 1983; JS Peterson & Allen 1983 (undergrad); Engs & Hanson 1990:42 (undergrad) Hasin et al. 1990; Regier et al. 1990b; Wechsler et al. 1995a (undergrad); KM Fillmore et al. 1997; Hammer & Pape 1997 (undergrad); O'Hare 1998 (undergrad); Caetano et al. 2000 (partner violence); HW Perkins 2002 (undergrad); Greenfield, Manwani, & Nargiso 2003; CL Park 2004 (undergrad); DA Dawson et al. 2005 (stress related); CL Park & Grant 2005:759 (undergrad) **OCEANIA** *New Zealand*: M McPherson, Casswell et al. 2004	**EUROPE** *Finland*: Makela 1998 (death); Makela 1999:870 (death); *Sweden*: Romelsjo & Lundberg 1996 (hospitalization) **NORTH AMERICA** *Canada*: Room et al. 1995; *United States*: Riley & Marden 1947; Riley et al. 1948; M Maxwell 1958; Mulford & Miller 1959; Mulford & Miller 1960a; Mulford & Miller 1960b; Mulford & Miller 1960c; Mulford & Miller 1963a; Mulford & Miller 1963b; Bailey et al. 1965; Cahalan & Cisin 1968; Cahalan et al. 1969; Cahalan 1970; Cahalan 1976; Celentano & McQueen 1978a; Celentano & McQueen 1978b; Makela & Simpura 1985; Harford et al. 1991
Not significant				**NORTH AMERICA** *United States*: WM Cox & Baker 1982 (undergrad)	
More among females					

restaurant, is usually considered light to moderate (or social) drinking. As shown in Table 18.1.5.8, most studies have found no significant difference between males and females with regard to light to moderate alcohol consumption.

Table 18.1.5.8 Light to moderate drinking

Nature of difference				*Post-pubertal*	
				Adult	
More among males				**EUROPE** *Netherlands*: de Bruin et al. 2005:658	
Not significant				**EUROPE** *Czech Republic*: RW Wilsnack et al. 2000* (social drinking); *Estonia*: RW Wilsnack et al. 2000* (social drinking); *Finland*: RW Wilsnack et al. 2000* (social drinking); *Netherlands*: RW Wilsnack et al. 2000* (social drinking); *Sweden*: RW Wilsnack et al. 2000* (social drinking) **MIDDLE EAST** *Israel*: RW Wilsnack et al. 2000* (social drinking) **NORTH AMERICA** *Canada*: RW Wilsnack et al. 2000* (social drinking); *United States*: RW Wilsnack et al. 2000* (social drinking); O'Malley & Johnston 2002:31 **OCEANIA** *Australia*: RW Wilsnack et al. 2000* (social drinking)	
More among females					

18.1.5.9 Alcohol Abuse (Drunkenness/Intoxication)

Numerous studies have investigated sex differences in the tendency to drink alcohol to the point of being frequently drunk. Table 18.1.5.9 shows that the overwhelming majority of these studies have concluded that males are more likely to do so than are females.

18.1.5.10 Binge Drinking

Binge drinking of alcohol involves consuming four to six drinks within a few hours (such as at a party). Table 18.1.5.10 shows that without exception, research indicates that binge drinking is more common among males than among females.

18.1.5.11 Heavy Drinking Associated with Adverse Experiences

Some research has sought to determine if adverse experiences such as stress and anxiety are more commonly correlated with heavy drinking among

Table 18.1.5.9 Alcohol abuse (drunkenness/intoxication)

Nature of difference			*Post-pubertal*		*Wide age range*
			Adolescent	*Adult*	
More among males			**NORTH AMERICA** *United States*: GM Barnes & Welte 1986; LD Johnston et al. 1991 (heavy drinking, self-report); P Cohen 1993a:860; Kann et al. 1993; LS Bensley et al. 1999b; R Bachman & Peralta 2002; TF Locke & Newcomb 2003:55; JM Wallace 2003 (multiple ethnic groups)	**ASIA** *Russia*: P Carlson & Vagero 1998; Perlman 2010; Botchkovar & Broidy 2013; *South Korea*: JY Park et al. 1984*; Jeon & Lee 2010 (problem drinking, 45%M vs. 7%F); Oh, Kim et al. 2012:145 (at-risk drinking, ages 60–80, N = 422M +510F); *Taiwan*: JY Park et al. 1984* **EUROPE** *Britain*: G Edwards et al. 1972; *Finland*: Nystrom, Perasado & Salaspuro 1993 (undergrad, N = 707M + 1663F); *Italy*: Tenconi et al. 1992:767; *Slovenia*: Petel, Geckova et al. 2012:1124 (N = 3,674); *Sweden*: Bergmark 2004; *Multiple European Countries*: K Bloomfield, Gmel et al. 2001 (drunkenness) **MIDDLE EAST** *Lebanon*: Karam et al. 2000:192 (undergrad) **NORTH AMERICA** *Canada*: Svenson et al. 1994 (undergrad); Rehm et al. 1999; Bonin et al. 2000:155; SS Martins et al. 2004 (among pathological gamblers); KA Dawson et al. 2007:39 (undergrad, excessive drinking, self-reported); *United States*: FL Fitzgerald et al. 1968 (young); Winokur & Clayton 1968; Cahalan, Cisin & Crossley 1969 (ages 21 & older, N = 2,746); Cahalan 1970; Goodwin et al. 1973; Engs 1977 (young); Wechsler & McFadden 1979 (undergrad); Reiskin & Wechsler 1981 (undergrad); U.S. Department Health and Human Services 1983; K Fillmore 1984 (middle age); Drake et al. 1989 (among schizophrenics); Engs & Hanson 1990:42 (undergrad, DWI arrests); Institute of Medicine 1990; Test et al. 1990 (among schizophrenics); Windle 1990; Heltzer et al. 1991 (problem drinking); RJ Canterbury et al. 1992:213 (undergrad); D Dawson & L Archer 1992:119 (undergrad); Richman & Rospenda 1992;	**EUROPE** *Britain*: Estevez & Emler 2011:277 (gotten drunk); *France*: M Baumann et al. 2007 (N = 6,216, 12%M vs. 3%F); *Netherlands*: van Oers et al. 1999:84; *Spain*: Borrell et al. 2000:26; *Sweden*: Sjögren, Valverius & Eriksson 2006:266 (alcohol-related death) **LATIN/CARIBBEAN AMERICA** *Brazil*: Andrade et al. 2002; *Mexico*: Natera-Rey et al. 2001 **NORTH AMERICA** *United States*: Plant & Plant 1992 (adolescents & adults); Presley et al. 1996:13; Robles et al. 1998; O'Malley & Johnston 2002:30; J Schwartz & Rookey 2008:655 (drunk driving, 1980-2004, 75-80%M)

(*Continued*)

Table 18.1.5.9 (Continued)

Nature of difference			*Post-pubertal*		*Wide age range*
			Adolescent	*Adult*	
				Weisner & Schmidt 1993; Gomberg 1995 (elderly); H Wechsler et al. 1995b (young); DA Dawson 1996b (among alcoholics); AV Horwitz et al. 1996 (young); Schulenberg et al. 1996 (undergrad, getting drunk); BF Grant 1997; Nunes-Dinis & Weisner 1997 (among arrestees); Wechsler et al. 1998 (undergrad); Humara & Sherman 1999 (young); Greenfield & Rogers 1999; Nagoshi 1999:299 (undergrad, among alcohol-users); Crum & Anthony 2000; McDonough & Walters 2001; Dupre et al. 2002:151 (elderly, 3 or more drinks per day); BF Grant et al. 2002; CJ Wong et al. 2002 (among those with cocaine dependence); Wechsler et al. 2002:209 (young); Windle 2003 (undergrad, on a daily basis); Satre et al. 2004:640 (elderly, 63M vs. 29F); Tammemagi et al. 2004:600 (among lung cancer patients); JG Murphy et al. 2005:186; CR Harris et al. 2006:53 (undergrad, N = 657); Maguen et al. 2010 (military) **OCEANIA** *New Zealand*: Casswell, Huckle & Pledger 2002; M McPherson, Casswell & Pledger 2004 (drunkenness) **INTERNATIONAL** *Multiple Countries*: RW Wilsnack et al. 2000	
Not significant			**EUROPE** *Iceland*: JE James & Kristjansson 2015:Table 1; *Norway*: Pedersen et al. 2001 (getting drunk, self-reports); *Spain*: Villalbi 1995:270	**EUROPE** *Spain*: Suris & Parera 2005:487	
More among females					

Table 18.1.5.10 Binge drinking

Nature of difference			*Post-pubertal*		*Wide age range*
			Adolescent	*Adult*	
More among males			**NORTH AMERICA** *United States*: Windle 1990; Pate et al. 2000:908 (self-report); GM Barnes et al. 2002a; Chassin et al. 2002; Guilamo-Ramos et al. 2005:896 (young); KE Miller et al. 2005:1644 (self-report) **OCEANIA** *Guam*: Pinhey & Millman 2004	**ASIA** *Russia*: Malyutina et al. 2001; *South Korea*: Jeon & Lee 2010 (60%M vs. 15%F) **EUROPE** *Britain*: C Corbett 2007:252 (self-report, 49%M vs. 39%F); *Finland*: Pitkanen, Lyyra & Pulkinen 2005:Table 1 (N = 176M + 155F); *Sweden*: Bergmark 2004 **MIDDLE EAST** *Israel*: Isralowitz & Reznick 2006 (self-report, N = 917) **NORTH AMERICA** *Canada*: Bonin et al. 2000:155; *United States*: Rimmer, Pitts et al. 1971; AR Meyers et al. 1982 (elderly, self-rated); I Chi et al. 1988 (among Chinese Americans); GM Barnes et al. 1992 (young); Wechsler 1992 (undergrad); Wechsler & Isaac 1992 (undergrad); Weatherspoon et al. 1994 (among Asian Americans); Wechsler et al. 1994 (undergrad); Wechsler et al. 1995a (undergrad); Wechsler et al. 1995b (undergrad); Wechsler et al. 1998 (undergrad); Weitzman & Wechsler 2000 (undergrad); Naimi et al. 2003; Windle 2003 (undergrad); EN Alexander & Bowen 2004 (undergrad, N = 236); Zang 2004 (among arrestees); Goudriaan et al. 2007; Porter & Pryor 2007:462 (undergrad, 56%M vs. 30%F)	**EUROPE** *Britain*: Orford & Keddie 1985 **NORTH AMERICA** *United States*: Armor et al. 1978; Van Thiel & Gavaler 1985; S Crawford & Ryder 1986
Not significant					
More among females					

males or females. As shown in Table 18.1.5.11, most of the evidence suggests that adverse experiences are more common among female heavy drinkers than among male heavy drinkers.

Table 18.1.5.11 Heavy drinking associated with stress or sadness

Nature of difference			*Post-pubertal*		
			Adolescent	*Adult*	
More among males				**NORTH AMERICA** *United States*: Ratliff & Burkhart 1984:29 (undergrad, social relationship problems, N = 70M + 70F); Abbey et al. 1993; Breslin et al. 1995	
Not significant					
More among females			**NORTH AMERICA** *United States*: Windle & Barnes 1988; Poulin et al. 2005	**EUROPE** *Britain*: Willner et al. 1998 (stress, among recreational drinkers) **NORTH AMERICA** *United States*: Olenick & Chalmers 1991 (stress, among alcoholics); Hussong et al. 2001 (anxiety, young); AC King et al. 2003 (anxiety, among alcoholics); Marczinski et al. 2005 (undergrad, anxiety)	

18.1.5.12 Gotten Drunk

One study of teenagers asked them if they had ever gotten drunk. As shown in Table 18.1.5.12, virtually the same proportion of both sexes answered affirmatively.

Table 18.1.5.12 Gotten drunk

Nature of difference			*Post-pubertal*		
			Adolescent		
More among males					
Not significant			**NORTH AMERICA** *United States*: Wechsler & McFadden 1976:1296 (self-report, 26%M vs. 25%F)		
More among females					

18.1.5.13 Drinking because of Permissive Social Atmosphere

A few studies have investigated sex differences in drinking due to being exposed to a permissive social atmosphere. Table 18.1.5.13 indicates that such an atmosphere was a more common factor in drinking among males than among females.

Table 18.1.5.13 Drinking because of permissive social atmosphere

Nature of difference			*Post-pubertal*		
				Adult	
More among males				**NORTH AMERICA** *United States*: Ratliff & Burkhart 1984 (undergrad); Dunne et al. 1993 (among alcoholics); KH Beck et al. 1995 (undergrad)	
Not significant					
More among females					

18.1.5.14 Effort Made to Obtain Alcohol at a Stable Rate

Two studies investigated sex differences in the time and energy expended seeking to obtain alcohol once a drinking habit had been established. As shown in Table 18.1.5.14, among rats, males spend more time and energy doing so than was the case for females.

Table 18.1.5.14 Effort made to obtain alcohol at a stable rate among non-humans

Nature of difference			*Post-pubertal*		
				Adult	
More among males				**RODENT** *Rat*: van Haaren & Anderson 1994a (fixed interval availability); Devaud & Chadda 2001 (developed alcohol dependence faster)	
Not significant					
More among females					

18.1.5.15 Preferring Beer over Other Forms of Alcohol

Most alcoholic beverages can be classified as beer, wine, and spirits (with the latter usually including a variety of high alcohol-content mixed drinks). Several studies have compared the sexes with respect to

the consumption of (or liking of) beer as opposed to other forms of alcoholic beverages. Table 18.1.5.15 shows that among people who drink, males are more likely to consume beer than are females (the latter being more likely to consume alcohol in the form of wine or mixed drinks).

Table 18.1.5.15 Preferring beer over other forms of alcohol

Nature of difference				*Post-pubertal*	
				Adult	
More among males				**EUROPE** *Britain*: P Anderson 1984 (undergrad, among drinkers) **NORTH AMERICA** *United States*: Straus & Bacon 1953 (undergrad, among drinkers); Engs 1977 (undergrad, among drinkers); Wechsler & McFadden 1979 (undergrad, among drinkers); E Banks & Smith 1980 (undergrad, among drinkers); Biber et al. 1980 (undergrad, among drinkers); Reiskin & Wechsler 1981 (undergrad, among drinkers); Wechsler & Rohman 1981 (undergrad, among drinkers); Trotter 1982 (undergrad, among drinkers); Engs & Hanson 1985 (undergrad, among drinkers) **OCEANIA** *Australia*: Engs 1982 (undergrad, among drinkers)	
Not significant				**NORTH AMERICA** *United States*: Strange & Schmidt 1979 (undergrad, among drinkers)	
More among females					

18.1.5.16 Preferring Wine over Other Forms of Alcohol

A few studies have compared the sexes regarding their preferences for wine. Table 18.1.5.16 shows that the findings have been quite mixed, suggesting there is little sex difference in preferences for wine.

18.1.5.17 Relationship between Moderate Alcohol Consumption and Intellectual Functioning

Among adults, prolonged heavy alcohol consumption (i.e., 3 or more drinks per day) has been found associated with early cognitive decline (Peters, Peters et al. 2008). However, those who consume *moderate* alcohol consumption (i.e., 1–2 drinks per day) have actually been found to maintain better intellectual functioning with age than alcohol abstainers (Dufovil, Ducimetiere et al. 1997; Kalmijn, van Boxtel et al. 2002).

Table 18.1.5.16 Preferring wine over other forms of alcohol

Nature of difference			*Post-pubertal*		*Wide age range*
				Adult	
More among males				**ASIA** *South Korea*: K Lee, Zhao & Ko 2005:30 (like more, ages 20–49, N = 108M + 108F) **OCEANIA** *Australia & New Zealand*: Atkin & Sutanonpaiboon 2007 (like more, N = 3,613)	
Not significant				**INTERNATIONAL** *Multiple Countries*: SL Forbes 2012 (like more, N = 399)	
More among females					**NORTH AMERICA** *United States*: AW Logue & Smith 1986 (like more, ages 14–68, N = 303)

Some studies have been undertaken to determine if this positive association between moderate alcohol consumption and intellectual functioning among adults is stronger for one sex than for the other. One can see in Table 18.1.5.17 that all the evidence points toward a somewhat stronger relationship among females than among males.

Table 18.1.5.17 Relationship between moderate alcohol consumption and intellectual functioning

Nature of difference			*Post-pubertal*		
				Adult	
Stronger association among males					
Not significant					
Stronger association among females				**EUROPE** *France*: Dufovil, Ducimetiere et al. 1997 (ages 59–71, cognitive functioning *higher* from women with moderate alcohol consumption, no association among males, N = 574M + 815F, SES controlled); *Netherlands*: Kalmijn, van Boxtel et al. 2002 (higher cognitive speed & flexibility, both sexes, but females more)	

18.1.5.18 Relationship between Heavy Alcohol Consumption and Intellectual Functioning

As mentioned above, full adults and the elderly who drink alcohol in substantial amounts (i.e., 3 or more drinks per day) over decades usually exhibit significant cognitive decline when compared to moderate drinkers or abstainers (Peters, Peters et al. 2008). Similar declines have also been found in diagnosed alcoholics (Parsons & Nixon 1993; Tivis et al. 1995). Are there sex differences in this regard? Table 18.1.5.18 shows that one study indicated that prolonged heavy consumption of alcohol is more detrimental for females than for males.

Table 18.1.5.18 Relationship between heavy alcohol consumption and intellectual functioning

Nature of difference			*Post-pubertal*		
				Adult	
Stronger association among males					
Not significant					
Stronger association among females				**NORTH AMERICA** *United States*: Beatty, Tivis et al. 1997 (deficits in spatial reasoning among alcoholics)	

18.1.6 Tobacco/Nicotine Ingestion

The consumption of tobacco, usually by smoking it, has been practiced for centuries. As shown below, many studies have compared males and females with respect to this practice.

18.1.6.1 Smoking Cigarettes in General

Because of the very large number of studies that have reported sex differences in smoking rates, results are presented in three tables, one for adolescents, a second for adults, and a third for combinations of multiple age categories. Nearly all studies of smoking are based on self-reports and usually stipulate some degree of regularity in the behavior (rather than simply having tried smoking once or twice). As one can see from Table 18.1.6.1a, the evidence is mixed with respect to any adolescent sex differences in rates of smoking.

In the case of adults, Table 18.1.6.1b summarizes findings on sex differences in smoking. One can see that most studies have indicated that more males smoke than do females. Nevertheless, there are quite a few studies that have either reported no significant differences or higher smoking rates among females.

Table 18.1.6.1a Smoking cigarettes in general (up through adolescents)

Nature of difference			*Post-pubertal*	
			Adolescent	
More among males			**AFRICA** *Nigeria*: Elegbeleye & Femi-Pearse 1976; *South Africa*: AJ Flisher et al. 2003:61* (among blacks & coloreds) **ASIA** *China*: Li et al. 1996; Lam et al. 2000 (10.0%M vs. 5.7%F in 1994, 12.7%M vs. 9.7%F in 1999); *Japan*: Saito, Yonemasu & Inami 2003:Table 1 (elderly, N = 398M + 655F, rural); *Malaysia*: Thambypillai 1985 (rural community); *Mongolia*: Rudatsikira et al. 2008:59 (N = 1,850M + 2,255F); *Russia*: Knyazev 2004:313; Knyazev et al. 2004:833; *South Korea*: Youn 1996:634; Jeon, Jang et al. 2007:S336 (elderly); Jeong, Choi et al. 2008:Table 1, (N = 1,417); Oh, Kim et al. 2012:145 (ages 60–80, N = 422M +510F); Chun & Chung 2013 (N = 3,188); Supartini, Oishi & Yagi 2017:Table 1 **EUROPE** *Britain*: Abe, Lebedev et al. 2021:Table 1 (former smoker, ages 40–69, N = 8,432M + 9,488F); *Denmark*: Arnett & Jensen 1994:10; *Estonia*: Merenakk et al. 2003:1509; *Finland*: Y Liu, Wang et al. 206 (N = 1,685); *Germany*: Lotze, Domin et al. 2019:Table 3 (ages 21–90, N = 2,838); *Netherlands*: Stolk et al. 1996:314 (elderly); *Slovenia*: Petel, Geckova et al. 2012:1124 (recent, 30.3%M vs. 26.6%F, N = 3,674); *Spain*: Dominguez-Berjon et al. 2005:56; *Sweden*: Laaksonen et al. 2005:265 **LATIN/CARIBBEAN AMERICA** *Brazil*: Micheli & Formigoni 2004:Table 2 (ages 10–19); *Mexico*: Ritterman et al. 2009 **NORTH AMERICA** *United States*: D Horn et al. 1959; EC Hammond 1966; RW Wilson 1967:2*; EE Levitt & Edwards 1969; Galli 1973 (junior high); Brunswick 1980; Kellam et al. 1980; Kann et al. 1993; Pascale & Evans 1993:113; Rudolph 1996; Epstein et al. 1998* (Asian Americans); Harrell et al. 1998; LD Johnston et al. 1998* (prior to the 70s); Hodge 2001 (among American Indians); LeMaster et al. 2002:429 (Native Americans, replication model); JM Wallace 2003* (among all ethnic groups except American Indians); KE Miller et al. 2005:1644 (self-report); Balsa, Giuliano & French 2011:Table 1 (N = 2,049M + 2,243F)	
Not significant			**ASIA** *China*: Y Liu, Wang et al. 2016 (N = 2,005, M>F) **EUROPE** *France*: Bosanquet & Magee 1999:602; *Netherlands*: Platje, Popme et al. 2015:Table 1 (N = 144M + 115F); *Norway*: Pedersen et al. 2001; *Scotland*: Glendinning et al. 1994*; *Spain*: Villalbi 1995:269; *Sweden*: Haggstrom-Nordan et al. 2002: 291 **NORTH AMERICA** *United States*: Abelson et al. 1977; DB Kandel 1980a; JH Palmer & Ringwalt 1988:289 (N = 10,259); JC Anthony et al. 1994; Arnett & Jensen 1994:10; L Johnston et al. 1994; Tinsleyet al. 1995: 249; Epstein et al. 1998* (whites); LD Johnston et al. 1998* (during the 70s); JM Wallace et al. 1999 (black students); Atkins et al. 2002:202; NJ Kaufman et al. 2002; Pirkis et al. 2003:282* (both lifetime use and use in the past 30 days); P Chen & Jacobson 2012:Table 3 (ages 12–16, N = 20,160); J Newsome et al. 2016:Table 1 (self-report)	

(*Continued*)

Table 18.1.6.1a (Continued)

Nature of difference			*Post-pubertal*	
			Adolescent	
			OCEANIA *Australia*: Pirkis et al. 2003:282* (both life-time use and use in the past 30 days)	
More among females			**AFRICA** *South Africa*: AJ Flisher et al. 2003:61* **EUROPE** *Britain*: A Diamond & Goddard 1995; D Best et al. 2001:54; *Denmark*: Arnett & L Jensen 1994; *France*: Chau et al. 2007:329; *Netherlands*: Bernaards et al. 2001; *Spain*: Campins et al. 1996; Pinilla & Gonzalez 2001; Suris & Parera 2005:487; *Multiple European Countries*: Kolip & Schmidt 1999 (Wales, Denmark, Germany, Spain) **NORTH AMERICA** *United States*: A Williams 1973; LD Johnston et al. 1987; RY Cohen et al. 1990; Pirie et al. 1991 (7th graders); Ingersoll et al. 1993:73; Dolcini & Adler 1994:500; Epstein et al. 1998* (blacks & Hispanics); LD Johnston et al. 1998* (in the 1980s); Schinke et al. 2000 (among Native Americans); JM Wallace 2003 (among Native Americans) **OCEANIA** *Australia*: D Hill et al. 1999; *Borneo*: J Alexander & Alexander 1994	

Table 18.1.6.1b Smoking cigarettes in general (adults)

Nature of difference	*Post-pubertal*	
		Adult
More among males		**AFRICA** *Kenya*: Odek-Ogunde & Pandeleak 1999 (undergrad); *South Africa*: Peltzer et al. 2002:109 (undergrad) **ASIA** *Bangladesh*: N Cohen 1981 (rural villages); *China*: Ng et al. 2006:430 (28% vs. 4%, N = 534M + 2,786F); Tang et al. 2007:90 (among schizophrenics, 52.0%M vs. 4.5%F); Zhang & Wu 2015 (self-report); Zhang, Bai et al. 2019:Table 2 (elderly, N = 580, 44.8%M vs. 0.9%F); *India*: CE Stein et al. 1996:1270; Sudarshan & Mishra 1999; Rani et al. 2003; Sorensen et al. 2005:1005; *Japan*: Nakayama 1977; Takahashi, Jang et al. 2020:Table 1* (both current & ex); *Malaysia*: Pathmanathan 1974 (rural); *Russia*: R Cooper 1982 (during Soviet era); Bokar et al. 1998:272 (N = 731M + 868F, 63%M vs. 14%F); Knyazev et al. 2004:833 (young); *South Korea*: Takahashi, Jang et al. 2020:Table 1* (both current & ex, N = 226,105); *Sri Lanka*: Uragoda & Senewiratne 1971; Hsu et al. 2002:58; *Taiwan*: Tsai, Tsai et al. 2008 (45.7%M vs. 4.8%F); *Thailand*: Mougne et al. 1982 **EUROPE** *Britain*: Capell 1978 (especially in the 1950s); Capell 1980; R Doll et al. 1980 (physicians); VanReek 1984; Jarvis & P Jackson 1988; Wald et al. 1988; N Hart 1989; J Townsend et al. 1994 (1961–1991); Ingle & Furnham 1996 (undergrad); *Denmark*: Osler & Kirchoff 1995; Osler et al. 1998; *Estonia*: Parna et al. 2002; *Finland*: Pyorala et al. 1985; T Martelin et al. 2004; *France*: Dufouil et al. 1997:407 (N = 574M + 815F); Dallongeville et al. 2000:150; *Italy*: LaVecchia 1986b; Cesana et al. 1995; Gallus, Pacifici et al. 2006 (30%M vs. 22.5%F); *Germany*: C Stock et al. 2001 (undergrad, N = 288M + 362F); Mazaik et al. 2002; T Bauer et al. 2007; *Italy*: Vescio et al. 2003:1053; *Netherlands*: VanReek 1984; *Norway*: Graff-Iversen et al. 2007:154 (N = 47,405); *Scotland*: Glendinning et al. 1994* (young); Davey-Smith et al. 1999:99; *Spain*: Berrino et al. 1988*; E Fernandez, Schiaffino et al.

(*Continued*)

Table 18.1.6.1b (Continued)

Nature of difference	*Post-pubertal*	
		Adult
		1993 (1990-1979, greatest difference in early part of the 20th century); Pinilla & Gonzalez 2001*; Shiaffino et al. 2003; Schiaffino, Fernandez et al. 2007* (1965–1974); Borrell et al. 2010:88 (39%M vs. 30%F); Cano-Pumaraga, Barbe et al. 2017:Table 1 (N = 505M + 650F, 71%M vs 51%F); *Sweden*: Statistics Sweden 1965; Cederlof et al. 1975; Mills 2003; Gadd et al. 2005 (among immigrants); *Switzerland*: Berrino et al. 1988*; Etter et al. 2002; *Multiple European Countries*: Le Meitown-Kaplan 1977; Giskes et al. 2005; Huisman et al. 2005b:760 (ages 25–59) **LATIN/CARIBBEAN AMERICA** *Argentina*: Minervini, Zabert et al. 2006* (ever smoked, among physicians, N = 832M + 602F); *Multiple Latin American Cities*: Joly 1975 **MIDDLE EAST** *Israel*: Gofin et al. 1981; *Lebanon*: Karam et al. 2000:191 (undergrad); *Saudi Arabia*: Mahfouz et al. 2014:3–5 (current smokers, undergrad, N = 1,873M + 1344F) **NORTH AMERICA** *Canada*: Ferrence 1988; Prus & Gee 2003:307 (elderly); M Denton, Prus & Walters 2004:2591 (29%M vs. 24%F, regular smokers); *United States*: AF Williams & Wechsler 1972:971; Retherford 1975; Center for Disease Control 1976 (age 21 and older, N = 12,000); Monto & Ross 1977:106; U.S. Dept. of Health, Education & Welfare 1979; Breslow & Enstrom 1980; Enstrom & Godley 1980; Hammond & Seidman 1980; U.S. Dept. of Health & Human Services 1980; Schoenborn et al. 1981; KE Warner & Murt 1982; J Harris 1983; GH Miller & Gerstein 1983; U.S. Dept. of Health & Human Services 1983; Wingard et al. 1983; MW Higgins 1984; J Pierce et al. 1987; U.S. Dept. of Health & Human Services 1987c; Novotny et al. 1988; Fiore et al. 1989:51; Verbrugge 1989:287; DS Freedman et al. 1990; Waldron 1991; Center for Disease Control 1992a (Asian Americans); CE Ross & Bird 1994 (N = 2,031); Campos-Outcalt et al. 1995 (American Indians); Whittemore et al. 1995: Garfinkel 1997; Osler et al. 1999; Leischow et al. 2000; Al Snik et al. 2002:1252 (elderly Mexican Americans); Assaf et al. 2002:904; Centers for Disease Control and Prevention 2002* (26%M vs. 21%F; except among Native Americans); Karasik et al. 2003:311; Stranges et al. 2004:951 (middle age to elderly); Tammemagi et al. 2004:600 (among lung cancer patients); CR Harris, Jenkins & Glaser 2006:53 (undergrad, N = 657); Hicks & Miller 2006:25 (undergrad, current smokers); Abdullah, Khera et al. 2007:Table 1; JA Ellis, Perl et al. 2008 (in NYC); P Chen & Jacobson 2012:Table 3 (ages 12–16, N = 20,160); Coutinho, Borlaug et al. 2012:Table 1 (N = 189M + 272F) **OCEANIA** *Australia*: DJ Hill et al. 1988; DJ Hill et al. 1991; DJ Hill &White 1992; DJ Hill et al. 1998; Siahpush & Borland 2001; Alati et al. 2004:465 (emergency room patients); *New Zealand*: Prior et al. 1981*; *Tonga*: Finau et al. 1982 (urban areas) **INTERNATIONAL** *Multiple Countries*: J Pierce 1989; Wardle, Haase et al. 2004:109 (young adult); Degenhardt et al. 2008 (self-report)
Not significant		**EUROPE** *Britain*: Myint et al. 2006:886 (current smoker); *Norway*: Langhammer et al.2000:918 (current smoking, N = 30,743M + 34,974F); *Spain*: Schiaffino, Fernandez et al. 2007* (1999-2000); Barragan, Coltell et al. 2018:Table 1 (ages 18–80, current smokers: 19.2%M vs. 20.8%F, N = 365M + 655F) **LATIN/CARIBBEAN AMERICA** *Argentina*: Minervini, Zabert et al. 2006* (current smokers, among physicians, N = 832M + 602F) **NORTH AMERICA** *United States*: Breslau et al. 1994; Gibbons & Gerrard 1995* (young); Rigotti et al. 2000 (undergrad); KD Ward et al. 2002:262 (US Air Force Recruits, Hispanics); GA Laughlin et al. 2006:508 (elderly); GA Laughlin et al. 2007:460 (elderly, 11.2%M vs. 13.2%F); GA Mitchell, Gudnason et al. 2008:Table 1

(*Continued*)

Table 18.1.6.1b (Continued)

Nature of difference	*Post-pubertal*	
		Adult
		OCEANIA *Australia*: S Moore & D Rosenthal 1992* (young) **INTERNATIONAL** *Multiple Countries*: Steptoe et al. 1995 (21 countries included)
More among females		**EUROPE** *Denmark*: M Rasmussen et al. 2002; *Spain*: Pinilla & Gonzalez 2001* (young) **NORTH AMERICA** *Canada*: Juster, Raymond et al. 2016:Table 1 (N = 60M + 144F, 13.3%M vs. 17.4%F); *United States*: Remington et al. 1985; L Johnston et al. 1988 (young); Pirie et al. 1988 (young); Pierce 1989 (young); U.S. Dept. of Health & Human Services 1989 (young); Zuckerman et al. 1990:213; Pirie et al. 1991; Waldron et al. 1991 (young); Kaholokula et al. 1999 (Native Hawaiians, 28%M vs. 35%F); Centers for Disease Control and Prevention 2002* (among Native Americans, 29%M vs. 43% F); KD Ward et al. 2002:262 (U.S. Air Force Recruits, whites) **OCEANIA** *New Zealand*: Prior et al. 1981* (among Maori people, adults under age 40)

Large numbers of studies have been conducted on smoking in which wide age ranges of research participants were sampled. As one can see by viewing Table 18.1.6.1c, the majority of studies have concluded that throughout the world, males are more likely than females to be established smokers.

Table 18.1.6.1c Smoking cigarettes (multiple age categories)

Nature of Difference	*Wide age range*
More among males	**AFRICA** *Guyana*: GJ Miller & Ashcroft 1971 **ASIA** *China*: HP Lee et al. 1979; Weng 1988; World Health Organization 2000*; Anson & Sun 2002:1046; Yi et al. 2003:77; Cui, Zhu et al. 2018* (self-report); *Japan*: JB Cornell 1956; Japanese Ministry of Health & Welfare 1998; *Laos*: World Health Organization 2000*; *Nepal*: Pandey et al. 1987; *Pakistan*: Z Mahmood 1982; *Singapore*: World Health Organization 2000*; Teoh et al. 2009:Table 9; *South Korea*: Kim, Jeon et al. 2018:Table 1 (ages 10–80, current smokers); *Taiwan*: Hsu et al. 2002:58; Cui, Zhu et al. 2018* (self-report); *Thailand*: Mougne et al. 1982; Sattah et al. 2002:804 (self-reports); *Vietnam*: Trong et al. 1999; World Health Organization 2000*; Cui, Zhu et al. 2018* (self-report) **EUROPE** *Belgium*: Smoking Prevention 1994; *Britain*: Wald et al. 1988; JP Pierce 1989:54*; Wald & Nicolaides-Bauman 1991; Smyth & Browne 1992; Argyle 1994:268; Townsend et al. 1994; *Denmark*: PE Nielsen et al. 1988; TK Jensen et al. 1998:995; *Finland*: Rahkonen et al. 1992; *France*: M Baumann et al. 2007 (N = 6,216, 30%M vs. 22%F); *Germany*: H Brenner 1993; *Ireland*: Cleary et al. 1983; E Shelley 1985; Health Promotion Unit 1995; *Italy*: Tenconi et al. 1992:767 (all ages); *Netherlands*: Van Reek 1985; Van Reek 1994; *Norway*: JP Pierce 1989:54*; M Osler et al. 1998; *Sweden*: JP Pierce 1989:54*; Lindstrom et al. 2000:203 **LATIN/CARIBBEAN AMERICA** *Guyana*: GJ Miller & Ashcraft 1971 (rural villages) **NORTH AMERICA** *Canada*: Millar 1988; Denton et al. 2004:2591 (for more years); *United States*: Bolinder 1925 (American Indians); JM Cooper 1957 (Native American); EC Hammond 1966; RW Wilson 1967:2*; Burbank 1972:476 (1920–1968); Gebbhard & Johnson 1979:93; U.S. Dept. of Commerce 1983:15; Schoenborn 1986; Waldron 1986 (more cigarettes per day); Ernster 1987; JE Fielding 1987; Fiore et al. 1989; Pierce 1989:154*; Center for Disease Control 1992b; Anonymous 1993;

(*Continued*)

Table 18.1.6.1c (Continued)

Nature of Difference	*Wide age range*
	Giovino et al. 1994; Davis et al. 1995 (5th-7th grade, among Native Americans); Patrick et al. 1995 (self-report); DC Walsh et al. 1995:151; Escobedo & Peddicord 1996; Center for Disease Control 1999; Department of Health & Human Services 2001:34; KD Ward et al. 2002:262 (Air Force Recruits, blacks & Asians); Kafai & Ganji 2003:14; Nez Henderson et al. 2005 (Native Americans, 15–54 years old) **OCEANIA** *Australia*: JP Pierce et al. 1987; DJ Hill et al. 1988; CA Boyle et al. 1994:57; World Health Organization 2000*; *Ceylon*: Uragoda & Senewiratne 1971; *Fiji*: Tuomilehto et al. 1986; *New Guinea*: HR Anderson 1974; Vallance et al. 1987 (rural community); *Philippines*: World Health Organization 2000* **INTERNATIONAL** *Multiple Countries*: Jha et al. 2002; *Multiple Industrial Countries*: JP Pierce 1989; Molarius et al. 2001; Pampel 2001a:397; EM Crimmins, Kim & Sole-Auro 2010 (50 years and older, Western countries) **OVERVIEW** *Literature Review*: SC Hitchman & Fong 2011 (130 countries)
Not significant	**EUROPE** *Italy*: Ferrante, Fiore et al. 2010:264 (ages 6–21, N = 853M + 857F, M>F) **NORTH AMERICA** *Canada*: Choiniere et al. 2000:515; *United States*: Zuckerman & Neeb 1980; Schoenberg et al. 1990; Osann 1991; Brownson et al. 1992; RE Harris et al. 1993; Osann et al. 1993; Risch et al. 1993; Zang & Wynder 1996 **OCEANIA** *French Polynesia*: World Health Organization 2000*; *New Guinea*: Pindborg et al. 1968; Scrimgeour 1985; *New Zealand*: Ministry of Health 1999
More among females	**NORTH AMERICA** *United States*: D Kandel et al. 1997 **OCEANIA** *Cook Island*: Tuomilehto et al. 1986; World Health Organization 2000*

18.1.6.2 Number of Cigarettes Smoked per Day by Regular Smokers

A few studies have compared the sexes regarding the number of cigarettes smoked (usually in a typical day) among established smokers. As shown in Table 18.1.6.2, most of these studies have concluded that male smokers consume more cigarettes per day than do female smokers.

18.1.6.3 Non-smokers

Some studies were located pertaining to smoking abstinence, meaning individuals who have essentially never smoked in their lives. One can see in Table 18.1.6.3 that all but one of these studies reported found that females were more likely than males to have never smoked.

18.1.6.4 Age of Smoking Onset

Some research has sought to determine if one sex starts to smoke at an earlier age than the other sex. Table 18.1.6.4 reveals that when significant sex differences have been found, they indicate that males report picking up the habit at younger ages. Nevertheless, about an equal number of studies have reported finding no significant sex differences in this regard.

Table 18.1.6.2 Number of cigarettes smoked per day by regular smokers

Nature of difference				*Post-pubertal*	
				Adult	
More among males				**EUROPE** *Scotland*: Woodward & Tunstall-Pedoe 1993 **NORTH AMERICA** *United States*: MAH Russell et al. 1986; Wagenknecht et al. 1990 (young); KA Perkins et al. 2002:199; SA McKee et al. 2005:426 (among smokers wanting to quit, N = 300M + 273F) **OCEANA** *Australia*: Wilhelm et al. 2002:49 (among depressed smokers)	
Not significant					
More among females				**EUROPE** *Sweden*: Nordlund, Carstensen & Pershagen 1999:57	

Table 18.1.6.3 Non-smokers

Nature of difference				*Post-pubertal*	
				Adult	
More among males				**OCEANIA** *Hawaii*: Kaholokula et al. 2006:280* (among whites)	
Not significant					
More among females				**ASIA** *Japan*: Takahashi, Jang et al. 2020:Table 1*; *South Korea*: Kim, Jeon et al. 2018:Table 1 (never smoked); Takahashi, Jang et al. 2020:Table 1* (N = 226,105) **EUROPE** *Britain*: Myint et al. 2006:886; Ely et al. 1999:896; *Denmark*: Hoidrup et al. 2000:255 (elderly); *Norway*: Langhammer et al.2000:918 (never smoked, N = 30,743M + 34,974F) **NORTH AMERICA** *Canada*: M Denton et al. 2004:2592 (30%M vs. 43%F); *United States*: Schoenborn et al. 1981; Stranges et al. 2004:951 (middle age & elderly); Cornelius et al. 2005; Visser et al. 2005:327 (elderly) **OCEANIA** *Hawaii*: Kaholokula et al. 2006:280* (among native Hawaians, Filipinos, and Japanese)	

18.1.6.5 Smoking Cessation (Quitting Smoking by Regular Smokers)

An old joke among smokers is that "It's easy to quit; I've done it hundreds of times." This bit of humor reflects the fact that few people who attempt to quit smoking succeed to do so *permanently* the first or even the second time they try.

Table 18.1.6.4 Age of smoking onset

Nature of difference					*Wide age range*
Earlier age of onset for males					**EUROPE** *Britain*: B Cox et al. 1987; *Denmark*: Prescott 2000:119* (persons age 25–84); *Italy*: Vescio et al. 2003:1053; Ferrante, Fiore et al. 2010:264 (ages 6–21, N = 853M + 857F) **NORTH AMERICA** *United States*: Burbank 1972:476 (mean ages: 18.4M vs. 26.0F); PD Riggs et al. 1999:199
Not significant					**EUROPE** *Denmark*: Prescott 2000:119* (under age 25); *Ukraine*: McAllister et al. 2002:303 **MIDDLE EAST** *Lebanon*: Karam et al. 2000:191 (undergrad) **NORTH AMERICA** *Canada*: Westmaas et al. 2002:371; *United States*: Thorner et al. 2007
Earlier age of onset for females					

Large numbers of studies have been undertaken to compare male and female smokers with respect to their likelihood of successfully quitting. As one can see in Table 18.1.6.5, among established smokers, most research has indicated that males are more likely to permanently succeed at quitting than females.

18.1.6.6 Age of Quitting Smoking

One study was located in which former established smokers of each sex were asked the age they were when they had their last cigarette. Table 18.1.6.6 shows that, among smokers, males reported being significantly younger when they quit smoking than was the case for females.

18.1.6.7 Severity of Withdrawal Symptoms Associated with Smoking Cessation

Several studies have sought to determine if males or females experience greater withdrawal symptoms when they attempt to quit smoking. As shown in Table 18.1.6.7, most studies have found no significant difference. The one exception concluded that withdrawal symptoms for females are more severe.

18.1.6.8 Reasons Given by Smokers for Beginning to Smoke

Some researchers have investigated sex differences in reasons given by smokers for taking up the smoking habit. As summarized in Table 18.1.6.8,

Table 18.1.6.5 Smoking cessation (quitting smoking by regular smokers)

Nature of difference			*Post-pubertal*		*Wide age range*
			Adolescent	*Adult*	
More among males				**EUROPE** *Britain*: Myint et al. 2006:886; *Denmark*: Godtfredsen et al. 2001 (cold turkey); *Italy*: Vescio et al. 2003:1053; *Norway*: M Osler et al. 1999; Langhammer et al.2000:918 (former smokers, N = 30,743M + 34,974F); *Scotland*: Tunstall-Pedol et al. 1999; *Spain*: E Fernandez et al. 2001; E Fernandez et al. 2006:32 (through one year follow-up); *Sweden*: Norregaard et al. 1993 (using nicotine replacement patch); Nordlund et al. 1999:57; Lindstrom & Isacsson 2002; *Multiple European Countries*: C Power 2005:338 **LATIN/CARIBBEAN AMERICA** *Argentina*: Minervini, Zabert et al. 2006 (current smokers, among physicians, N = 832M + 602F) **NORTH AMERICA** *Canada*: LE Carlson et al. 2002; *United States*: JE Harris 1983; Wingard et al. 1983:167 (whites); Orlandi 1986; DB Abrams et al. 1987 (among established smokers); Kabat & Wynder 1987 ("cold turkey"); SM Blake et al. 1989; Fiore et al. 1989; AC King et al. 1990; McWhorter et al. 1990; AB Berman & Gritz 1991; Fortmann & Killen 1994; Swan et al. 1993 (using behavioral therapy); SA French & Jeffery 1994; Bjornson et al. 1995 (using nicotine replacement patch); RP Murray et al. 1995; Nides et al. 1995 (using nicotine replacement); Fant et al. 1996; EA O'Connor et al. 1996; Hymowitz et al. 1997 (cohort community group); Pirie et al. 1997; Royce et al. 1997; Swan et al. 1997 (using nicotine replacement patch); KD Ward et al. 1997; Wetter et al. 1999 (using nicotine patch); Ockene et al. 2000 (behavioral therapy); Dale et al. 2001 (bupropion & counseling); KA Perkins 2001 (among established smokers); Assaf et al. 2003 (self-report); Swan et al. 2003 (bupropion & counseling); RX Liu 2004; Visser et al. 2005:327 (elderly); JA Ellis, Perl et al. 2008 (in NYC); ME Piper, Cook et al. 2010; PH Smith, Kasza et al. 2015 (with no medical help, 22%M vs. 13%F) **OCEANIA** *Australia*: JP Pierce et al. 1987	**EUROPE** *Britain*: Gourlay et al. 1994; *Italy*: Negri et al. 1989; Ferraroni et al. 1991; *Norway*: M Osler et al. 1998; *Sweden*: Lindstrom et al. 2000:203 **NORTH AMERICA** *United States*: JS Guilford 1966; DF Dunn 1973; Sterling & Weinkam 1976:750; US Dept. of Health and Human Services 1980; US Dept. of Health & Human Services 1989; Center for Disease Control 1992b; Stapleton et al. 1995; Gritz et al. 1996; Pierce & Gilpin 1996 **OCEANIA** *Australia*: CA Boyle et al. 1994:57
Not significant			**NORTH AMERICA** *United States*: Zhu et al. 1999	**NORTH AMERICA** *United States*: KM Freund et al. 1992; Gritz et al. 1998	**ASIA** *China*: Abdullah et al. 2006 (quit for at least one year, N = 129) **NORTH AMERICA** *United States*: Gilpin et al. 1997; Kiefe et al. 2001
More among females					

Table 18.1.6.6 Age of quitting smoking

Nature of difference			*Post-pubertal*		
				Adult	
Males younger				**NORTH AMERICA** *United States*: Pierce & Gilpin 1996 (ages 33M vs. 37F)	
Not significant					
Females younger					

Table 18.1.6.7 Severity of withdrawal symptoms associated with smoking cessation

Nature of difference			*Post-pubertal*		*Wide age range*
				Adult	
More severe among males					
Not significant				**NORTH AMERICA** *United States*: RC Gunn 1986*; Pierce et al. 1991 (young); JC Tate et al. 1993	**NORTH AMERICA** *United States*: Wynder et al. 1967; DJ Peterson et al. 1968; S Shiffman 1979; Svikis et al. 1986; RC Gunn 1986*; Breslau et al. 1992; Hatsukami 1994; Pomerleau et al. 1994; Repsher 1994 **OCEANIA** *Australia*: Trahair 1967
More severe among females				**NORTH AMERICA** *United States*: Pomerleau et al. 1994*; Oncken et al. 2004	

most studies report that females are more likely than males to name factors such as yielding to social pressure, having close friends who smoke, and wanting to lose weight to become more attractive. Regarding this latter explanation, research has reached inconsistent conclusions regarding whether or not smoking is helpful in weight control, with some being supportive (Grunberg 1986) and others being negative (Klesges, Zbikowski et al. 1998).

18.1.6.9 Reasons Given by Smokers for Continuing to Smoke

The preceding table addressed the issue of sex differences in why people begin smoking. Table 18.1.6.9 addresses the issue of why people continue to smoke. One can see that regarding concerns over health, there appear to be no sex differences, but in the case of desiring to lose weight or as a way to relax, females appear to continue smoking more.

Table 18.1.6.8 Reasons given by smokers for beginning to smoke

Nature of difference			*Post-pubertal*		*Wide age range*
			Adolescent		
More among males			**NORTH AMERICA** *United States*: Urberg & Robbins 1981* (a way of coping with stress)		
Not significant			**NORTH AMERICA** *United States*: Urberg, Değirmencioğlu, and Pilgrim 1997 (smoking by close friends) **OCEANIA** *New Zealand*: Stanton et al. 1996 (smoking by close friends)		
More among females			**EUROPE** *Britain*: Charlton 1984 (to control weight, 46%M vs. 39%F); EF Wagner & Atkins 2000:95 (weight control); EF Wagner & Atkins 2000:97 (friends who also smoked) **NORTH AMERICA** *United States*: Urberg & Robbins 1981* (sign of maturity & independence); Chassin et al. 1984 (friends who also smoked); Chassin et al. 1986 (yielded to social influence); S Clayton 1991 (self-confidence); Sarason et al. 1992 (yielded to social influence); van Roosmalen & McDaniel 1992 (yielded to social influence, peers); D Camp et al. 1993 (to control weight); SA French et al. 1994 (to control weight); Hu et al. 1995 (yielded to social influence); LA Robinson et al. 1997 (yielded to social influence); Urberg et al. 1997 (friends who also smoked); TW Hu et al. 1998 (social pressure) **OCEANIA** *New Zealand*: Stanton et al. 1996 (friends who also smoked)		**NORTH AMERICA** *United States*: JS Tucker et al. 2002 (social pressure)

18.1.6.10 Reasons Given for Stopping Smoking

Some research has compared males and females regarding the reasons they gave for stopping (or trying to stop) smoking. Table 18.1.6.10 shows that most studies find males providing health and physical fitness explanations, while one study of females indicated that they had a number of explanations, including health benefits.

18.1.6.11 Consuming Nicotine without Smoking

Smoking is the most widely used method for consuming tobacco. Nevertheless, there are other methods, such as chewing and then retaining the tobacco somewhere between the gums and the cheek so that the juices

Table 18.1.6.9 Reasons given by smokers for continuing to smoke

Nature of difference				*Post-pubertal*	
				Adult	
More among males					
Not significant				**EUROPE** *France*: I Berlin et al. 2003:1580* (addiction, pleasure, habit); *Norway*: Grøtvedt & Stavem 2005 (to improve physical fitness) **NORTH AMERICA** *United States*: Curry et al. 1997 (to improve physical fitness); McKee et al. 2003 (craving & loss of enjoyment)	
More among females				**EUROPE** *France*: I Berlin et al. 2003:1580* (tension reduction/relaxation, stimulation, social smoking) **NORTH AMERICA** *United States*: Livson & Leino 1988 (among established smokers, feeling stressed); Pirie et al. 1991 (among smokers, belief that smoking helps reduce weight); Swan et al. 1993 (among smokers, belief that smoking helps reduce weight); SA McGee et al. 2005:429* (among smokers wanting to quit, weight gain, N = 300M + 273F) **OVERVIEW** *Literature Review*: Waldron 1991 (belief that smoking helps to control weight gain)	

Table 18.1.6.10 Reasons given for stopping smoking

Nature of difference				*Post-pubertal*	
				Adult	
More among males				**EUROPE** *Norway*: Grøtvedt & Stavem 2005:74 (to improve physical fitness, N = 1,715 ex-smokers) **NORTH AMERICA** *United States*: Sorensen & Pachacek 1987 (health benefits); Curry et al. 1997 (to improve physical fitness)	
Not significant					
More among females				**NORTH AMERICA** *United States*: SA McGee et al. 2005:Table 1 (health benefits, self-esteem, financial savings, social approval, among smokers wanting to quit, N = 300M + 273F)	

from the tobacco can be swallowed, allowing the nicotine contained in the tobacco to be digested and slowly released into the blood system (which eventually transports nicotine to the brain). According to the studies presented in Table 18.1.6.11a, more males than females have used (or at least experimented with) smokeless tobacco products, with the exception of one study (conducted in India).

Table 18.1.6.11a Consuming nicotine without smoking

Nature of difference			*Post-pubertal*		*Wide age range*
			Adolescent	*Adult*	
More among males			**NORTH AMERICA** *United States*: JH Palmer & Ringwalt 1988:289 (N = 10,259); Pate et al. 2000:908 (chewing tobacco, self-report); KE Miller et al. 2005:1644 (self-report)	**NORTH AMERICA** *United States*: Rigotti et al. 2000 (undergrad)	**NORTH AMERICA** *United States*: Cohen et al. 1987:1454 (grades 3 through 12)
Not significant					
More among females				**ASIA** *India*: Sorensen et al. 2005:1005	

One study was located in which both male and female mice were given unfettered access to nicotine in their drinking water along with nicotine-free water. As shown in Table 18.1.6.11b, females were found to avail themselves of more nicotine than was the case for males.

Table 18.1.6.11b Consuming nicotine without smoking, among non-humans

Nature of difference			*Post-pubertal*		
			Adolescent		
More among males					
Not significant					
More among females			**RODENT** *Mouse*: LC Klein, Stine et al. 2004:Figure 4 (in liquid form, body weight statistically controlled)		

18.1.6.12 Use of Nicotine Gum

One study reported a sex difference in the consumption of nicotine (in gum form) to help smokers to quit smoking. As shown in Table 18.1.6.12, this method for attempting to quit smoking was used by males more than by females.

Table 18.1.6.12 Use of nicotine gum

Nature of difference			*Post-pubertal*		
				Adult	
More among males				**NORTH AMERICA** *United States*: Killen et al 1990 (smokers attempting to quit, nicotine gum)	
Not significant					
More among females					

18.1.6.13 Relationship between Smoking and Ill Health

One study was located having to do with the relationship between smoking and ill health. As shown in Table 18.1.6.13, this study indicated that females exhibit a stronger association than do males.

Table 18.1.6.13 Relationship between smoking and ill health

Nature of difference			*Post-pubertal*		
				Adult	
More among males					
Not significant					
More among females				**EUROPE** *Norway*: Njolstad et al. 1996 (ages 35–52, heart disease risk, N = 11,843)	

18.1.7 Ingesting Other Recreational Drugs

Considerable research has investigated sex differences in the consumption of drugs, particularly non-therapeutic drugs. Possession of several of these drugs is illegal. Therefore, they will be discussed again in Chapter 19, dealing with criminality. In this section, the focus is on sex differences in the consumption of various specific drugs, regardless of their legal status.

18.1.7.1 Consuming Amphetamines or Methamphetamines

Amphetamines and methamphetamines are stimulant drugs that are sometimes used therapeutically and other times recreationally. Table 18.1.7.1a shows that the few available investigations of sex differences in the consumption of these drugs have not reached consistent conclusions.

Table 18.1.7.1a Consuming amphetamines or methamphetamines

Nature of difference			*Post-pubertal*		
			Adolescent		
More among males			**ASIA** *Thailand*: Sattah et al. 2002 (methamphetamines) **NORTH AMERICA** *United States*: Fagan & Pabon 1990:331 (amphetamines); Hartman, Listwan, & Shaffer 2007 (returning to meth use after drug rehab)		
Not significant			**NORTH AMERICA** *United States*: JL Simpson, Grant et al. 2016 (return to use among former users)		
More among females			**NORTH AMERICA** *United States*: Pascale & Evans 1993:113 (amphetamines)		

The consumption of amphetamines or methamphetamines by rats has been studied by various researcher. Regarding sex differences, one can see in Table 18.1.7.1b that all the research indicates that females are more prone to exhibit persistent and probably addictive use than is true for males.

Table 18.1.7.1b Consuming amphetamines or methamphetamines among non-humans

Nature of difference			*Post-pubertal*		
			Adolescent		
More among males					
Not significant					
More among females			**RODENT** *Rat*: ME Roth & Carroll 2004 (methamphetamines, under most conditions); Rambousek, Kacer et al. 2014 (both amphetamines & methamphetamines); Reichel, Chan et al. 2012 (meth, after having been exposed, deprived and then allowed to resume consumption)		

18.1.7.2 Caffeine Consumption

Most caffeine consumption involves drinking coffee, although significant amounts of caffeine are also present in various soft drinks (e.g., cola drinks, energy drinks) and in most teas. Findings from the limited research on sex differences in consumption of coffee (or other drinks containing caffeine) are summarized in Table 18.1.7.2a. One can see that they provide a mixed picture regarding any sex differences in this regard.

Table 18.1.7.2a Caffeine consumption

Nature of difference			*Post-pubertal*		
			Adolescent	*Adult*	
More among males			**ASIA** *Japan*: Harada & Takeuchi 2001 (in beverages) **EUROPE** *Iceland*: JE James & Kristjansson 2015:Table 1; *Switzerland*: Barrense-Dies et al. 2016 (energy drinks)	**NORTH AMERICA** *United States*: Karasik et al. 2003:311; KE Miller 2008 (undergrad, N = 795, energy drinks)	
Not significant			**EUROPE** *Finland*: Hu et al. 2007:462 (average cups of coffee per day)	**NORTH AMERICA** *Canada*: Juster, Raymond et al. 2016:Table 1 (N = 60M + 144F); *United States*: RL Phillips et al. 1980:302	
More among females				**NORTH AMERICA** *United States*: JL Greenberg, Lewis & Dodd 1999 (addiction to caffeine, undergrad, N = 129)	

One study investigated sex differences in the consumption of caffeine among rats. As shown in Table 18.1.7.2b, the study indicated that females did so more than males.

Table 18.1.7.2b Consuming caffeine among non-humans

Nature of difference			*Post-pubertal*		
				Adult	
More among males					
Not significant					
More among females				**RODENT** *Rat*: Heppner et al. 1986 (when deprived of food)	

18.1.7.3 Consuming Cocaine

Sex differences in the consumption of cocaine have been investigated in several studies. Findings are summarized in Table 18.1.7.3a. One can see that most of the research suggests that males use cocaine more than do females, at least among the general population (usually based on anonymous self-reports). However, among people who are arrested or imprisoned, the limited amount of evidence points toward greater use by females than by males.

Table 18.1.7.3a Consuming cocaine

Nature of difference			*Post-pubertal*		*Wide age range*
			Adolescent	*Adult*	
More among males			**LATIN/CARIBBEAN AMERICA** *Brazil*: Micheli & Formigoni 2004:Table 2 (ages 10–19) **NORTH AMERICA** *United States*: JH Palmer & Ringwalt 1988:289 (self-report, 7.3%M vs. 5.8%F, N = 10,259); Novins & Mitchell 1998; Pate et al. 2000:908 (self-report); KE Miller et al. 2005:1644	**LATIN/CARIBBEAN AMERICA** *Multiple Caribbean Islands*: M Day & Norman 2007 (crack cocaine, N = 111) **NORTH AMERICA** *United States*: Lex 1991:122* (self-report); RE Booth 1995; RE Booth et al. 2000; Substance Abuse & Mental Health Services Administration 2001 (recent or past use); Substance Abuse & Mental Health Services Administration 2004 (70%M) **INTERNATIONAL** *Multiple Countries*: Degenhardt et al. 2008 (self-report)	**NORTH AMERICA** *United States*: Kosten et al. 1993; Greenblatt & Gfroerer 1998; TK Logan et al. 2003
Not significant			**EUROPE** *Spain*: Suris & Parera 2005:487 **NORTH AMERICA** *United States*: Lex 1991:122* (self-report)	**MIDDLE EAST** *Lebanon*: Karam et al. 2000:192 (undergrad) **NORTH AMERICA** *United States*: SM Evans et al. 1999 (cocaine smoking)	
More among females			**NORTH AMERICA** *United States*: Fagan & Pabon 1990:331	**NORTH AMERICA** *United States*: RH Peters et al. 1997 (among prisoners, 79%M vs. 92%F, N = 1,655)	**NORTH AMERICA** *United States*: Lo 2004 (self-reported cocaine addiction, among arrestees, 20%M vs. 26%F, N = 799)

Several studies of sex differences in cocaine consumption have been conducted among rodents. One can see in Table 18.1.7.3b that most of these studies indicate that females are more likely to self-administer cocaine than is true for males.

Table 18.1.7.3b Consuming cocaine among non-humans

Nature of difference			*Post-pubertal*		*Wide age range*
				Adult	
More among males					
Not significant				**RODENT** *Rat*: J Taylor et al. 1990; WJ Lynch et al. 2000:135	**RODENT** *Rat*: DC Roberts et al. 1989; M Haney et al. 1995
More among females				**RODENT** *Mouse*: AC Morse et al. 1993; *Rat*: DCS Roberts et al. 1989 (self-administration); WJ Lynch & Carroll 1999 (intravenous); Lynch & Carroll 2000 (intravenous); Lynch et al. 2000 (intravenous); UC Campbell et al. 2002 (meet criteria for self-administration with baclofen co-treatment); Carroll et al. 2002; Caine et al. 2004 (self-administration); Lynch & Taylor 2004; Roth & Carroll 2004b (intravenous)	

18.1.7.4 Consuming Ecstasy

Two studies were located pertaining to sex differences in the consumption of ecstasy (MDMA), a drug known to result in euphoria. Table 18.1.7.4 shows that one study reported greater use by males and the other found no significant difference.

18.1.7.5 Consuming Inhalants

Huffing, or the consumption of various oil-based inhalants, can provide users with feeling of being high. Table 18.1.7.5 shows that in both studies adolescents who used inhalants were more likely to be males than females.

18.1.7.6 Consuming Lysergic Acid Diethylamide (LSD)

As shown in Table 18.1.7.6, one study sought to determine which sex was more likely to have consumed the hallucinogen known as LSD. It concluded that males surpassed females in having consumed this drug.

Table 18.1.7.4 Consuming ecstasy

Nature of difference			*Post-pubertal*		
			Adolescent		
More among males			**LATIN/CARIBBEAN AMERICA** *Brazil*: Micheli & Formigoni 2004:Table 2 (ages 10–19)		
Not significant			**NORTH AMERICA** *United States*: CJ Boyd et al. 2003:211		
More among females					

18.1.7.7 Consuming Marijuana

Table 18.1.7.5 Consuming inhalants

Nature of difference			*Post-pubertal*		
			Adolescent		
More among males			**NORTH AMERICA** *United States*: Fagan & Pabon 1990:331; Pascale & Evans 1993:113		
Not significant					
More among females					

Table 18.1.7.6 Consuming lysergic acid diethylamide (LSD)

Nature of difference			*Post-pubertal*		
			Adolescent		
More among males			**NORTH AMERICA** *Canada*: Popham 1970		
Not significant					
More among females					

The consumption of marijuana, usually by smoking, is substantial in many parts of the world even though possession of marijuana is illegal in many countries. As shown in Table 18.1.7.7a, most studies have found higher consumption rates among males than females, although several studies have reported no significant sex difference and a couple of studies actually found females self-reporting greater use.

One study of sex differences in the consumption of cannabinoids was located for rats. As shown in Table 18.1.7.7b, the study indicated that in most strains of rats, males consumed more marijuana-like substances than did females.

Table 18.1.7.7a Consuming marijuana

Nature of difference			*Post-pubertal*		*Wide age range*
			Adolescent	*Adult*	
More among males			**AFRICA** *South Africa*: AJ Flisher et al. 2003:61 **EUROPE** *Hungary*: Pico & Fitzpatrick 2006:357 **LATIN/CARIBBEAN AMERICA** *Brazil*: Kahn et al 1999 (self-report, N = 710); Micheli & Formigoni 2004:Table 2 (ages 10–19) **NORTH AMERICA** *Canada*: Popham 1970; JR Baker & Yardley 2002:38; Miles et al. 2002 (twins); JM Wallace 2003; S Kim, Kimber et al. 2019:Table 1); *United States*: E Josephson 1974 (ages 12–17); Prendergast 1974; Currie et al. 1977; Wexler 1975; JH Palmer & Ringwalt 1988:289 (N = 10,259); Windle 1990:88; Novins & Mitchell 1998; Pate et al. 2000:908 (self-report); KW Griffin et al. 2002; JM Wallace et al. 2003; KE Miller et al. 2005:1644; Schauer et al. 2016:Tables 2 & 3 (in past 30 days & ever use) **OCEANIA** *Australia*: Levy & Pierce 1990	**AFRICA** *South Africa*: Odek-Ogunde & Pande-Leak 1999 (undergrad); Peltzer et al. 2002:109 (undergrad); Parry et al. 2004 (among arrestees, N = 1,050, 60%M vs. 52%F, urinalysis) **EUROPE** *Britain*: Neale 2004 (self-reported problem use, 23%M vs. 16%F, N = 1,033); Hoshi et al. 2006:297 (frequently of use); K Holloway & Bennett 2007 (among arrestees, urinalysis); *Germany*: C Stock et al. 2001 (undergrad, N = 288M + 362F); *Slovenia*: Petel, Geckova et al. 2012:1124 (20.8%M vs. 12.8%F, N = 3,674); *Sweden*: Byqvist 2006:1822 **LATIN/CARIBBEAN AMERICA** *Brazil*: Jungerman et al. 2010; *Puerto Rico*: Latimer et al. 2004 **MIDDLE EAST** *Lebanon*: Karam et al. 2000:192 (undergrad) **NORTH AMERICA** *Canada*: Boggs & Hughes 1973; G Fliksman et al. 1997 (undergrad); *United States*: Eisenman et al. 1980 (undergrad); Amoateng & Bahr 1986; Amaro et al. 1990:57 (Hispanics); Case & Katz 1991:Table 6; Lex 1991:123* (self-report); Zebrowski & Gregory 1996; Ousey & Maume 1997; RH Peters et al. 1997 (ever use, among prisoners, 85%M vs 61% F, N = 1,655, self-report); Ploeger 1997; Merrill et al. 1999:209; Roeloffs et al. 2001:1252 (depressed patients); Lo 2004 (among arrestees, self-report, 14%M vs. 8%F, N = 799); Ohannessian et al. 2004 (marijuana dependency); AL Anderson & Hughes 2009:20; JS Brook, Lee et al. 2011; AH Hai 2018 (N =	**NORTH AMERICA** *United States*: Flor, Lynam et al. 2004 (adolescent & young adult, self-report, N = 481); Zhang 2004 (among arrestees, 52%M vs. 44% F in past 12 months, N = 26,330) **OCEANIA** *Australia*: among arrestees, 60%M vs. 52%F, according to urinalysis, N = 3834)

(*Continued*)

Table 18.1.7.7a (Continued)

Nature of difference			*Post-pubertal*		*Wide age range*
			Adolescent	*Adult*	
				12,646) **OCEANIA** *Australia*: Levy & Pierce 1990; Bor et al. 2010:652 (marijuana use) **INTERNATIONAL** *Multiple Countries*: Degenhardt et al. 2008 (self-report)	
Not significant			**EUROPE** *Spain*: Suris & Parera 2005:487 **NORTH AMERICA** *United States*: Lex 1991:122* (self-report); Arnett & Jensen 1994*:9; Dolcini & Adler 1994:500; Grunbaum et al. 1998:155 (whites); Pirkis et al. 2003:282* (both life-time use and use in the past 30 days) **OCEANIA** *Australia*: Pirkis et al. 2003:282* (both life-time use and use in the past 30 days)	**EUROPE** *Britain*: Surtees et al. 2002:26 (young) **NORTH AMERICA** *United States*: Reiskin & Wechsler 1981:721 (undergrad); Arnett & Jensen 1994:9*; Bliss & Crown 1994:230 (young); Aseltine et al. 2000:268 (marijuana use); J Newsome et al. 2016:Table 1	
More among females			**EUROPE** *Denmark*: Arnett & Jensen 1994:9*	**EUROPE** *Norway*: W Pedersen et al. 2001	

Table 18.1.7.7b Consuming cannabinoids

Nature of difference			*Post-pubertal*		
				Adult	
More among males				**RODENT** *Rat*: Fattore, Spano et al. 2007 (some strain variations)	
Not significant					
More among females					

18.1.7.8 Age When Marijuana Was First Consumed

One study asked individuals involved in a drug rehabilitation program what age they were when they first tried marijuana. As shown in Table 18.1.7.8, males reported doing so at a slightly earlier average age than females.

Table 18.1.7.8 Age when marijuana was first consumed

Nature of difference			*Post-pubertal*		
			Adolescent		
Earlier among males			**NORTH AMERICA** *United States*: Hser et al. 2003 (among persons in drug rehabilitation, average age: 15.7M vs. 16.2F)		
Not significant					
Earlier among females					

18.1.7.9 Age When Quitting Marijuana Use Occurred

One study was located pertaining to sex differences in stopping marijuana use by age 30 by former users. As one can see in Table 18.1.7.9, most individuals of both sexes report having quit by age 30, although a higher proportion of females did so than males.

Table 18.1.7.9 Age when quitting marijuana use occurred

Nature of difference			*Post-pubertal*		
				Adult	
Earlier among males					
Not significant					
Earlier among females				**NORTH AMERICA** *United States*: K Chen & Kandel 1995 (after age 30, self-report, 75%M vs. 86%F)	

18.1.7.10 Consuming Opiates

Substantial evidence has accumulated regarding sex differences in the consumption of opiates. As shown in Table 18.1.7.10a, the findings have been mixed.

Table 18.1.7.10a Consuming opiates

Nature of difference			*Post-pubertal*		*Wide age range*
			Adolescent	*Adult*	
More among males			**NORTH AMERICA** *United States*: Fagan & Pabon 1990:331 (heroin)	**EUROPE** *Britain*: Strang et al. 1997; *Norway*: Bretteville-Jensen 1999; Odegard & Bretteville-Jensen 2002 **NORTH AMERICA** *United States*: SJ Boyd et al. 2004:285 (heroin); Miaskowski & Levine 2004 (hospitalized patients, requested and consumed more)	**ASIA** *Taiwan*: Chia et al. 2002 **EUROPE** *Britain*: S Major 1996 **NORTH AMERICA** *United States*: Burns et al. 1989; Macintyre & Jarvis 1995; RW Gear et al. 1996; RA Johnson & Gerstein 1998; Ready 1999
Not significant				**MIDDLE EAST** *Lebanon*: Karam et al. 2000:192 (undergrad, morphine, heroin, codeine) **NORTH AMERICA** *United States*: Turk & Okifuji 1999	**NORTH AMERICA** *United States*: Zhang 2004 (heroin use, among arrestees, 7%M vs. 5%F, in past year, N = 26,330)
More among females				**AFRICA** *South Africa*: Peltzer et al. 2002:109 (undergrad, self report) **EUROPE** *Britain*: K Holloway & Bennett 2007 (heroin, among arrestees, urinalysis); *Sweden*: Byqvist 1996 (heroin); Budh et al. 2003 (patients with spinal cord injuries); Byqvist 2006 (heroin) **NORTH AMERICA** *United States*: Montgomery et al. 2002 (heroin)	**OCEANIA** *Australia*: Schulte et al. 2005 (heroin use, among arrestees, urinalysis, N = 383, N = 13%M vs 19%F)

Several studies have been conducted among rodents to assess sex differences in self-administration of various opiates. Table 18.1.7.10b shows that all studies agree that females self-administer more opiates than do males.

Table 18.1.7.10b Consuming opiates among non-humans

Nature of difference				*Post-pubertal*	
				Adults	
More among males					
Not significant					
More among females				**RODENT** *Rat*: BK Alexander, Coambs & Hadaway 1978 (water laced morphine); LC Klein, Popke & Grunberg 1997 (N = 12M + 12F, self-administration of fentanyl after repeated foot shock); WJ Lynch & Carroll 1999 (intravenous heroin)	

18.1.7.11 Consuming Phencyclidine (PCP)

One study was located having to do with the consumption of the hallucinogen known as *phencyclidine*. As shown in Table 18.1.7.11, it indicated that males are more prone than females to consume this drug.

Table 18.1.7.11 Consuming phencyclidine (PCP)

Nature of difference			*Post-pubertal*		
			Adolescent		
More among males			**NORTH AMERICA** *United States*: Fagan & Pabon 1990:331		
Not significant					
More among females					

18.1.7.12 Consuming Stimulants in General

The most widely used stimulant drugs are amphetamines, methamphetamines, and cocaine. The two studies located on sex differences in stimulant drug use overall are cited in Table 18.1.7.12. These studies reached inconsistent conclusions, possibly due to differences in research participants sampled.

Table 18.1.7.12 Consuming stimulants in general

Nature of difference			*Post-pubertal*	
			Adults	
More among males			**NORTH AMERICA** *United States*: SE McCabe et al. 2005 (stimulant use)	
Not significant				
More among females			**NORTH AMERICA** *United States*: Mueser et al. 1990 (stimulant use, among schizophrenics)	

18.2 Owning or Using Mechanical Devices

Sex differences in owning or using mechanical devices, particularly those used for transportation, will now be considered. In addition to motor vehicles, other examples are fishing gear and weapons.

18.2.1 Owning or Using Transportation Devices

The ownership or use of transportation devices (including motor vehicles) has been investigated fairly often regarding possible sex differences. Results are summarized below.

18.2.1.1 Riding Bicycles

One study was located that assessed the frequency with which both sexes rode bicycles. Table 18.2.1.1 shows that the study found no significant sex differences in this regard.

Table 18.2.1.1 Riding bicycles

Nature of difference			*Post-pubertal*		
				Adult	
More among males					
Not significant				**NORTH AMERICA** *Canada*: A Cooper et al. 1999	
More among females					

18.2.1.2 Possessing a Driver's License

Table 18.2.1.2 pertains to sex differences in the possession of a driver's license. All three pertinent studies concluded that males were more likely than females to possess such a license.

Table 18.2.1.2 Possessing a driver's license

Nature of difference					*Wide age range*
More among males					**EUROPE** *Britain*: Waldron et al. 2005:43*2 **NORTH AMERICA** *United States*: J Veevers 1982:172; Waldron et al. 2005:43*2
Not significant					
More among females					

18.2.1.3 Driving Motor Vehicles

Given that more males possess a driver's license than do females, it is reasonable to suspect that more males than females drive motor vehicles. Table 18.2.1.3 provides support for this suspicion.

Table 18.2.1.3 Driving motor vehicles

Nature of difference			*Post-pubertal*		
			Adolescent	*Adult*	
More among males			**EUROPE** *Estonia*: Eensoo et al. 2007:313 (motor bikes)	**NORTH AMERICA** *Canada*: A Cooper et al. 1999 (motorcycles); Dupuis et al. 2007:156 (elderly); *United States*: Cutler & Coward 1992; Hennessy & Wiesenthal 2001:666	
Not significant					
More among females					

18.2.1.4 Distances Driven

The distances driven in a motor vehicle are usually estimated in terms of miles or kilometers over the course of a year. Sex differences in these estimates are summarized in Table 18.2.1.4. One can see that all studies located agree that males drive greater distances in an average year than do females.

Table 18.2.1.4 Distances driven

Nature of difference			*Post-pubertal*		*Wide age range*
			Adolescent	*Adult*	
More among males			**MIDDLE EAST** *Turkey*: Özkan & Lajunen 2005:550 (over 3-time more)	**NORTH AMERICA** *United States*: National Center for Health Statistics 1975; DM Dejoy 1989 (undergrad) **MIDDLE EAST** *Turkey*: Özkan & Lajunen 2006:271 (undergrad, about 40% more)	**EUROPE** *France*: Sullman, Paxion & Stephens 2017 (N = 378, more kilometers/year) **NORTH AMERICA** *United States*: DW Harrington & McBride 1970 (ages 18–21); J Veevers 1982; LF Beck, Dellinger & O'Neil 2007 **OVERVIEW** *Literature Review*: Elander et al. 1993
Not significant					
More among females					

18.2.1.5 Driving Aggressively

Driving aggressively usually involves driving in ways that threaten the safety of oneself or others. It is often motivated by emotions of anger toward the drivers of other vehicles. Expressions of aggressive driving and road rage include honking, yelling, and unwelcomed hand gestures. One can see in Table 18.2.1.5 that most of the pertinent studies on aggressive driving have concluded that such behavior is more common among males than among females. The remaining studies simply indicate no significant sex differences.

Table 18.2.1.5 Driving aggressively

Nature of difference			*Post-pubertal*		*Wide age range*
			Adolescent	*Adult*	
More among males			**NORTH AMERICA** *United States*: Jonah 1990	**NORTH AMERICA** *Canada*: RG Smart, Asbridge et al. 2003 (road rage, N = 2,610, 39%M vs. 30%F); *United States*: Moulova, Brill & Shirkey 2007 (self-report)	**NORTH AMERICA** *United States*: Blockey & Hartley 1995 **OCEANIA** *Australia*: L Roberts & Indermaur 2005:Table 4 (road rage, self-report); MJ Sullman 2015
Not significant					**NORTH AMERICA** *United States*: Hauber 1980 (road rage); Hennessy & Wiesenthal 1999 (road rage); Hennessy & Wiesenthal 2002 (road rage) **OCEANIA** *Australia*: Australian Associated Motor Insurers 1997 (road rage)
More among females					

18.2.1.6 Motor Vehicle Driving Skills

The ability to drive motor vehicles has been investigated by several studies using various methods. Table 18.2.1.6 shows that all findings indicated that driving skills are greater among males than among females.

18.2.1.7 Driving under the Influence of Alcohol or Drugs

Substantial research has sought to determine if males or females are more likely to drive while under the influence of alcohol or drugs (often known as *driving under the influence*, or *DUI*). As one can see in Table 18.2.1.7,

Table 18.2.1.6 Motor vehicle driving skills

Nature of difference				*Post-pubertal*	
				Adult	
More among males				**NORTH AMERICA NORTH AMERICA** *Canada*: J Rothe 1987; Stoddart 1987; *United States*: Heimstra et al. 1967 (young); McKenna et al. 1991; DeJoy 1992	
Not significant					
More among females					

all of these studies have agreed that males are more likely than females to drive while drunk or high on other drugs.

18.2.2 Fishing or Hunting Equipment

In this brief section, two sex differences are considered. One had to do with owning or using fishing equipment and the other involves equipment used in hunting.

Table 18.2.1.7 Driving under the influence of alcohol or drugs

Nature of difference			*Post-pubertal*		*Wide age range*
				Adult	
More among males				**NORTH AMERICA** *United States*: Cosper & Mozersky 1968 (self-report); GB West et al. 1996 (undergrad); Schwartz 2008:1219	**EUROPE** *Finland*: Makela & Mustonen 2000; *Germany*: Bischof et al. 2000 (elderly, drunk) **NORTH AMERICA** *United States*: Clay & Swenson 1978 (arrests); Soderstrom et al. 1984 (auto crashes); Keane et al. 1993 (drunk driving); National Highway Traffic Safety Administration 1996 (alcohol related crashes); Bergdahl 1999 (drunk driving); Marelich et al. 2000 (self-report); Waldron et al. 2005:432 (high BAC levels among drivers); Moulova, Brill & Shirkey 2007 (drunk driving, self-report); Schwartz & Rookey 2008:655 (drunk driving, 1980-2004, 75-80%M)
Not significant					
More among females					

18.2.2.1 Owning Fishing Equipment

One study reported on sex differences in the ownership of fishing equipment. Table 18.2.2.1 shows that the study concluded that greater proportions of males than females had such equipment.

Table 18.2.2.1 Owning fishing equipment

Nature of difference					*Wide age range*
More among males					**NORTH AMERICA** *United States*: J Burger et al. 1998
Not significant					
More among females					

18.2.2.2 Weapons Ownership

Owning weapons, especially in the form of hand guns, is illegal in many countries but not in others. However, especially in the United States, firearm ownership – both in the form of long guns (mainly for sports hunting) and handguns (mainly for personal protection) – is legal for most adults. Studies conducted in the United States have indicated that there are substantial sex differences in this regard. As shown in Table 18.2.2.2, males are more likely than females to own firearms.

Table 18.2.2.2 Owning weapons

Nature of difference			*Post-pubertal*		
				Adult	
More among males				**NORTH AMERICA** *United States*: Cao, Cullen & Link 1997:642 (firearm, N = 233M + 306F); PJ Cook & Ludwig 1997:12 (firearm, N = 2,568); J Burger et al. 1998 (guns); Ludwig, Cook & Smith 1998 (firearms, among married couples); T Coyne-Beasley et al. 2005:e665 (firearm, N = 76M + 76F); M Miller et al. 2006:Figure 1 (firearm); Celinska 2007:241 (firearm, N = 6,614); L Hepburn, Miller et al. 2007:Table 1 (firearms, 42%M vs. 11%F, N = 2,770, telephone survey); Wyant & Taylor 2007 (firearms); G Kleck & Kovandzic 2009:58 (firearm, N = 5,236); TW Smith & Son 2015 (firearm); KA Goss 2017:Figure 5 (firearms, 1972-2014) **OVERVIEW** *Literature Review*: TW Smith & Smith 1995 (firearm)	
Not significant					
More among females					

19 Criminality, Near-Criminality, and Victimization

All literate societies (i.e., societies in which reading and writing are common) have laws prohibiting various types of behavior and prescribing punishment for those who commit these offenses. Included in these laws are ones describing criminal behavior and the consequences for engaging in such behavior. As explained below, criminality can be conceptualized in terms of two main categories regarding whether or not they cause direct harm to others.

Harm-causing offenses are known as *victimizing criminality* (or *victimful crimes*) and come in two main forms. One form induces injury to a victim's body (*violent offenses*) while the other form deprives victims of their possessions (*property offenses*).

Behavior that violates criminal laws without directly harming others is known as a *victimless offense*. The most common victimless offenses are those having to do with the possession, use, and sale of illegal drugs and prostitution. Another special category of victimless offenses applies only to young people and are known as *status offenses*. In most jurisdictions, these offenses involve such things as failure to attend school regularly (truancy), habitual disobedience of parents, and drinking under a prescribed age (usually 18).

There are many behaviors that are illegal, or at least widely regarded as inappropriate, that normally exist outside of the realm of criminality per se. Examples include behavior such as exceeding the speed limit, drunk driving, and other traffic law violations. This chapter will summarize findings in a section termed *near-criminal behavior*. Also included as forms of near-criminality are behaviors such as bullying and sexual harassment. Finally, this chapter will cover research on sex differences in being the victim of either a crime or a near-crime.

19.1 Criminal Behavior Involving Victims

Social scientists have developed a variety of ways of assessing the extent to which people violate criminal statutes. And, as indicated in the paragraphs above, the nature of criminal violations takes many forms.

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Most criminal violations involve someone being either physically or financially victimized, and these types of offenses are what most people fear the most.

The methods used to study criminality can be largely subsumed under one of two main categories. One category is known as *official data*, which is generated from the day-to-day functioning of the criminal justice system. Thus, the proportion of males and females who are arrested, prosecuted, sentenced, and imprisoned for various types of offenses would all constitute official statistics.

The second category of data used in measuring criminality (including delinquency) is known as *self-reported offending*. This type of measure usually involves asking individuals to complete a questionnaire (usually anonymously) in which illegal acts of various kinds are listed. Participants are asked to identify the number of times (if any) they recall having committed any of these offenses.

Other ways of determining the extent to which males and females are involved in criminal behavior have been developed. These include studies based on the recollections by crime victims (if they had the opportunity to see their assailant). Another recently developed method involves the use of surveillance cameras.

In this chapter, findings derived from official data will be examined first, followed by findings based on self-reports. After dealing with these two main data sources, additional evidence of sex differences in criminality, near-criminality, and victimization will be presented.

19.1.1 Official Criminal and Delinquent Behavior

Findings regarding sex differences in the commission of delinquency and crime will be presented separately for official data and for self-reported data to the extent possible. After studies using both of these research measures are reviewed, studies based on additional criminal behavior measures, such as victim reports, will be presented regarding male-female differences.

19.1.1.1 Officially Recorded Offending in General

Studies based on official data having to do with sex differences in overall delinquent and criminal behavior are summarized in Table 19.1.1.1. Excluded from this table are studies specific to violent, property, sex, and drug offenses (which will be covered independently in subsequent tables). One can see from this table that there appears to be no society (or period of time) when males have not dominated in the commission of officially recorded adult crime. In the case of delinquency, the vast majority of studies have reached the same conclusion.

Table 19.1.1.1 Officially recorded offending in general

Nature of difference			*Post-pubertal*		*Wide age range*
			Adolescent	*Adult*	
More among males			**AFRICA** *Nigeria*: Asuni 1963; Alakija 1984 **ASIA** *China*: Cheung & Ngai 2007:155 (68M vs. 22F, Hong Kong); *India*: Hartjen & Kethineni 1993:71; *Taiwan*: Chow 1964:27; Wang & Jensen 2003:73; *Former Soviet Union*: Connor 1970:286; *Taiwan*: Wang & Jensen 2003:73 (arrests) **EUROPE** *Britain*: Healy & Bronner 1926 (official data); Mulligan et al. 1963; Cockburn & Maclay 1965; Schofield 1965:149; JW Douglas et al. 1966; Palmai et al. 1967:1075; A Edwards 1973; CK Miller et al. 1974; Wadsworth 1979:103; Ouston 1984; Figueira-McDonough 1986; Farrington 1987a:47; R West et al. 1990; Dhingra et al. 2015 (serious offenses); *Finland*: Almqvist 1986:296; Rantakallio et al. 1995:115; *Norway*: Pedersen & Wichstrom 1995:554; Pedersen et al. 2001:422; *Poland*: Hersch 1937:865; *Spain*: Diaz 1984:312; *Sweden*: Elmhorn 1965:38; Sigvardsson et al. 1982; Magnusson 1988 **LATIN/CARIBBEAN AMERICA** *Argentina*: DeFleur 1970:131; *Brazil*: Andrade et al. 2004 **NORTH AMERICA** *Canada*: Hagen et al. 1979; Linden & Fillmore 1981; McCarthy & Hagan 1987; Latimer et al. 2003:14 (78%M); *United States*: Ackerson 1931; Fortes 1933 (official data); Maller 1933 (official data); Alper & Lodgen 1936 (official data); Roach 1937; Maller 1937a; Radzinowicz 1937:91; Children's Bureau 1946a; Porterfield 1946; Schwartz 1949:12; Wattenberg & Saunders 1954; Gibbons & Griswold 1957; Mensh et al. 1959; Eaton & Polk 1961:19; JC Ball 1962; Barker & Adams 1962; Havighurst et al. 1962:69; Hathaway & Monchesi 1963; Lunden 1964:68; JC Ball et al. 1965; Wise 1967; Gordon 1973; Robins 1975:129; Jensen & Eve 1976; Vinter et al. 1976:23; Hamparian et al. 1978; Tagaki	**AFRICA** *Nigeria*: IA Joshua & Ogboi 2008:18 (incarcerated, 98%M vs. 2%F) **ASIA** *India*: Bhanot & Mishra 1978; Simon & Sharma 1979:104 & 394; Nagla 1982 **EUROPE** *Britain*: Shaw 1966:148; Gatrell & Hadden 1972:389 (19th century); Beattie 1975 (18th century); Weiner 1975 (17th century); *Finland*: Maki et al. 2003:276; *France*: Zehr 1975* (18th century); *Germany*: Zehr 1975* (18th century); *Italy*: Carabellese, Felthous et al. 2018 (inmates at a maximum security prison-hospital, 230M vs. 86F); *Norway*: Thapa & Hauff 2005:81 (imprisoned, among immigrants, for political reasons); *Sweden*: Wikstrom 1991:71; *Multiple European Countries*: Quetelet 1842/1969 (18th century); Lombroso 1911:181 (19th century) **NORTH AMERICA** *Canada*: Giles 2004 (indictments); *United States*: Gillin 1926:57; Parmelee 1926:240; Kavanagh 1928:147; Gillin 1935:48; Pollack 1950; East 1951:281; Nagel & Weitzman 1971:Table 1 (court trial);	**AFRICA** *Ghana*: Seidman & Eyison 1969:63; *Multiple African Countries*: Houchon 1967; Clifford 1969:240; Leslie 1969:170 **ASIA** *Japan*: Ogawa 1976:601; *Soviet Union*: Koerber 1935:5; Serio 1992b:10 **EUROPE** *Britain*: Mannheim 1965:678; Farrington 1981; Farrington & Painter 2004; *Croatia*: Rihtaric et al. 2016:107 (1464M vs. 89F); *Denmark*: Mednick et al. 1984 (convictions, ~3M for every 1F); Brennan et al. 2000 (arrested for felony-level offenses); *Germany*: Wurtenberger & Koch 1976:479; Soyka et al. 2007:93 (among schizophrenics); *Hungary*: Hacker 1949; *Iceland*: Olafsdottir 1985:29; *Italy*: Giannini 1976:548; Portugal: Pereira & Correia 2021:Figure 1 (imprisonment, over 90%M); *Sweden*: Wikstrom 1990:77; Frisell et al. 2012:8 (convicted of an offense, 29%M vs. 8%F); Yao, Langstrom et al. 2014:Table 1 **LATIN/CARIBBEAN AMERICA** *Argentina*: Blarduni 1976:154; *Brazil*: J Murray, de Castro Cerqueiro & Kahn 2013:477 (incarceration, 94%M) *Venezuela*: Mayorca 1976 **NORTH AMERICA** *Canada*: Szabo & Rico 1976:309; *United States*: Healy & Bronner 1926:255; Radzinowicz 1937; Reckless 1967:98; Green 1970:480; Lundman 1974 (arrests); Schafer 1976:102; Weiss 1976; Norland & Shover 1977:21; Hindelang 1980; Hindelang

(*Continued*)

Table 19.1.1.1 (Continued)

Nature of difference			*Post-pubertal*		*Wide age range*
			Adolescent	*Adult*	
			& Platt 1978:14; Warren 1979; Kashani et al. 1980; Steffensmeier & Steffensmeier 1980a; Wilkinson 1980:27; Feyerherm 1981; Giallombardo 1982:46; Shannon 1982; Bainbridge & Crutchfield 1983:261; Roff & Wirt 1984; Tracy et al. 1985:6; J Wilson & Herrnstein 1985:106; H White et al. 1985:191; LeFlore 1988:637; Tracy, Wolfgang & Figlio 1990 (33%M vs. 14%F arrested by age 18 for non-traffic offenses); Rhodes & Fischer 1993; Shelden & Chesney-Lind 1993:84; Dembo et al. 1995 (arrest); DC Rowe et al. 1995; Streissguth et al. 1996 (prenatal alcohol exposed); Pakiz et al. 1997; Mears, Ploeger & Warr 1998; RF Marcus 1999; Silverthorne & Frick 1999; CD Coles et al. 2000 (prenatal alcohol exposed); Grella et al. 2001 (among drug addicts); KM McCabe, Lansing et al. 2002; Barnow et al. 2005 (official data); L Guevara, Herz & Spohn 2006:266 (incarcerated, 7,464M vs. 1,636F); Minor, Wells & Angel 2008; Shekarkhar & Gibson 2011:69 (ages 9–15, Hispanics, N = 739); A Taylor et al. 2012:122 (adjudication, ~80%M) **OCEANIA** *Australia*: Carroll et al. 2006 (self-report); Bor et al. 2010:651 (arrests); *Hawaii*: Voss 1963:323; Werner 1987:22; Werner & Smith 1992:103; *Samoa*: Freeman 1983; *New Zealand*: TE Moffitt et al. 2001:32*	Noblit & Burcart 1976; Pastor 1978 (arrests); Wilson & Herrnstein 1985:106; Stolzenberg & D'Alessio 2004 (arrests); Blackwell, Hollerant & Finn 2008:Table 1 (incarceration); Z Lee & Salekin 2010:159 (self-reported being arrested or imprisoned, undergrad, N = 1229); B Steiner & Wooldredge 2013 (incarceration, 5,059M vs. 570F); Beaver, Nedelec et al. 2014:402 (arrests) **OCEANIA** *Australia*: Goldstrow, Smith & Sakurai 2005 (incarceration, 21,961M vs. 1,594F) **INTERNATIONAL** *Multiple Countries*: Bonger 1916 (19th century); Hurwitz & Christiansen 1983:260; Harvey et al. 1992 (incarcerated) **OVERVIEW** *Literature Review*: S Blumstein 1982 (incarceration); K Daly & Tonry 1997 (incarcerated)	1981; Shannon 1981; Steffensmeier & Cobb 1981 (1934-1979); Warr 1982:196; CR Mann 1984; DA Smith & Klein 1984 (arrests); Stein et al. 1987 (arrests for drug possession); Steffensmeier & Allan 1988; Steffensmeier & Streifel 1991; Loucks & Zamble 1994 (arrests); RM O'Brien 1999 (arrests for Type 1 offenses); Mazerolle, Brame et al. 2000:1159; Bonczar 2003 (incarceration: about 9M-to-1F); Stolzenberg & D'Alessio 2004 (arrests, 402,341M vs. 108,487F); Steffensmeier & Haynie 2000b; J Guo et al. 2006:126 (seriousness of offending, adolescents & adults); Schwartz & Rookey 2008 (1980-2004); Doerner 2015; Jaggers et al. 2016 (incarceration) **OCEANIA** *Australia*: O'Brien 1970:286; *New Zealand*: TE Moffit et al. 2001:83*; B Henry et al. 1999:1060 (by age 21) **INTERNATIONAL** *Multiple Industrial Countries*: Goppinger 1973:361; Simon & Sharma 1979:104 & 394 **OVERVIEW** *Meta Analysis*: Lytle 2014 (arrests, 1.5 times more)
Not significant			**EUROPE** *Finland*: Aromaa 1994:27 **NORTH AMERICA** *United States*: Herrera & McCloskey 2001 (court referrals)		
More among females					

It is worth noting that a few of the studies cited in the table regarding officially recorded criminality are based on data extending back prior to the 20th century. For example, some studies derived from England and some other European countries were based on old court and jail records compiled three or four centuries ago. These, as well as more recent data, have allowed criminologists to look back to determine if there are trends regarding sex differences in arrests, convictions, and imprisonments.

Overall, the evidence provided in this table does not support the assertion that there has been a "steady closing of the criminal gender gap year by year" (Robbers 2004:548; for similar assertions see Adler 1975; R Simons 1975). The *degree* of sex differences in adult crime rates does vary over time and between countries (due to many factors, including simply variations in the *proportions* of males and females in the most crime-prone age groups comprising the communities or countries studied). Nonetheless, the table suggests that there has never been a period of time or a country in which the overall crime rates by females have surpasses or even approached equality with the rates for males. This issue will be examined in more detail regarding official *violent* crimes.

19.1.1.2 Officially Reported Violent Offending

A large number of studies have been published on sex differences in the commission of violent crime according to official statistics (as opposed to self-reports or reports by victims). As one would expect, many of these studies pertain to the crime of murder (homicide), which will be reviewed separately. Also reviewed separately are studies of sexual assault (rape).

As one can see in Table 19.1.1.2, nearly all the studies have concluded that males are more likely than females to commit violent offenses (predominantly assaults). It is interesting to note that the data used in a few of these studies were derived from conviction and incarceration records dating back three or four centuries in Europe.

19.1.1.3 Officially Reported Homicide Perpetration (Excluding Genetic Relative Victims)

Many studies of sex differences in the commission of murder (homicide) have been reported. As shown in Table 19.1.1.3, nearly all the research has concluded that males are more likely to commit murder than are females. Just three exceptions were located, all having to do with the killing of one's own children or parents.

Table 19.1.1.2 Officially reported violent offending (except murder)

Nature of difference			*Post-pubertal*		*Wide age range*
			Adolescent	*Adult*	
More among males			**AFRICA** *Nigeria*: Asuni 1963 **EUROPE** *Britain*: Beattie 1986* (17th & 18th Centuries); J Warner, Graham & Adlaf 2005* (assaults, 17th & 18th Centuries) **NORTH AMERICA** *Canada*: Dell & Boe 1998; Tremblay 2004; *United States*: Loeber & Stouthamer-Leober 1998; Esbensen et al. 1999 (among gang members); JP McGee & DeBernardo 1999 (school shootings); Herrera & McCloskey 2001 (court referals); J Blum et al. 2003; Puzzanchera et al. 2003; Fritzon & Brun 2005 (school shootings, N = 94); Steffensmeier et al. 2005; JM Kaufman, Hall & Zagura 2012:Table 3 (school shootings); P Langman 2016:3 (school shootings, N = 64)	**EUROPE** *Britain*: Beattie 1986* (17th & 18th Centuries); J Warner, Graham & Adlaf 2005* (assaults, 17th & 18th Centuries); *Finland*: Maki et al. 2003:276 **NORTH AMERICA** *Canada*: Tremblay 2004* (young); *United States*: AK Kellermann & Mercy 1992 (N = 215,273); Sommers & Baskin 1992; Kruttschmitt 1994; Almgren et al. 1998; DJ Steffensmeier & Allan 1998; Greenfield & Snell 1999; McCarroll et al. 2000 (spouse abuse); Avakame & Fyfe 2001 (spousal violence, adult); Vollum & Titterington 2001 **INTERNATIONAL** *Multiple Countries*: Pape 2003 (terrorism, 84% male)	**AFRICA** *Mauritius*: Choy, Raine et al. 2017:470 **EUROPE** *Britain*: d'Orban 1990; Gibson & Klein 1961 (murder); Givern 1977 (murder in the 13th Century); M Shaw et al. 2005:49 (murder, 1981-2000); *Denmark*: Brennan et al. 2002 (arrests); *Finland*: Verkko 1951 (murder); Viemero 1996:94; Kantola, Norocel & Repo 2011 (school shootings); *Germany*: Goppinger 1983:365; Groebel 1983:80; Soyka et al. 2007:93 (among schizophrenics); *Sweden*: Frisell et al. 2012:8 (conviction, 5.2%M vs. 0.7%F); O Falk et al. 2014; Estrada, Backman & Nilsson 2016:Figure 1 (assaults from 1866-2006); *Sweden*: Yao, Langstrom et al. 2014:Table 1; *Multiple European Countries*: Skardhamar et al. 2014 **LATIN/CARIBBEAN AMERICA** *Brazil*: Caicedo et al. 2010 (3%M vs. 1%F) **NORTH AMERICA** *Canada*: Hartnagel 1987:77; Boritch & Hagan 1990:575 (19th Century); D Archer & McDaniel 1995; Boritch 1997; Savioe 2000; *United States*: Voss & Hepburn 1968:501; Boelkins & Heiser 1970:31; Detre et al. 1975; Block 1977; Simon & Sharma 1979; Steffensmeier 1980; Hindelang 1981:466; Steffensmeier & Cobb 1981; Tinkenberg & Ochberg 1981; Bainbridge & Crutchfield 1983:261; AE Daniel & Kashani 1983; Messner 1985 (arrests); Wilson & Herrnstein 1985:108; Monkonon 1989:92 (19th Century); Sommers & Baskin 1992:193; Zingraff et al. 1993:192; Loucks & Zamble 1994 (arrests); RJ Sampson & Lauritsen 1994; Bachman & Saltzman 1995; Langley et al. 1997; ME Martin 1997 (spousal violence, arrests); Nunes-Dinis & Weisner 1997; JF Short 1997:8; Tjaden & Thoennes 1998; Mazerolle, Brame et al. 2000:1159; Tjaden & Thoennes 2000

					(spousal violence, arrests); Belknap 2001; DJ Steffensmeier & Broidy 2001; Baumer 2002:594; Hirschel & Buzawa 2002 (spousal violence, arrests); Guo et al. 2006:126 (adolescents & adults); Steffensmeier, Zhong et al. 2006:84 (80-85%, 1980-2003); Langman 2009:81 (school shootings); Lauritsen et al. 2009; K Newman & Fox 2009:1289 (school shootings); Rennison 2009; Jaggers et al. 2016 (incarceration) **OCEANIA** *New Zealand*: Ritchie & Ritchie 1983:330 **INTERNATIONAL** *Multiple Countries*: Lazueur 1977:21 (terrorism); McCauley & Segal 1987:232 (terrorism); Simon & Baxter 1989 (31/31 countries); KL Tonso 2009 (school shootings); *Multiple Preliterate Societies*: *Multiple Preindustrial Countries*: Bacon et al. 1963:292; Verkko 1967:42; Curtis 1974:160; Curtis 1977:164; Konner 1982:274 **OVERVIEW** *Literature Review*: Steffensmeier 1980; MS Kimmel & Mahler 2003:1442 (school shootings); Reuter-Rice 2008 (school shootings); RW Larkin 2009:Tables 1-4 (school shootings); Kalish & Kimmel 2010 (school shootings); E Madfis 2007:6 (school shootings)
Not significant					
More among females					

Table 19.1.1.3 Officially reported homicide perpetration (excluding genetic relative victims)

Nature of difference			*Post-pubertal*		*Wide age range*
			Adolescent	*Adult*	
More among males			**ASIA** *Japan*: Tamura 1980 (murder) **EUROPE** *Britain*: J Warner, Graham & Adlaf 2005* (17th & 18th Centuries) **NORTH AMERICA** *United States*: Holinger et al. 1994	**ASIA** *Russia*: Eckhardt & Pridemore 2009:Table 3 (murder, court records, N = 225); Lysova et al. 2012:458* (murder) **EUROPE** *Belarus*: Lysova et al. 2012:458* (murder); *Britain*: Beattie 1986* (17th & 18th Centuries); J Warner, Graham & Adlaf 2005* (17th & 18th Centuries); *Ukraine*: Lysova et al. 2012:458*; *Multiple European Countries*: EK Bye 2008:15 **NORTH AMERICA** *United States*: M Daly & Wilson 1988 (familial homicide); Browne & Williams 1989 (homicide); M Maxfield 1989 (homicide); Yang & Lester 1992 (married persons, homicide); R Felson & Messner 1998 (familial and intimate homicide) **INTERNATIONAL** *Multiple Countries*: M Wilson & Daly 1993:7-9 (murder, N = 3,904)	**AFRICA** *Congo*: Southall 1960:217* (Alur tribe, murder); *Egypt*: Okasha et al. 1975:34 (murder); *Mauritius*: Choy, Raine et al. 2017:470; *Nigeria*: Asuni 1969 (murder); *South Africa*: Lester 1989* (murder); Meel 2003:218 (murder); Salfati et al. 2015 (serial murder) **ASIA** *India*: Elwin 1950 (murder); Saran 1974 (murder); Varma 1978 (murder); *Israel*: Landau et al. 1974 (murder); *Japan*: Tamura 1980 (murder); *Russia*: Chervyakov et al. 2002 (90% of murders) **EUROPE** *Britain*: Gibson & Klein 1961 (murder); Givern 1977 (murder in the 13th Century); Monkkonen 1989 (19th Century, murder); M Shaw et al. 2005:49 (murder, 1981-2000); *Finland*: Verkko 1951 (murder); Rasonen et al. 1995:550 (murder); *Germany*: Goppinger 1983:365; Groebel 1983:80; Harbort & Mokros 2001 (serial murder); *Iceland*: Gudjonsson & Petursson 1982 (murder); *Italy*: Carabellese et al. 2020* (convictions); *Netherlands*: Ganpat & Liem 2012:335 (murder, ~90%M); *Scotland*: Gillies 1976 (murder); *Sweden*: Lindqvist 1986 (homicide); Gottlieb et al. 1987 (murder); von Hofer 1990:31 (18th-20th Century, murder) **LATIN/CARIBBEAN AMERICA** *Brazil*: Yearwood 1974 (murder); J Murray, de Castro Cerqueiro & Kahn 2013:477 (homicide, 51/100,000M vs. 4.3/100,000F); *Jamaica*: Lemard & Hemenway 2006 (ages 15–44, 121/100,000M vs. 12/100,000F); *Multiple Latin American Countries*: Briceno-Leon et al. 2008:Table 2 (13/13 countries, murder) **MIDDLE EAST** *Israel*: Landau et al. 1974 (murder) **NORTH AMERICA** *Canada*: Langevin & Handy 1987:408 (homicide, 90%M); Boritch & Hagan 1990:575 (19th Century); Maxim & Keane 1992 (murder); Moyer 1992:398 (murder); D Archer & McDaniel 1995; Gartner 1995:200 (murder); Carrington 2009 (68%M); *United States*: Wolfgang 1958:31 (homicide); Pokorny 1965 (murder); Wolfgang 1967:18 (murder); Block & Zimring 1973 (homicide); Curtis 1977:164 (murder); Swigert & Farrell 1977:21 (murder); Messner 1985 (murder); Weiner & Wolfgang 1985:27 (murder); Goetting 1988 (murder); Lester 1989* (murder); Jurik & Winn 1990 (murder); Lester 1994 (murder); Ogle et al. 1995 (murder); Spergel 1995:108 (gang-related murder);

					McKanna 1997:42 (19th Century, murder); R O'Brien et al. 1999 (homicide); M Zahn & McCall 1999 (homicide); Monkkonen 2001 (murder); R Shelden et al. 2001 (gang-related murder); JA Fox & Piquero 2003 (homicide); Batton 2004:441 (homicide); Steffensmeier, Zhong et al. 2006:84 (88%M, 1980-2003); Holleran & Vandiver 2016:31 **OCEANIA** *Australia*: Wallace 1986 (murder); Bryant & Cussen 2015:23 (1989-2009, murder); *New Zealand*: Ritchie & Ritchie 1983:330 **INTERNATIONAL** *Multiple Countries*: Bohannan 1960a:36 (murder); Bohannan 1960a:36 (murder); Bohannan 1960c:240 (murder); JH Beattie 1960:134 (murder); Konner 1982:274 (murder); Daly & Wilson 1990 (murder); Kraemer et al. 2004 (serial murder); Pakhomou 2004 (serial murder); Salfati & Bateman 2005 (serial murder); Hickey 2006 (serial murder); Agha 2009 (12.5/100,000 vs. 1.1/100,000); *Multiple Preliterate Societies*: Bohannan 1960a:36 (murder); Bohannan 1960c:240 (murder); JH Beattie 1960:134 (murder); Fallers & Fallers 1960:76 (murder); Southall 1960:217* (murder); La Fontaine 1960:106 (murder); *Multiple Preindustrial Countries*: Daly & Wilson 1990 (murder)
Not significant					
More among females					

19.1.1.4 Officially Recorded Homicide Perpetration followed by Suicide

Quite a number of studies have examined a type of homicide in with the perpetrator commits suicide shortly after killing his or her victim(s). This type of murder is primarily committed when the victim(s) are closely related family members of the perpetrator (Milroy 1993). As shown in Table 19.1.1.4, all but one study has concluded that homicides followed by the perpetrator committing suicide are more often committed by males than by females.

Table 19.1.1.4 Officially recorded homicide perpetration followed by suicide

Nature of difference				*Post-pubertal*	
				Adult	
More among males				**AFRICA** *South Africa*: K Roberts et al. 2009 (95% male offenders); JDS Thomson 2004:10 (1963-1989) **ASIA** *China*: CY Chan et al. 2004 **EUROPE** *Britain*: West 1965; Milroy 1993; Barraclough & Harris 2002; Gregory & Milroy 2010; *Finland*: Rasanen et al. 1995:550; Kivivuori & Lehti 2003; *France*: Lecomte & Fornes 1998; *Netherlands*: Liem & Koenraadt 2007; *Sweden*: Lindqvist & Gustafsson 1995; *Switzerland*: Grabherr et al. 2010 **NORTH AMERICA** *Canada*: Bueau et al. 1993; *United States*: Fishbein et al. 1985; Hanzlick & Koponen 1994; Cooper & Eaves 1996; Stack 1997; Hannah et al. 1998; annah et al. 1998; Hcomstock et al. 2005; Bossarte et al. 2006; Harper & Voigt 2007; D Cohen et al. 2014 (among the elderly); Liem & Reichelmann 2014 (familicide) **OCEANIA** *Australia*: Milroy et al. 1997; Carcach & Grabosky 1998; *New Zealand*: Moskowitz et al. 2006:424 **INTERNATIONAL** *Multiple Countries*: Liem et al. 2011 **OVERVIEW** *Literature Review*: Oliffe et al. 2014	
Not significant				**OCEANIA** *Fiji*: Adinkrah 2003	
More among females					

19.1.1.5 Officially Recorded Infanticide

Persons who commit infanticide are typically a parent and the infants are usually quite young. As shown in Table 19.1.1.5a, the evidence is inconsistent regarding sex differences in the perpetration of infanticide.

Infanticide has been observed among several species of non-human animals. Of course, one can always question whether infanticide among humans is comparable to infanticide among other animals, including the fact that legal statues regarding infanticide only apply to humans. Nevertheless, for

Table 19.1.1.5a Officially recorded infanticide

Nature of difference			*Post-pubertal*		*Wide age range*
				Adult	
More among males					**EUROPE** *Britain*: Marks & Kumar 1993 (fathers vs. mothers); Brookman & Nolan 2006:Table 1 (154M offenders vs. 115F offenders); Flynn, Shaw & Able 2007 (56 fathers vs. 35 mothers); *Scotland*: Marks & Kumar 1996
Not significant					
More among females				**INTERNATIONAL** *Various Hunter-Gatherers*: RL Kelly 1995:233	**AFRICA** *South Africa*: N Abrahams et al. 2016:Table 2 (killing children under age 5, N = 454) **EUROPE** *Italy*: Carabellese et al. 2020* (convictions, killing children) **NORTH AMERICA** *United States*: Herman-Giddens et al. 2003 (N = 34, 85%F) **NORTH AMERICA** *United States*: Friedman & Resnick 2009

lack of a better location for considering sex differences in infanticidal behavior by non-humans, the research findings on this topic are being summarized here.

As one can see in Table 19.1.1.5b, findings regarding sex differences in infanticidal behavior isare quite mixed. Some of the inconsistencies seem to be associated with the species being studied. In the case of rodents, most studies of rats report more infanticidal behavior by males. Regarding gerbils, however, infanticidal behavior seems to be more common among females. For, mice, on the other hand, most studies have found no significant sex differences.

It is relevant to mention that most of these animal studies were conducted among caged animals and often involved manipulating various factors. In some cases, sexual experience (i.e., virgin vs. sexually experienced) was manipulated, and this seemed to sometimes affect sex differences in infanticidal behavior. Other times, hormones were injected into both sexes, particularly testosterone, to see if this affected males and females differently (Svare & Mann 1981; Miley, Blustein, & Kennedy 1982).

Several experiments have been conducted to help determine the sort of factors that are most associated with infanticidal behavior among rodents, including sex differences in such behavior. Hormonal factors have been frequently studied, especially testosterone (Svare & Mann 1981; Miley, Blustein, & Kennedy 1982). Of course, since males of nearly all species have higher levels of testosterone than do females (see Chapter 3), if it were the main factor, one would expect males to

Table 19.1.1.5b Infanticide among non-humans

Nature of difference			*Post-pubertal*		*Wide age range*
			Adolescent	*Adult*	
More among males			**RODENT** *Mouse*: Gandelman & Davis 1973 (infanticide); *Rat*: AD Mayer, Freeman & Rosenblat 1979; *Siberian Hamsters*: JR Gibber, Piontkewitz & Terkel 1984; JR Gibber & Terkel 1985	**FELINE** *Lion*: Pusey & Packer 1994 **RODENT** *Mouse*: Gandelman 1972* (infanticide); Gandelman & vom Saal 1975 (infanticide); Svare & Mann 1981 (infanticide, sex difference reduced but not eliminated by castrating the male or by administering testosterone to the female); Jakubowski & Terkel 1982* (sexually experienced animals); Svare et al. 1984a (infanticide); Svare et al. 1984b (infanticide); *Rat*: JS Rosenblatt 1975; P Gray & Chesley 1984; Jakubowski & Terkel 1985a (virgin animals); Jakubowski & Terkel 1985b (virgin animals); RE Brown 1986; Menella & Moltz 1988 (virgins, sex differences diminish among animals who have mated)	**PRIMATE** *Japanese Macaque*: Soltis et al. 2000 (infanticide, 9/9 instances observed)
Not significant			**RODENT** *Mouse*: MM McCarthy & vom Saal 1985 (infanticide, virgin house mice); MM McCarthy & von Saal 1986 (infanticide, virgin house mice)	**PRIMATE** *Rhesus Macaque*: Reinhardt 1987* (dominance rank controlled) **RODENT** *Gerbil*: RW Elwood 1977* (among sexually experienced animals); RW Elwood 1980* (among sexually experienced animals); *Mouse*: Gandelman 1972* (after injecting testosterone into the females); Jakubowski & Terkel 1982* (virgin animals); MM McCarthy 1990 (infanticide, virgin house mice)	**RODENT** *Mouse*: MM McCarthy & vom Saal 1986
More among females			**RODENT** *Golden Hamsters*: TE Rowell 1961; DA Wise 1974; Marques & Valenstein 1976; LJ Swanson & Campbell 1979; *Prairie Voles*: Bamshad, Novak & DeVries 1993 (among virgin animals); Bamshad, Novak & DeVries 1994 (among virgin animals); Z Wang, Ferris & DeVries 1994 (among virgin animals); RL Roberts, Miller et al. 1998 (among virgin animals); Lonstein & DeVries 1999 (among virgin animals)	**RODENT** *Gerbil*: RW Elwood 1977* (among virgin animals); RW Elwood 1980* (among virgin animals); *Golden Hamster*: AP Payne & Swanson 1970; Tiefer 1970; Marques & Valenstein 1976; LJ Swanson & Campbell 1979; Miceli & Malsbury 1982; *Mongolian Gerbil*: P Wallace, Owen & Thiessen 1973	

dominate in the commission of infanticide (assuming they had equal opportunity to do so). But, in fact, there appear to be some species where this is not the case.

Most of the experiments in which testosterone has been manipulated have involved castrating male rats soon after birth. These studies have consistently indicated that castration reduces infanticidal behavior (Rosenberg, Denenberg et al. 1971; McCullough, Quadagno & Goldman 1974; RE Brown 1986). Thus, among one of the species in which males are usually more infanticidal than females, lower exposure to testosterone seems to curtail such behavior. Nevertheless, why females would be more infanticidal in other species cannot be explained this way. Clearly, sex differences in infanticidal behavior among non-humans remains to be fully understood.

19.1.1.6 Officially Recorded Parricide

Parricide refers to the killing of one's parents. As shown in Table 19.1.1.6, all the available research has indicated that this crime is committed (or attempted) more often by males than by females.

Table 19.1.1.6 Officially recorded parricide

Nature of difference					*Wide age range*
More among males					**LATIN/CARIBBEAN AMERICA** *Brazil*: LE de Borba-Telles et al. 2017 (both patricide & matricide) **NORTH AMERICA** *Canada*: JD Marleau, Millaud & Auclair 2003:269 (both patricide & matricide); D Bourget, Gagné & M-E Labelle 2007:308 (54M vs. 4F perpetrators, both patricide & matricide); *United States*: AM Weisman & KK Sharma 1997:1109 (45 parricides, 19 attempted) **OVERVIEW** *Literature Review*: CE Newhill 1991; M Hillbrand et al. 1999; SG West & M Feldsher 2010:22 (both patricide & matricide); KM Heide & A Frei 2020 (matricide)
Not significant					
More among females					

19.1.1.7 Officially Recorded Genocide

Genocide involves the killing of individuals in conflicts between different tribal or ethnic groups. A few studies were found of sex differences in people convicted of genocide. Table 19.1.1.7 shows that all the studies indicate that males were more involved in the commission of this type of murder than females.

Table 19.1.1.7 Officially recorded genocide

Nature of difference					*Wide age range*
More among males					**AFRICA** *Rwanda*: N Hogg 2010:70 (35,080M vs. 2,133F); MA Drumbl 2012:562*; E Jessee 2015:60 (~128,000M vs. ~2,000F); A Smeulers 2015:205 **EUROPE** *Former Yugoslavia*: MA Drumbl 2012:562*
Not significant					
More among females					

19.1.1.8 Officially Recorded Property Offending

The studies identified in Table 19.1.1.8 pertain to sex differences in the commission of property offenses based on official statistics. One can see that nearly all research has concluded that males surpass females in the commission of property offenses with the possible exception of shoplifting. In the case of officially identified shoplifting, there appear to be either no sex differences or perhaps a slightly greater proportion of females.

19.1.1.9 Officially Recorded Sexual Assault and Rape

Only a few studies were located pertaining to officially reported sex differences in sexual assault and rape. As will be seen below, considerably more empirical data on gender and sexual assault come from self-reports.

It is worth noted that in some countries, rape can only occur when a victim is penetrated by an offender's penis. Of course, under this definition, only males can commit rape and only females can be rape victims. However, when focusing on the use of physical force and considering orifices other than the vagina and penetrating objects other than the penis (such as fingers), it is obvious that rape (or sexual assault) can be committed by either sex and may even involve victims of one's own sex.

Table 19.1.1.9 shows that all the available official data agree that male perpetrators substantially outnumber females. Based on official data, males commit roughly 99% of all rapes, at least in the United States (Steffensmeier, Zhong et al. 2006:85). Another noteworthy comment to make regarding sex differences in sexual assault is that male sexual assault victims appear to be somewhat less likely than female victims to report the event to police (Pino & Meier 1999). Therefore, official data are likely to underestimate the commission of sexual assault by females.

Table 19.1.1.8 Officially recorded property offending

Nature of difference	*Pre-pubertal*		*Post-pubertal*		*Wide age range*
		Child	*Adolescent*	*Adult*	
More among males		**NORTH AMERICA** *United States*: Snyder 1931 (among young delinquents)	**EUROPE** *Denmark*: Arnett & Jensen 1994:10*; *Norway*: Storvoll & Wichstrom 2002:189* (self-report, theft & vandalism) **NORTH AMERICA** *Canada*: Tremblay 2004* (theft); *United States*: J Rhodes & K Fischer 1993; Arnett & Jensen 1994:10*; D Fergusson et al. 1994b; RF Marcus 1999 (purse snatching & minor theft); Herrera & McCloskey 2001 (court referals)	**NORTH AMERICA** *Canada*: Tremblay 2004* (young, theft)	**EUROPE** *Britain*: Box & Hale 1984; *Denmark*: LA Baker et al. 1989:358; *Finland*: Rasonen et al. 1995:550 (arson); *Germany*: Goppinger 1978:365; Blickle et al. 2006 (white-collar crime by business managers); *Finland*: Rasonen et al. 1995:550 (arson); *Netherlands*: Blokland 2005:52; van Onna et al. 2014:16 (white collar); *Sweden*: Yao, Langstrom et al. 2014:Table 1; Estrada, Backman & Nilsson 2016:Figure 1 (assaults from 1866-2006); *Multiple European Countries*: Skardhamar et al. 2015 **NORTH AMERICA** *Canada*: Tepperman 1977; Hartnagel 1987:77; Boritch & Hagan 1990:578 (19th century); *United States*: Healy & Bronner 1926:278; Parmelee 1926:240; Riddle 1927; Hindelang et al. 1979; Simon & Sharma 1979; Steffensmeier 1978; Steffensmeier 1980; Steffensmeier & Cobb 1981; Wilson & Herrnstein 1985:108; K Daly 1989 (fraud convictions); D Cox et al. 1990 (shoplifting); Weisburd et al. 1991 (white-collar fraud convictions); Chadwick & Top 1993:62; Loucks & Zamble 1994 (arrests); Mazerolle, Brame et al. 2000:1159; Steffensmeier et al. 2013 (fraud convictions); FC Fang, Bennett & Caradevall 2013 (scientific fraud, among biologists, 228 cases) **OCEANIA** *Australia:* BH Hunter 2001:12 (among indigenous people, theft arrests: 5.0% vs. 1.2%); *New Zealand*: Ritchie & Ritchie 1983:330 **INTERNATIONAL** *Multiple Preindustrial Countries*: Bacon et al. 1963:292
Not significant					
More among females					**EUROPE** *Britain*: Farrington & Painter 2002 (shoplifting) **NORTH AMERICA** *United States:* J Ray & Briar 1988 (shoplifting); Abelson 1989 (shoplifting, kleptomania); Goldman 1991:988 (kleptomania); Klemke 1992 (shoplifting)

Table 19.1.1.9 Officially recorded sexual assault and rape

Nature of difference			*Post-pubertal*		
				Adult	
More among males				**NORTH AMERICA** *United States*: National Council on Crime and Delinquency 1976 (parolees); US Department of Justice 1989; DE Russell 1994:67 (arrests for rape); Kruttschnitt et al. 2000:72 (imprisonment, 97%); Tjaden & Thoennes 2005; Steffensmeier, Zhong et al. 2006:85; J Schwartz, Steffensmeier 2009 **OVERVIEW** *Literature Review*: Seto 2008	
Not significant					
More among females					

19.1.1.10 Officially Recorded Sex Offenses in General (Except Prostitution)

Research findings on sex differences in being arrested, convicted, and imprisoned for most sex offenses are summarized in Table 19.1.1.10. Excluded from this table are studies of rape and sexual assault exclusively and prostitution, both of which will be examined in later tables. The main offenses that are summarized in the present table are those of child molestation and statutory rape. One can see that all the studies have concluded that males commit sex offenses much more often than do females.

19.1.1.11 Officially Reported Drug Offenses

Because drug offenses are victimless offenses, the vast majority of offenders go undetected. Consequently, it is safe to assume that self-reports on anonymous questionnaires provide better evidence of the full extent of drug offenses than do official data (self-reported drug offending will be reviewed in the next section). Nevertheless, some studies of sex differences in the commission of drug offenses have been derived from official arrest or conviction data. As shown in Table 19.1.1.11, these studies have unanimously indicated that males commit drug offenses at higher rates than do females.

19.1.2 Self-Reported Victimizing Offenses

Research on sex differences in self-reported offending is voluminous. To obtain such information, research participants are usually given a list of criminal offenses and asked to anonymously report the number of times they recall having committed each of these offenses. The results of these studies are summarized, first, with respect to offending in general, and then according to specific categories of offenses.

Table 19.1.1.10 Officially recorded sex offenses in general (except prostitution)

Nature of difference			*Post-pubertal*		*Wide age range*
				Adult	
More among males				**EUROPE** *Britain*: Cortoni & Hanson 2005:Tables 1-3* (sex offenses, over 99%M) **NORTH AMERICA** *Canada*: Cortoni & Hanson 2005:Tables 1-3* (sex offenses, over 99%M); *United States*: Loucks & Zamble 1994 (arrests); Cortoni & Hanson 2005:Tables 1-3* (sex offenses, over 99%M); Steffensmeier, Zhong et al. 2006:84 (~99%, 1980-2003) **OCEANIA** *Australia*: Cortoni & Hanson 2005:Tables 1-3* (sex offenses, over 99%M); *New Zealand*: Cortoni & Hanson 2005:Tables 1-3* (sex offenses, over 99%M)	**EUROPE** *Britain*: British Ministry of Justice 2007 (arrests for sex offenses, N = 32,110, 97.1%M); *France*: Ministere de l'Interieur 2013 (prosecutions, sex offenses, N = 6,844, 98.1%M); *Scotland*: Scottish Government 2012 (sex offense convictions, N = 391, 99.0%M); *Spain*: Spanish Statistical Office 2013 (convictions for sex offenses, N = 1,767, 98.9%M); *Sweden*: Yao, Langstrom et al. 2014:Table 1 **MIDDLE EAST** *Turkey*: Buker & Erbay 2020 **NORTH AMERICA** *Canada*: Mahony 2011 (prosecutions for sex offenses, N = 12,424, 97.4%M); *United States*: HN Snyder 2000:4; Tjaden & Thoennes 2006; Williams & Bierie 2015 (94.6%); **OCEANIA** *Australia*: Australian Bureau of Statistics 2013 (sex offense convictions, N = 1,190, 98.3%M); *New Zealand*: Statistics New Zealand 2013 (arrests for sex offenses, N = 605, 99%M) **INTERNATIONAL** *Multiple Developed Countries*: Cortoni, Hanson & Coache 2009 (sex offenses, 95.4%M) **OVERVIEW** *Literature Review*: Seto 2008 (all major sex offenses except prostitution); *Meta-Analysis*: Cortoni et al. 2017:Table 1 (97.8% M, police data)
Not significant					
More among females					

19.1.2.1 Self-Reported Offending in General

Presented in Table 19.1.2.1 is a summary of a large number of studies of self-reported criminal or delinquent offending without regard to the specific type (thus, often involving illegal drug use along with other offenses in which victims are identifiable). As one can see, there is an overwhelming tendency for males to self-report engaging in more offending behavior (i.e., criminal and delinquent behavior) than is the case for females.

Table 19.1.1.11 Officially recorded illegal drug use/possession/sale

Nature of difference			*Post-pubertal*		*Wide age range*
			Adolescent	*Adult*	
More among males			**ASIA** *China*: B Wu 1996:238 **NORTH AMERICA** *United States*: Wechsler & McFadden 1976; Bainbridge & Crutchfield 1983:259; Dembo et al. 1995 (among arrestees); JYS Kim & Fendrich 2002 **OCEANIA** *Australia*: J Chen et al. 2000	**NORTH AMERICA** *United States*: LD Harrison & Gfroerer 1992; Nunes-Dinis & Weisner 1997	**AFRICA** *Mauritius*: Choy, Raine et al. 2017:470 **ASIA** *Kazakhstan*: Marotta, Gilbert et al. 2018 (conviction, mainly injected drugs); *Taiwan*: Denq et al. 1996:357; KT Chen et al. 2001 **EUROPE** *Sweden*: Byqvist & Olsson 1998 **MIDDLE EAST** *Jordan*: S Weiss et al. 1999:192 **NORTH AMERICA** *United States*: Strimbu et al. 1973; Wechsler & McFadden 1976; Bainbridge & Crutchfield 1983:259; Greenfield et al. 2003; Luchansky et al. 2006:91 (among persons receiving drug addiction treatment, mainly marijuana & alcohol); Sommers & Baskin 2006 (methamphetamine possession); Jang 2007:537 (among blacks) **OCEANIA** *Australia:* BH Hunter 2001:12 (among indigenous citizens, arrests: 16.1%M vs. 4.5%F); *New Zealand*: Ritchie & Ritchie 1983:331
Not significant					
More among females					

Table 19.1.2.1 Self-reported offending in general

Nature of difference			*Post-pubertal*		*Wide age range*
			Adolescent	*Adult*	
More among males			**AFRICA** *Mauritius*: Choy, Raine et al. 2017:470 **ASIA** *China*: *China*: Lau & Leung 1992a (self-report); C Cheng 2014:138; *India*: Hartijen & Priyadarsini 1984; Hartjen & Kethineni 1993:46: *Malaysia*: Hartley, Ellis & Hoskin 2019:Table 3*; *Russia*: Steketee, Junger & Junger-Tas 2013:Figure 1*; *Taiwan*: Wang & Jensen 2003:77 **EUROPE** *Austria*: Steketee, Junger & Junger-Tas 2013:Figure 1*; *Belgium*: Born & Gavray 1994:140; *Belgium*: Steketee, Junger & Junger-Tas 2013:Figure 1*; *Bosnia*: Steketee, Junger & Junger-Tas 2013:Figure 1*; *Britain*: SB Eysenck 1981:34; Riley & Shaw 1985; Bowling et al. 1994:51; Graham & Bowling 1995; Home Office Research & Statistics Department 1995; Newcombe et al. 1995:333; Palmer & Hollin 1996; Farrington & Painter 2002 (adolescents); A Blanchard & Lyons 2010; Estevez & Emler 2011*; *Czech Republic*: Steketee, Junger & Junger-Tas 2013:Figure 1*; *Denmark*: Steketee, Junger & Junger-Tas 2013:Figure 1*; *Estonia*: Steketee, Junger & Junger-Tas 2013:Figure 1*; *Finland*: Aromaa 1994:27; Ritakallio et al. 2005; Steketee, Junger & Junger-Tas 2013:Figure 1*E; *France*: Hartjen & Priyadarsini 2003 (rural); Steketee, Junger & Junger-Tas 2013:Figure 1*; *Germany*: Boers et al. 1994:352; Sutterer & Karger 1994:165; Steketee, Junger & Junger-Tas 2013:Figure 1*; D Baier 2014:108; *Greece*: Spinellis et al. 1994:301; *Hungary*: Steketee, Junger & Junger-Tas 2013:Figure 1*; *Iceland*: Steketee, Junger & Junger-Tas 2013:Figure 1*; *Ireland*: McQuoid 1994:72; Steketee, Junger & Junger-Tas 2013:Figure 1*; *Italy*: Gatti et al. 1994:273; Steketee, Junger & Junger-Tas 2013:Figure 1*; *Lithuania*: Steketee, Junger & Junger-Tas 2013:Figure 1*; *Netherlands*: Terlouw & Bruinsma 1994:109; Landsheer & Van Dijkum 2005 (especially serious & persistent delinquency); Engles et al. 2006:954; Weeman & Hoeve 2012; Steketee, Junger & Junger-Tas 2013:Figure 1*; Weerman et al. 2016; *Norway*: Steketee, Junger & Junger-Tas 2013:Figure 1*; *Poland*: Steketee, Junger & Junger-Tas 2013:Figure 1*; *Portugal*: Steketee, Junger & Junger-Tas 2013:Figure 1*; *Slovenia*: Steketee, Junger & Junger-Tas 2013:Figure 1*; *Spain*: Barberet et al. 1994:273; van der Ende & Verhulst 2005:123 (self and	**ASIA** *Malaysia*: L Ellis, Hoskin et al. 2014:12* (undergrad, N = 2,059) **EUROPE** *Britain*: A Blanchard & Lyons 2010 (N = 54); Estevez & Emler 2011*; Bacon & Regan 2016:Table 1 (undergrad) **NORTH AMERICA** *United States*: Wallerstein & Wyle 1947; DA Smith & Visher 1980 (undergrad); Wiebe 2004:46 (undergrad); Feliciano & Rumbaut 2005:1100 (undergrad, children of immigrants, self-reported incarceration); L Ellis et al. 2008:707; Guo, Ou et al. 2008:Table 1; Shekarkhar & Gibson 2011; L Ellis, Hoskin et al. 2014:12* (undergrad, N = 1,291); Langhinrichen-Rohling et al. 2004 (undergrad, N = 383); CC Christ, Schwartz et al. 2018:Table 1; Hoyt, Niu et al. 2020:Table 1* (N = 6,817M + 7,728F)	**ASIA** *Taiwan*: Wang & Jensen 2003:77 **EUROPE** *Britain*: Graham & Bowling 1995; *Iceland*: Olafsdottir 1985:29; A Blanchard & Lyons 2010; *Sweden*: Elmhorn 1965 **NORTH AMERICA** *Canada*: LeBlanc 1986; *United States*: Hindelang et al. 1981; McGarrell & Flanagan 1985:Table 3.48; DC Rowe, Vazsonyi & Flannery 1995; Huizinga et al. 2000; GM Barnes et al. 2002; Hser et al. 2003 (among arrestees); Chapple et al. 2005:366; Haynie et al. 2014 **OCEANIA** *Philippines*: Gutierrez & Shoemaker 2008:69

(*Continued*)

Table 19.1.2.1 (Continued)

Nature of difference			*Post-pubertal*		*Wide age range*
			Adolescent	*Adult*	
			parental report); Steketee, Junger & Junger-Tas 2013:Figure 1*; *Sweden*: Elmhorn 1965; Svensson 2004; Tuvblad et al. 2005:219 (twins); Steketee, Junger & Junger-Tas 2013:Figure 1*; *Switzerland*: Killias et al. 1994:195; Steketee, Junger & Junger-Tas 2013:Figure 1*; *Multiple European Countries*: Junger-Tas et al. 2004 (11/11 countries); Steketee & Gruszczynska 2010:115 **LATIN/CARIBBEAN AMERICA** *Brazil*: Kahn et al. 1999 (N = 710); *Venezuela*: Steketee, Junger & Junger-Tas 2013:Figure 1* **MIDDLE EAST** *Armenia*: Steketee, Junger & Junger-Tas 2013:Figure 1*; *Cyprus*: Steketee, Junger & Junger-Tas 2013:Figure 1*; *Israel*: Elizur et al. 2007:434; Sherer 2009 (both Arabs & Jews); *Turkey*: Ozbay & Ozcan 2007 **NORTH AMERICA** *Canada*: LeBlanc 1983; Hagan et al. 1985; Paetsch & Bertrand 1997:30; La Grange & Silverman 1999; Nakhaie et al. 2000; Gomes et al. 2003:82 (N = 915M + 1,084F); Latimer et al. 2003:14 (56% ö); Higgins & Makin 2004; Faulkner et al. 2007:159; S Kim, Kimber et al. 2019:Table 1); *United States*: Wallerstein & Wyle 1947; Schofield 1965:150; Gold 1966:46; Voss 1966; Hirschi 1969; Hindelang 1971:526; Datesman et al. 1975; M Gold & Reimer 1975; Kratcoski & Kratcoski 1975; Jensen & Eve 1976; Killeen 1977; Cernkovich & Giordano 1979; Cullen et al. 1979:306; RE Johnson 1979; Steffensmeier & Steffensmeier 1980; Canter 1982b; Wilkinson et al. 1982:228; Bainbridge & Crutchfield 1983; Elliott et al. 1983; Hagan et al. 1985; Elliott et al. 1986:486; R Johnson 1986:69; Morash 1986; Cernkovich & Giordano 1987:306; Simons et al. 1991:658; Ingersoll et al. 1993:73; Elliott 1994:6; Marshall & Webb 1994:332; DC Rowe & Flannery 1994; DC Rowe et al. 1995; TD Evans et al. 1996; Johanson et al. 1996; Saner & Ellickson 1996; RA Johnson et al. 1997; Triplett & Jarjoura 1997; VS Burton et al. 1998 (delinquents); Mears et al. 1998; Rounds-Bryant et al. 1998 (among substance use disorder patients); Deater-Deckard & Plomin 1999; Weiler 1999; Aseltine et al. 2000:268 (excluding drug offenses); KW Griffin et al. 2000; Huizinga et al. 2000; BR Johnson, Jang et al. 2000:488; Windle 2000; Bottcher 2001; Newberry & Duncan 2001; JP Wright et al. 2001 (delinquency); GM Barnes, Welte & Hoffman 2002; Hay 2003; SL Leech et al. 2003:90; Tittle et al. 2003; Wiebe 2003; CP Flynn 2002:141; TF	**OCEANIA** *New Zealand*: BRE Wright et al. 1999	

			Locke & Newcomb 2003:55; Burrow et al. 2004:277 (adoptees); RX Liu 2004 (school delinquency); Higgins 2004; Liu & Kaplan 2004 (delinquency); Burt et al. 2006; Choi & Lahey 2006:Table 3; Desai et al. 2006:149 (self-reported incarceration, N = 749M + 724F); Eitle 2006:740; Felson & Staff 2006:311; Higgins & Tewksbury 2006; Lahey et al. 2006 (parental reports); Newberry & Duncan 2006 (adolescents); ES Cohn & Modecki 2007:364 (GPA & parental SES controlled); Fagan,Van Horn et al. 2007; JR Ingram et al. 2007:390; Mason et al. 2007; Molina et al. 2007:Table 2; Van Hulle et al. 2007; Farrington et al. 2009 (self-reports); Kort-Butler 2009:128; Sweeten et al. 2009:65; Beal & Crockett 2010:261 (excluding drug use); WG Jennings et al. 2010; Kofler et al. 2011:466 (N = 3,604); Ragatz et al. 2011; G Lee et al. 2012:541 (Korean Americans); Reisig et al. 2012:1182; TML Wong et al. 2013:Figure 1; Clinkinbeard 2014:Table 2; Haynie et al. 2014 (especially violent offenses); D Peterson & Morgan 2014; Hoskin & Ellis 2015:Table 1*; FD Mann et al. 2015:Table 1; Beaver, Connalley et al. 2016 (delinquency); J Newsome et al. 2016:736 (except drug offenses); S Guo 2018:184; Hoffmann 2019:224; Ibanez, Algarin et al. 2019 (among arrestees, Hispanics); Hoyt, Niu et al. 2020:Table 1* (N = 6,817M + 7,728F); Hartley, Ellis & Hoskin 2019:Table3*; Hoskin & Ellis 2021:Table 1 (N = 324) **OCEANIA** *Australia*: Rigby et al. 1989; McAllister & Makkai 1991; Rigby & Cox 1994; Heaven 1996:748; Rigby & Cox 1996; Goldstein & Heaven 2000; *Hawaii*: Voss 1963:326; *New Zealand*: Moffitt & Silva 1988b; Moffitt et al. 1994:361; B Henry et al. 1999:1060; Moffitt et al. 2001:35; DM Fergusson et al. 2002:166 (violent & property offenses); Steketee, Junger & Junger-Tas 2013:Figure 1*; *Philippines*: Shoemaker 1994 (especially violent offenses); Gutierrez & Shoemaker 2008:69 **INTERNATIONAL** *Multiple Countries*: Junger-Tas et al. 2003:92; Junger-Tas et al. 1994; Vazsonyi et al. 2006 (delinquents); Junger-Tas 2012 (adolescents); Steketee et al. 2013:Figure 1		
Not significant			**NORTH AMERICA** *United States*: Agnew & White 1992:486; Winfree et al. 1994:163; Dietrich et al. 2001:514; Wainright & Patterson 2006:529 (delinquency); Fine, Mahler et al. 2016:1896	**NORTH AMERICA** *United States*: Alarid et al. 2000:178* (among prisoners)	
More among females					

It is worth mentioning in regard to these and subsequent tables on self-reported offending that the distinction between "adolescent" and "adult" is often rather arbitrary. This is because many of the individuals who provide information about their offending were young adult college students when they provided their self-report, even though many, if not most, of the offenses they reported were committed while they were adolescents.

19.1.2.2 Self-Reported Violent Offending (Excluding Sexual Assaults)

The great amount of self-reported criminality/delinquency offenses are broken down into major categories. In Table 19.1.2.2, one can see a summary of findings on sex differences in offending of a violent nature. It shows that nearly all studies have concluded that males are more involved in these types of crimes than females.

19.1.2.3 Self-Reported Property Offending

Research findings on self-reported property offenses are typically obtained using anonymous questionnaires, many of which will ask about offenses of varying amounts of monetary value. According to Table 19.1.2.3, most of the available research based on self-reports indicates that males are more likely than females to commit property offenses, especially ones involving expensive items. Most of the exceptions have to do with minor types of crimes such as shoplifting and employee theft.

19.1.2.4 Self-Reported (or Victim-Reported) Rape or Sexual Assault

Table 19.1.2.4 provides a summary of studies of self-reported perpetration of sexual assault. It indicates that males are more likely than females to commit such offenses. It is interesting to compare findings from this table with the table presented earlier in this chapter that summarizes official data on sex differences in rape and sexual assault. While both tables agree that males are the main offenders, the official data are much more emphatic in this regard. In other words, while males constitute well over 95% of the offenders according to official data, their proportional contributions are more in the range of 60 to 80% when it comes to self-reported data.

19.1.3 Victimless Forms of Offending

Beginning around the turn of the 20th century, legislators and leaders of most countries began to make the use, or possession of, various mind-altering drugs illegal. Most often, these drugs include marijuana, heroin, and cocaine, along with methamphetamines, LSD, and

Table 19.1.2.2 Self-reported violent offending (excluding sexual assaults)

Nature of difference			*Post-pubertal*		*Wide age range*
			Adolescent	*Adult*	
More among males			**ASIA** *China*: C Cheng 2014:138; *Malaysia*: Hartley, Ellis & Hoskin 2019:Table 3* (both serious and minor) **EUROPE** *Britain*: J Graham & Bowling 1995*; Home Office Statistical Bulletin 1996; *Switzerland*: Lucia & Killias 2011:102; *Multiple European Countries*: Steketee & Gruszczynska 2010:115 **NORTH AMERICA** *Canada*: Gomes et al. 2003:84 (N = 915M + 1,084F); *United States*: JW Swanson et al. 1990; Windle 1990:88; Bjerregaard & Smith 1993 (among gang members); Elliot 1994; Kruttschnitt 1994; KB Powell 1997:44 (among blacks); K Heimer & DeCoster 1999; Mustaine & Tewksbury 1999 (violent); RW Blum et al. 2000 (self-reported violence using a weapon); Herrenkohl et al. 2000; King & South 2001:112; US Department of Health & Human Services 2001; JG Johnson, Cohen et al. 2002:Table 1*; SL Leech et al. 2003:90*; McNulty & Bellair 2003:729; MD Resnick et al. 2004:Table 1; Chapple et al. 2005:366*; Haynie & Payne 2006:791; AL Anderson & Hughes 2009:20; Desmond & Kubrin 2009:594; Esbensen et al. 2009:325; GM Zimmerman & Messner 2010; Estrada-Martinez et al. 2011:1046; Negriff & Trickett 2011*; Shekarkhar & Gibson 2011:69 (ages 9–15, N = 739, Hispanics); Haynie et al. 2014; Elkington et al. 2015:Table 1; Feldmeyer & Cui 2015:44; Koeppel 2015:123 (assaults); Beaver, Connalley et al. 2016; J Newsome et al. 2016:736 (violent); Hartley, Ellis & Hoskin 2019:Table 3* (both serious and minor) **OCEANIA** *New Zealand*: Moffitt et al. 1994:361; DM Fergusson et al. 2002*; Fergusson et al. 2002:166 (violent offenses); *Philippines*: Shoemaker 1994 (especially violent offenses); Gutierrez & Shoemaker 2008:69 **INTERNATIONAL** *Multiple Countries*: Junger-Tas 2010; Steketee & Gruszczynska 2010:115	**ASIA** *Malaysia*: L Ellis, Hoskin et al. 2014:12* (undergrad, N = 2,059) **NORTH AMERICA** *United States*: Hindelang et al. 1979 (assaults); Felson 2002; Ellis, Widmayer & Das 2012 (undergrad); L Ellis, Hoskin et al. 2014:12* (undergrad, N = 1,291); Langhinrichen-Rohling et al. 2004 (undergrad, N = 383); Ellis & Hoskin 2018:Table 1	**AFRICA** *Mauritius*: Choy, Raine et al. 2017:470 **EUROPE** *Britain*: DJ Smith & McAra 2004:Table 1 **NORTH AMERICA** *Canada*: Zoccolillo 1993 (childhood & adolescence); *United States*: J Swanson et al. 1990; Baumer 2002; Chapple et al. 2005:366; Haynie et al. 2014 **OCEANIA** *New Zealand*: TE Moffitt et al. 2001:86; *Philippines*: Shoemaker 1994 **INTERNATIONAL** *Multiple Countries*: Junger-Tas 2012:33
Not significant			**NORTH AMERICA** *United States*: Fehon et al. 2001 (psychiatric patients)		
More among females					

Table 19.1.2.3 Self-reported property offending

Nature of difference			*Post-pubertal*		*Wide age range*
			Adolescent	*Adult*	
More among males			**ASIA** *China*: C Cheng 2014:138 **EUROPE** *Austria*: Hirtenlehner et al. 2014 (shoplifting); Hirtentehner & Treiber 2017:Table 3 (shoplifting); *Britain*: J Graham & Bowling 1995*; Tonglet 2002 (shoplifting); *Denmark*: Arnett & Jensen 1994:10 (shoplifting, vandalism); *Switzerland*: Lucia & Killias 2011:102 (property except shoplifting) **NORTH AMERICA** *Canada*: Gomes et al. 2003:83 (N = 915M + 1,084F); GR Adams et al. 2005:61 (theft); *United States*: Kraut 1976 (shoplifting, undergrad students); Hindelang et al. 1979; Windle 1990:88 (shoplifting, thefts, vandalism); Bachman et al. 1993 (theft); Chadwick & Top 1993:62; Arnett & Jensen 1994:10 (shoplifting & vandalism); WJ Edwards 1996 (theft); Lahey et al. 2000 (adolescents); King & South 2001:112; JG Johnson, Cohen et al. 2002:Table 1*; Leech et al. 2003:90*; Chapple et al. 2005:366* (property); Piquero, Gover et al. 2005:262 (shoplifting); Blanco et al. 2008:Table 1 (shoplifting); AL Anderson & Hughes 2009:20; Negriff & Trickett 2011; Shekarkhar & Gibson 2011:69 (ages 9–15, N = 739, Hispanics); Bamfield 2012	**AFRICA** *South Africa*: Lochner et al. 2004 (pyromania, OCD patients) **ASIA** *Malaysia*: Hartley, Ellis & Hoskin 2019:Table 3* (both serious and minor) **EUROPE** *Britain*: Box & Hale 1984; *Denmark*: LA Baker et al. 1989:358 **NORTH AMERICA** *Canada*: Tepperman 1977; Hartnagel 1987:77; Boritch & Hagan 1990:578 (19th Century); GR Adams, Munro et al. 2005:61 (self-reported theft); *United States*: Parmelee 1926:240; Simon 1979; Steffensmeier 1978; Steffensmeier 1980; Wilson & Herrnstein 1985:108; Bachman, Johnson & O'Malley 1993 (40%M vs. 24%F thefts worth 50 dollars or more); WJ Edwards 1996 (self-reported theft); RF Marcus 1999 (burglary); Ellis, Widmayer & Dos 2012 (undergrad); Hartley, Ellis & Hoskin 2019:Table 3* (both serious and minor) Langhinrichen-Rohling et al. 2004 (undergrad, N = 383); Ellis & Hoskin 2018:Table 1 **INTERNATIONAL** *Multiple Preindustrial Countries*: Bacon et al. 1963:292	**EUROPE** *Britain*: DJ Smith & McAra 2004:Table 1 **NORTH AMERICA** *United States*: Healy & Bronner 1926:278; Steffensmeier & Cobb 1981; Chapple et al. 2005:366 **OCEANIA** *New Zealand*: Ritchie & Ritchie 1983:330; TE Moffitt et al. 2001:86 **INTERNATIONAL** *Multiple Countries*: Junger-Tas 2012:83; *Multiple Non-Western Countries*: Steketee, Junger & Junger-Tas 2013:Table 2* (property crimes overall) **OVERVIEW** *Literature Review*: Krasnovsky & Lanea 1998 (shoplifting)

			(shoplifting); Feldmeyer & Cui 2015:46; Koeppel 2015:123 (thefts); J Newsome et al. 2016:Table 1 **OCEANIA** *Australia*: Hirtenlehner & Treiber 2017 (shoplifting, 52%M vs. 48%F); *New Zealand*: Fergusson et al. 2002:166 (violent offenses); *Philippines*: Gutierrez & Shoemaker 2008:69 (vandalism) **INTERNATIONAL** *Multiple Countries*: Junger-Tas 2010); Junger-Tas 2012 (adolescents)		
Not significant			**EUROPE** *Switzerland*: Lucia & Killias 2011:102 (shoplifting); *Multiple European Countries*: Steketee & Gruszczynska 2010:115 (shoplifting)		**NORTH AMERICA** *United States*: Bernardin & Cooke 1993 (employee theft) **EUROPE** *Multiple Western European Countries*: Steketee, Junger & Junger-Tas 2013:Table 2* (minor property crimes such as shoplifting)
More among females					

Table 19.1.2.4 Self-reported (or victim-reported, when indicated) rape or sexual assault

Nature of difference			*Post-pubertal*		*Wide age range*
			Adolescent	*Adult*	
More among males			**MIDDLE EAST** *Israel*: Sherer & Karnieli-Miller 2004:103 (sex offenses, adolescents) **NORTH AMERICA** *United States*: Hall & Flannery 1984 (victim-report)	**EUROPE** *Germany*: Krahe & Berger 2013 (13.2%M vs. 7.6%F); Krahe, Schuster & Tomaszewska 2021 (undergrad, N = 417M + 755F, 17.7%M vs. 9.4%F perpetrators); *Poland*: Tomaszewska & Krahe 2018 (undergrad students, 11.7%M vs. 6.5%F) **LATIN/CARIBBEAN AMERICA** *Brazil*: D'Abreu et al. 2013 (undergrad students, 33.7%M vs 3.0%F); *Chile*: Schuster et al. 2016 (undergrad students, 26.8%M vs. 16.5%F) **MIDDLE EAST** *Turkey*: Schuster, Krahe & Toplu-Demirtas 2016:Table 4 (undergrad, N = 1,376, self-reported rape: 11.4%M vs 4.4%F) **NORTH AMERICA** *United States*: Lott et al. 1982:312 (self-report); Sigelman et al. 1984:538 (undergrad, self-report); Calderwood 1987:53 (victim-report); Anonymous 1989 (victim-report); Struckman-Johnson 1988; Ellis, Widmayer et al. 2009:Table 1 (undergrad, self-report, 10.2%M vs. 7.8%F); CM Williams et al. 2014:1247; Hoskin & Ellis 2021:Table 1 (self-reported sexual aggression, N = 324)	**NORTH AMERICA** *United States*: Lott et al. 1982 (self-reports); Laumann et al. 1994:335 (self-report) **OVERVIEW** *Literature Review*: Fisher & Pina 2013
Not significant					
More among females					

mescaline. Even alcohol was banned for a time in many countries around this time (*prohibition*). Nevertheless, the nature of laws designed to curtail the possession and use of mind-altering drugs are not uniform across jurisdictions or over time. Several countries, especially in Europe and North America, have begun to decriminalize the use of marijuana, for example.

Findings from research regarding sex differences in the use of these drugs are numerous. Because, all forms of drug possession and use are essentially victimless crimes, nearly all the research is based on self-reports. The reviews presented below will focus, first, on illegal drugs in general, after which, studies of specific drugs (or drug categories) are presented.

19.1.3.1 Self-Reported Illegal Drug Use or Possession

As shown in Table 19.1.3.1, most studies have found that a greater proportion of males than females self-report the use, possession, and/or sale of illegal drugs in general. It should be emphasized that because these studies are based almost entirely on self-reports, most often by individuals who are in high school (adolescents) or college (young adults), one should have concern about their degree of generality to populations as a whole. Some of the studies in this table were limited to certain mental health populations, such as schizophrenics and alcoholics. For information on the use of specific drugs that are often designated as *illegal*, see Chapter 18.

19.1.3.2 Self-Reported Illegal Drug Selling

Several studies of sex differences in illegal drug selling were located, most of which were based on self-reports. By viewing Table 19.1.3.2, one can see that all but one of the studies indicated that males were more involved in selling illegal drugs than were females.

19.1.3.3 Age of Onset of Illegal Drug Use

The research summarized in Table 19.1.3.3 pertains to the age at which individuals who use illegal drugs first began to do so (typically based on self-reports). One can see that all the studies have indicated that males begin using illegal drugs at a younger average than do females.

19.1.3.4 Reasons for Illegal Drug Use

In a few studies, both sexes who used illegal drugs were asked why they began doing so. As shown in Table 19.1.3.4, females are more likely to mention various forms of peer influence than was the case for males.

Table 19.1.3.1 Self-reported illegal drug use or possession

Nature of difference			*Post-pubertal*		*Wide age range*
			Adolescent	*Adult*	
More among males			**AFRICA** *Kenya*: Mugisha et al. 2003:234 (18.9%M vs. 1.4%F) **ASIA** *Russia*: Knyazev 2004:313 (use); Knyazev et al. 2004:833* **EUROPE** *Belgium*: Born & Gavray 1994:140; *Britain*: Evans et al. 1974; *Germany*: Sutterer & Karger 1994:165; *Greece*: Spinellis et al. 1994:301; *Italy*: Gatti et al. 1994:273; *Netherlands*: Sandwijk et al. 1995; Abraham 1999:576; *Slovenia*: Tomori & Zalar 2000a:182; *Spain*: Barberet et al. 1994:247; *Sweden*: Svensson 2003; *Switzerland*: Killias et al. 1994:195 **LATIN/CARIBBEAN AMERICA** *Mexico*: Ritterman et al. 2009 **NORTH AMERICA** *Canada*: Smart et al. 1970; Annis et al. 1971; Fejer 1971; Fejer et al. 1972; Bakal et al. 1975; Forslund 1977; Hollander & Macurdy 1978; S Kim, Kimber et al. 2019:Table 1; *United States*: Frumkin et al. 1969; CD Chambers 1971; Gosset et al. 1971; Hager et al. 1971; Boggs & Hughes 1973; Milman & Su 1973; Galli & Stone 1975; Kandel et al. 1976a; Blackford 1977; Currie et al. 1977; Killen 1977; Gleaton & Smith 1981; Winfree et al. 1981; Fors & Rojeck 1983:216; Barnes & Welte 1986; Newcomb et al. 1987:424; JH Palmer & Ringwalt 1988:289 (self-report, N = 10,259); Robbins 1989*; Fagan &	**ASIA** *Russia*: Knyazev et al. 2004:833* (young); *Taiwan*: Wang & Jensen 2003:73 **EUROPE** *Belgium*: Born & Gavray 1994:140; *Britain:* Evans et al. 1974; Graham & Bowling 1995; *Croatia*: Modric et al. 2001 (use); *Germany*: Sutterer & Karger 1994:165; *Greece*: Spinellis et al. 1994:301; *Hungary*: Kecskes et al. 2002*; *Sweden*: Byqvist 1999 (polydrug use); Byquist 2006:1822 (polydrug use); *Multiple European Countries*: van Reek & Adrinase 1994 **MIDDLE EAST** *Iran*: Khooshabi et al. 2010 **NORTH AMERICA** *Canada*: Laforest 1969; Smart et al. 1970; Annis et al. 1971; Fejer 1971; Fejer et al. 1972; Boggs & Hughes 1973; Bakal et al. 1975; Currie et al. 1977; Killeen 1977; Hollander & Macurdy 1978; Juster, Raymond et al. 2016:Table 1 (elicit drug use, N = 60M + 144F, 16.7%M vs. 3.5%F); *United States*: Frumkin et al. 1969; Gossett et al. 1971; Hager et al. 1971; Milman & Su 1973; Galli & Stone 1975; Harrell & Cisin 1980; Huber et al. 1980 (among schizophrenics); Gleaton & Smith 1981; Winfree et al. 1981; Fors & Rojeck 1983:216; Test et al. 1985 (among schizophrenics); Barnes & Welte 1986; Newcomb et al. 1987:424; JM Goldstein 1988 (among schizophrenics); CP Jackson & Matthews 1988 (undergrad); Test et al. 1989 (young, among schizophrenics); Regier et al. 1990; Lex 1991 (among alcoholics);	**AFRICA** *Mauritius*: Choy, Raine et al. 2017:470; *Nigeria*: Gureje, Degenhardt et al. 2007 (self-report) **EUROPE** *Britain*: Graham & Bowling 1995 (self-report); Estevez & Emler 2011:277; *Italy*: Rezza et al. 1992 **NORTH AMERICA** *Canada*: Laforest 1969; Rootman & Richman 1975; De Wit et al. 1999:110; *United States*: RG Newman et al. 1974:58; Harrell & Cisin 1980; Robbins 1989*:117; Kandel 1991:394 (self-reports); Lex 1991:122* (adolescents & adults); Peters et al. 1992; Flannery et al. 1994; AS Friedman et al. 1995 (African-Americans); AS Friedman et al. 1996 (African-Americans); SE Martin & Bryant 2001 (among victimful offenders); Hser et al. 2003 (self-report, among arrestees) **OCEANIA** *Australia*: McAllister & Makkai 1991; MG Law et al. 2001

			Pabon 1990:331; Windle 1990; JG Bachman et al. 1991* (self-report, HS seniors); Lex 1991:122*; Simons et al. 1991:658; VJ Peters et al. 1992; AR Rich, Kirkpatrick-Smith et al. 1992 (ages 14–19); Ingersoll et al. 1993:73; Gfellner & Hundleby 1994; Opland et al. 1995; Gottfredson & Koper 1996; Johanson et al. 1996; Liu & Kaplan 1996; Nagel et al. 1996:292; Zebrowski & Gregory 1996; Wadsworth et al. 1997:567; Whitmore et al. 1997:92; Khoury 1998:110; Novins & Mitchell 1998 (marijuana & cocaine); Bensley et al. 1999b; DC Moon et al. 1999; Van Etten & Anthony 1999; Van Etten et al. 1999; Dakof 2000; Pate et al. 2000:908 (self-report); R Bachman & Peralta 2002; Guo et al. 2002 (self-report); LD Johnston et al. 2002 (slight but significant difference); Latimer et al. 2002; Peretti-Watel 2002; Zapert 2002:843; Zweig et al. 2002 (self-report); JM Wallace 2003; WA Mason et al. 2007 **OCEANIA** *Australia*: Carroll et al. 2006 (self-report); Levy & Pierce 1990	Lex 1991:122*; R Simons et al. 1991:658; Mueser et al. 1992 (among schizophrenics); V Peters et al. 1992; Del Boca 1994 (among alcoholics); Kessler et al. 1994a; HW Perkins 1994:195 (undergrad, use); RE Booth 1995 (ingestible drugs); Opland et al. 1995; Gottfredson & Koper 1996; Johanson et al. 1996; Liu & Kaplan 1996; Nagel et al. 1996:292; Zebrowski & Gregory 1996; Wadsworth et al. 1997:567; Fiorentine et al. 1997 (polydrug use); Whitmore et al. 1997:92; Novins & Mitchell 1998 (marijuana & cocaine, adolescents); Rutherford et al. 1998; Vega et al. 1998b (Mexican-Americans); MR Weeks et al. 1998 (polydrug use); Bretteville-Jensen 1999; Forthun, Bell & Peek 1999:80 (undergrad); JL Wong & Bessett 1999 (MMPI Scale); RE Booth et al. 2000; King & South 2001:112* (drug use); Vega et al. 2002 (drug use); JS Gray & Winterowd 2002 (Native Americans); Tammemagi et al. 2004:600 (lung cancer patients); Hicks & Miller 2006:25 (undergrad, self-report); Balsa, Giuliano & French 2011:Table 1 (N = 2,049M + 2,243F); Ellis, Widmayer & Dos 2012 (undergrad); G Lee et al. 2012:541 (Korean Americans); Feldmeyer & Cui 2015:48; Ellis & Hoskin 2018:Table 1*; AH Hai 2018 (N = 12,646); Hoyt, Niu et al. 2020:Table 1* (N = 6,817M + 7,728F) **OCEANIA** *Australia*: Levy & Pierce 1990; Lynskey et al. 1999; *Philippines*: Gutierrez & Shoemaker 2008:69; *New Zealand*: Fergusson et al. 2005:978	
Not significant					

(*Continued*)

Table 19.1.3.1 (Continued)

Nature of difference			*Post-pubertal*		*Wide age range*
			Adolescent	*Adult*	
			EUROPE *Estonia*: Merenakk et al. 2003:1509; *France*: Chau et al. 2007:329; *Germany*: Boers et al. 1994:352; *Norway*: Storvoll & Wichstrom 2002:189* **NORTH AMERICA** *Canada*: Moyer & Fejer 1972; GE Barnes, Mitic et al. 2009:Table 2 (adolescents, use); *United States*: Wechsler & Thum 1973; Prendergast 1974; Wexler 1975; Forslund 1977; Johnston et al. 1985; Agnew & White 1992:486; Arnett & Jensen 1994; Gfellner & Hundleby 1994; Marshall & Webb 1994:332; Winfree et al. 1994:163; Mieczkowski 1996:382; Hoyt, Niu et al. 2020:Table 1* (N = 6,817M + 7,728F)	**EUROPE** *Germany*: Boers et al. 1994:352 **MIDDLE EAST** *Lebanon*: Karam et al. 2000:192 (undergrad, stimulants) **NORTH AMERICA** *Canada*: Moyer & Fejer 1972; *United States*: Wechsler & Thum 1973; Prendergast 1974; Wexler 1975; Forslund 1977; L Johnston et al. 1985; Agnew & White 1992:486; Gfellner & Hundleby 1994; I Marshall & Webb 1994:332; Winfree et al. 1994:163; Mieczkowski 1996:382; Diala et al. 2004; Longest & Vaisey 2008:701; Beal & Crockett 2010:261 (use)	**EUROPE** *Sweden*: Byqvist 1999 **NORTH AMERICA** *United States*: Zhang 2004 (heroin use, among arrestees, 7%M vs. 5%F, in past year, N = 26,330)
More among females			**EUROPE** *Finland*: Aromaa 1994:27 **NORTH AMERICA** *United States*: Donnermeyer et al. 1987; Stevens et al. 2004 (use)	**AFRICA** *South Africa*: Peltzer et al. 2002:109 (undergrad) **EUROPE** *Finland*: Aromaa 1994:27 (use) **NORTH AMERICA** *United States*: Donnermeyer et al. 1987 (use)	

Table 19.1.3.2 Self-reported illegal drug selling

Nature of difference			*Post-pubertal*		
			Adolescent	*Adult*	
More among males			**EUROPE** *Britain*: DJ Smith & McAra 2004:Table 1 (drug sale) **NORTH AMERICA** *United States*: Windle 1990:88 (adolescents, sold marijuana); MG Vaughn, AbiNader et al. 2018:Figure 1 (ages 12–17, 2002-2015); MG Vaughn, Oh et al. 2019	**NORTH AMERICA** *United States*: Case & Katz 1991:Table 6 (marijuana sale); King & South 2001:112* (drug sale); Langhinrichen-Rohling et al. 2004:260 (undergrad, N = 383); Ibanez, Algarin et al. 2019 (among probationers, self-report)	
Not significant				**EUROPE** *Multiple European Countries*: Steketee & Gruszczynska 2010:115 (drug dealing, self-report)	
More among females					

Table 19.1.3.3 Age of onset illegal drug use

Nature of difference					*Wide age range*
Earlier among males					**NORTH AMERICA** *United States*: Kosten et al. 1985; KA White et al. 1996; Khoury 1998:122; Anglin et al. 1987 (among drug addicts); Cohen et al. 1987:1454; Hser et al. 1987c (among drug addicts); KT Brady et al. 1993 (age of drug dependence, age 23M vs. 26F); DG Stewart & Brown 1995 (drug abusers); Opland et al. 1995 (drug abusers); Whitmore et al. 1997 (drug abusers); AL Haas & Peters 2000; SE Thomas et al. 2003 (drug abusers)
Not significant					
Earlier among females					

19.1.3.5 Self-Reported Prostitution

Just two studies were located pertaining to sex differences in prostitution. As shown in Table 19.1.3.5, one study reported that males are more likely to purchase the services of a prostitute, and the other indicated that females are more involved in providing prostitution services.

Table 19.1.3.4 Reasons for illegal drug use

Nature of Difference					*Wide Age Range*
More among males					**LATIN/CARIBBEAN AMERICA** *Multiple Caribbean Islands*: M Day & Norman 2007 (introduced by a sex partner, N = 111) **NORTH AMERICA** *United States*: Farrell & White 1998 (peer influence); Novina & Mitchell 1998 (peer influence)
Not significant					
More among females					

Table 19.1.3.5 Prostitution

Nature of difference			*Post-pubertal*		
				Adult	
More among males				**NORTH AMERICA** *Canada*: Burley & Symanski 1981 (paying for sex)	
Not significant					
More among females				**NORTH AMERICA** *United States*: Ibanez, Algarin et al. 2019 (among probationers, self-report)	

19.1.3.6 Status Offenses

So-called *status offenses* are offenses only for certain age groups, usually people under the age of 18. They included drinking alcohol under a prescribed age, failure to attend school regularly, and chronic disobedience toward parents. As shown in Table 19.1.3.6, the one located study on sex differences in status offenses indicated that males were more often the offender than females.

Table 19.1.3.6 Status offenses

Nature of difference		*Post-pubertal*		
		Adolescent		
More among males		**NORTH AMERICA** *United States*: Lahey et al. 2000 (status offenses)		
Not significant				
More among females				

19.1.4 Residual Evidence of Criminality and Variables Related to Criminality

In this final section on criminality, evidence is considered other than those based on official data and self-reports. For example, studies from so-called *victimization surveys* and from surveillance cameras are examined. Other information included have to do with age of onset of criminal behavior and with what is known as *criminal recidivism*. Finally, studies of trends in sex differences in criminality will receive attention.

19.1.4.1 Perpetration of Violent Crime Based on Victim Reports

Victimization data is usually collected by surveying a representative sample of citizens living in a particular country. Thus, victimization data is independent of the calls that victims make to police (which only about half of crime victims appear to do).

Respondents to victimization surveys who state they were the victim of a crime are asked if they were able to see the perpetrator. High proportions of victims of offenses such as assaults and robberies answer affirmatively. It is this information that is reported in Table 19.1.4.1. One can see that perpetrators were identified as being males much more often than as being females. This evidence, of course, reinforces the conclusions of studies reviewed earlier in this chapter based on both official data and self-reported offending that males are more prone toward criminality than females, particularly in the case of violent offenses.

19.1.4.2 Perpetration of Sexual Assaults Based on Victim Reports

Findings having to do with sex differences in the perpetration of sexual assaults according to reports by sexual assault victims are summarized in Table 19.1.4.2. Consistent with official data and self-reported data, one can see that the main perpetrators are males.

19.1.4.3 Perpetration of Child Abuse and Neglect

Research findings regarding sex differences in the commission of child abuse and neglect is presented in Table 19.1.4.3. These findings provide a mixed picture regarding any differences. It appears that males tend to dominate in child abuse resulting in the greatest injury, but females may be more often identified as perpetrators of child abuse and neglect. Presumably, this latter finding can be explained by noting that females are much more directly involved in providing childcare than is the case for males.

Table 19.1.4.1 Perpetration of violent crime based on victim reports

Nature of difference			*Post-pubertal*		*Wide age range*
			Adolescent		
More among males			**NORTH AMERICA** *United States*: Steffensmeier et al. 2005* (1980-2003, violent offenses)		**EUROPE** *Belgium*: Pieters, Italiano et al. 2010 (sexual assault, 96.6%M); *Switzerland*: Averdijk, Muller-Hohnson & Eisner 2011 (75.6%M) **NORTH AMERICA** *United States*: Finkelhor & Hotaling et al. 1990 (telephone survey, male attacker reported by 83% of female sexual assault victims and by 99% of male sexual assault victims); R Bachman 1998 (rape); Rennison & Rand 2003; Steffensmeier, Zhong et al. 2006* (1980-2003); Lauritsen et al. 2009; Schwartz, Steffensmeier & Feldmeyer 2009:Table 1* (1980-2003, violent crime including rape); Bureau of Justice Statistics 2011 (sexual assaults, 93.2%M) **OCEANIA** *New Zealand*: Morris, Reilly et al. 2003 (sexual assault, 96.9%M) **OVERVIEW** *Meta-Analysis*: Cortoni et al. 2017 (sex offenses, 88.4%M, victimization reports)
Not significant					
More among females					

Table 19.1.4.2 Perpetration of sexual assaults based on victim reports

Nature of difference					*Wide age range*
More among males					**NORTH AMERICA** *United States*: Groth & Burgess 1980:806 (victim calls to rape crisis center); Kaufman et al. 1980 (victim call to rape crisis center); US Department of Justice 1989:297 (victim-report); Frazier 1993 (victim visits to hospital emergency room)
Not significant					
More among females					

19.1.4.4 Perpetration of Crime Based on Surveillance Cameras

Two studies were located pertaining to sex differences in criminal behavior according to footage from surveillance cameras, both having to do with shoplifting. As shown in Table 19.1.4.4, both studies found no significant sex difference in the commission of this offense.

Table 19.1.4.3 Perpetration of child abuse and neglect

Nature of difference			*Post-pubertal*		*Wide age range*
				Adult	
More among males				**NORTH AMERICA** *United States*: R Anderson et al. 1983 (official data, physical child abuse, more injurious); Daly & Wilson 1994 (official data, physical child abuse, more injurious); Starling et al. 1995 (official data, physical child abuse, males cause more injury)	**NORTH AMERICA** *United States*: Sedlak & Broadhurst 1996 (in two-parent households)
Not significant					
More among females				**NORTH AMERICA** *United States*: MA Straus et al. 1998 (self or victim reported); US Department of Health and Human Services 1998 (neglect, among parents) **OVERVIEW** *Literature Review*: Haskett, Marziano & Dover 1996:1179	

Table 19.1.4.4 Offenses based on surveillance cameras

Nature of difference					*Wide age range*
More among males					
Not significant					**EUROPE** *Britain*: Buckle & Farrington 1984 (shoplifting, surveillance cameras, 503 shoppers observed, offenders were 2.8%M vs. 1.4%F) **NORTH AMERICA** *United States*: Astor 1971 (shoplifting, surveillance cameras at 4 stores)
More among females					

19.1.4.5 Illegal Drug Use Based on Urinalysis

Some researchers have investigated illegal drug use other than by arrest data or by self-reports. Instead, they rely on urinalysis of individuals who have been arrested. As one can see in Table 19.1.4.5, all of these studies have found higher positive results among females than among males. This finding suggests that female prisoners represent a group of individuals with an especially high risk of illegal drug use (including addiction).

Table 19.1.4.5 Illegal drug use based on urinalysis

Nature of difference			*Post-pubertal*		*Wide age range*
			Adolescent	*Adult*	
More among males					
Not significant					
More among females			**NORTH AMERICA** *United States*: Kim & Fendrich 2002 (among arrestees, 11%M vs. 16%F, multiple drugs, N = 4,644)	**AFRICA** *South Africa*: Parry et al. 2004 (cocaine, urinalysis, among arrestees, 2%M vs 16%F, N = 1,050) **EUROPE** *Britain*: K Holloway & Bennett 2007 (cocaine, urinalysis, among arrestees) **NORTH AMERICA** *United States*: Langan & Pelissier 2001 (among prisoners, multiple drugs, 42%M vs. 57%F, N = 1,644)	**OCEANIA** *Australia*: Schulte et al. 2005 (heroin use, among arrestees, urinalysis, N = 383, N = 13%M vs 19%F)

19.1.4.6 Age of Onset of Criminal/Delinquent Offending

Table 19.1.4.6 summarizes findings from studies that sought to determine when individuals committed their first offense. It shows that in all cases, males reported an earlier age of onset than did females.

Table 19.1.4.6 Age of onset of criminal/delinquent offending

Nature of difference					*Wide age range*
Earlier among males					**NORTH AMERICA** *United States*: Mazerolle, Brame et al. 2000 (official data); Chesney-Lind & Belknap 2004 (self-report); MS Gordon et al. 2004 (official data)
Not significant					
Earlier among females					

19.1.4.7 Crime Versatility

Crime versatility refers to the tendency to engage in a wide variety of different *types* of crime (e.g., violent, property, drugs, sex) rather than specializing in just one type. Of course, crime versatility can only be assessed among individuals who have committed at least two offenses.

Table 19.1.4.7 shows that the research has reached different conclusions regarding the possibility of sex differences in crime versatility. In other words, controlling for sex differences in the total number of offenses committed (which will nearly always be higher form males), there appears to be no consistent evidence of sex differences in crime versatility.

Table 19.1.4.7 Crime versatility

Nature of difference			*Post-pubertal*		*Wide age range*
			Adolescent	*Adult*	
Males more versatile/less specialized				**EUROPE** *Britain*: Soothill et al. 2000 (official data) **NORTH AMERICA** *United States*: Hoskin & Ellis 2015:Table 1 (self-report data)	**NORTH AMERICA** *United States*: Kempf 1986 (official data, up to age 27)
Not significant			**NORTH AMERICA** *United States*: Rojek & Erickson 1982 (official data, N = 1,200)	**NORTH AMERICA** *United States*: Mazerolle, Brame et al. 2000:1167 (official data)	
Females more versatile/less specialized			**NORTH AMERICA** *United States*: Hindelang 1971 (official data, N = 763)		

19.1.4.8 Criminal Recidivism

The concept of *criminal recidivism* has to do with re-offending after an initial offense. It is usually assessed in terms of convicted offenders being re-arrested within a few years following their conviction. In some cases, minor types of offenses (such as speeding and shoplifting) are counted as recidivism, while other times only new felonies are counted. In many studies of recidivism, offenders are re-arrested for simply violating some aspect of their parole (such as not reporting regularly to one's parole officer or for visiting bars or testing positive for drug consumption). Studies of sex differences in criminal recidivism are summarized in Table 19.1.4.8. One can see that a minority of studies have found no significant sex differences, but that when differences are found, they all indicate that male offenders exhibit higher rates than do females.

19.1.4.9 Tax Evasion

In nearly all countries, individuals who earn money are legally obliged to help pay for government-controlled services, such as the construction and

Table 19.1.4.8 Criminal recidivism

Nature of difference			*Post-pubertal*		
			Adolescent	*Adult*	
Higher among males			**NORTH AMERICA** *United States*: Dembo et al. 1998	**ASIA** *Japan*: Ogawa 1976:601 **EUROPE** *Britain*: Cortoni & Hanson 2005:Tables 1-3* (sex offenders); *Finland*: Maki et al. 2003:276; *Italy*: Giannini 1976:548; *Netherlands*: Blokland 2005:113 **NORTH AMERICA** *Canada*: Hoge et al. 1996; Cortoni & Hanson 2005:Tables 1-3* (sex offenders); *United States*: Unkovic & Ducsay 1969; Meade 1973; LD Brown 1978:98; Brundage 1984; Beck & Shipley 1989; MD Jacobs 1990; Dembo et al. 1991; DO Lewis et al. 1991; Robins et al. 1991 (multiple arrests, among persons diagnosed with antisocial personality disorder); K Minor et al. 1997:337; Fendrich & Archer 1998; Salekin et al. 1998:122 (among psychopaths); Benda & Tollett 1999 (official); Alarid et al. 2000 (self-reported recidivism); Kruttschnitt et al. 2000:72 (among sex offenders); Benda et al. 2001:95 (young); Langan & Levin 2002; Benda 2005 (graduates of a boot camp); Cortoni & Hanson 2005:Tables 1-3* (sex offenders); Kubrin & Stewart 2006:183; Bales & Mears 2008; KI Minor et al. 2008 (adolescents); Makarios et al. 2010:1385; McGloin et al. 2011:782; Trupin et al. 2011:430; Durose et al. 2014:Table 2; X Wang et al. 2014 **OCEANIA** *Australia*: Broadhurst et al. 1988; Broadhurst & Maller 1990; Cortoni & Hanson 2005:Tables 1-3* (sex offenders); *New Zealand*: Cortoni & Hanson 2005:Tables 1-3* (sex offenders) **OVERVIEW** *Meta-Analysis*: Gendreau et al. 1996:583	
Not significant				**NORTH AMERICA** *United States*: Thomas 1977:61; Schmidt & White 1979; SD Gottfredson & DM Gottfredson 1979; Carroll et al. 1982; Roundtree et al. 1984; Harer 1995 (M = 40.9l vs. F = 39.7); Benda, Corwyn & Toombs 2001:595; Stevens et al. 2004 (substance abusers); CJ Sullivan et al. 2007 (among mentally ill convicts); JS Hong, Ryan et al. 2013:Table 2	
Higher among females					

maintenance of infrastructure, law enforcement, national defense, and emergency assistance. However, people vary in the extent to which they obey these tax laws. While it is a crime to intentionally evade taxes, the typical offender is rarely incarcerated, provided he/she pays the amount owed plus monetary penalties.

Based primarily on self-reports, Table 19.1.4.9 presents a summary of findings having to do with sex differences in tax evasion. One can see that most studies have concluded that males are more involved in this type of offending than are females. In other words, most research indicates that females are more tax compliant.

19.1.4.10 Trends in Sex Differences in Criminal Behavior

As noted earlier in this chapter, a number of researchers have sought to determine whether or not there have been detectible trends regarding the tendency for males to dominate in the commission of crime. Much of this interest has been spurred by growing social pressure to treat males and females similarly and toward greater sex equality in political and economic affairs. In other words, as the sexes come to be treated more equitably and as women become more active in political and business affairs, could the sexes also become more equal in their criminal involvement?

Table 19.1.4.10 provides a summary of the evidence, most of which pertains to violent offenses and has been limited to the study of Western countries. Roughly half of the evidence points toward no significant trends, while the other half indicates that females are contributing increasing proportions to crime since around the 1970s. However, tendencies for males and females to converge appears to be modest, so that the proportion of females is still quite a bit less than the proportion of males, especially regarding officially recorded violent crimes. When one examines victimization data (based on annual surveys conducted among representative samples of U.S. citizens since the first survey in 1973), no overall trend toward sex equality has been found.

How can such seemingly conflicting evidence be reconciled? The most reasonable explanation seems to be as follows: First, assume that the victimization data seems to more accurately reflect trends in the *commission* of violent crimes by both sexes than is true for official data (such as crimes reported to police, arrests, etc.). Second, the United States and other industrial countries may have become less tolerant toward violence, and better able to detect it (such as through surveillance cameras and DNA analysis). This may have *widened the net*, so so speak, regarding arrests and prosecutions over the past half-century or so. As the net has widened, the proportion of females being arrested compared to males could have also expanded (since female proportional involvement in minor assaults is greater than their proportional involvement in major assaults). For arguments along similar lines, see Steffensmeier et al. (2005:395) and Steffensmeier, Zhong et al. (2006:78); but, for a contrary view, see Lauritsen et al. (2009).

Table 19.1.4.9 Tax evasion

Nature of difference			*Post-pubertal*		
				Adult	
More male offenders				**EUROPE** *Albania*: Gerxhani 2007; *Britain*: Hasseldine 1999; Lewis, Carrera et al. 2009*; *France*: Bazart & Pickhardt 2009; *Italy*: Lewis, Carrera et al. 2009* **NORTH AMERICA** *United States*: Mason & Calvin 1978; Spicer & Becker 1980; Spicer & Hero 1985; Porcano 1988; Hasseldine 1999; Wilson & Sheffrin 2005 **OCEANIA** *Australia*: Wenzel 2002; Kastlunger et al. 2010:Table 1	
Not significant				**MIDDLE EAST** *Israel*: Friedland et al. 1978:Table 3	
More female offenders				**OCEANIA** *Australia*: Kirchler & Maciejovsky 2001	

Table 19.1.4.10 Trends in sex differences in criminal behavior

Nature of difference			*Post-pubertal*		*Wide age range*
			Adolescent		
Sex difference increasing (males' proportional involvement growing)					
No significant change			**NORTH AMERICA** *United States*: Steffensmeier et al. 2005* (1980-2003, victimization reports, violent offenses)		**NORTH AMERICA** *United States*: Steffensmeier, Zhong et al. 2006* (homicide & rape, also victimization data, 1980-2003); Rennison 2009 (1960s-early 2000s, largely stable); Schwartz, Steffensmeier & Feldmeyer 2009:Table 1* (1980-2003, violent crime, victimization data)
Sex difference decreasing (females' proportional involvement growing)			**NORTH AMERICA** *United States*: Steffensmeier et al. 2005* (1980-2003, arrests, violent offenses); Snyder & Sickmund 2006:128 (official violent crime from ~1991-2003; official property crime from ~1989-2003)		**EUROPE** *Sweden*: Estrada, Backman & Nilsson 2016:Figure 1 (official assaults from 1866 through 2006; official thefts from 1841-2011; in both cases, some convergence since around the early 1970s)E# **NORTH AMERICA** *United States*: Steffensmeier & Cobb 1981 (official data, 1934-1979); RM O'Brien 1999 (arrests for Type 1 offenses); Steffensmeier, Zhong et al. 2006* (violent crime, official data, 1980-2003); J Schwartz & Rookey 2008 (overall official crime, 1980-2004); Lauritsen, Heimer & Lynch 2009 (violent crime, official data & victimization data, 1973-2005); J Schwartz, Steffensmeier & Feldmeyer 2009:Table* (1980-2003, official data)

19.2 Near-Criminal Behavior

In the present section, *near-criminal behavior* refers to behavior that typically causes harm to others, even though it is not normally a violation of a specific criminal statute. For example, teasing someone for having a physical deformity, or spreading hurtful rumors about them (even if true), can be considered examples of near-criminal behavior. Many of these hurtful actions fall under the category of *bullying behavior*.

19.2.1 Involvement in Near-Criminality

This chapter section has to do with socially undesirable behavior that often straddles the line between legality and illegality. Examples not only include bullying, but also pushy or pestering types of sexual advances, even if no physical violence is involved. Another example is animal cruelty. Nearly all the findings to be reported are based on self-reports of either offenders or victims.

19.2.1.1 Bullying Behavior in General (Except Cyberbullying)

Bullying refers to a wide range of behavior, including maliciously teasing others, calling them insulting names, spreading vicious rumors about them, and even intimidating and physically assaulting them. Among the effects of being bullied are all sorts of negative emotions, including shame, fear, as well as bodily harm. Bullying victims have sometimes even attempted suicide as a result of being bullied (Kim & Leventhal 2008; Klomek et al. 2010).

Obviously, bullying overlaps with the concept of *aggression* (which has been given attention elsewhere). Even intentionally avoiding talking to someone or spreading rumors or writing derogatory information about them can fall within the range of both bullying behavior and aggression (Jolliffe & Farrington 2006).

Two tables on bullying will be presented. One pertains to sex differences in conventional forms of the behavior, while the other has to do with what is called *cyberbullying*.

Findings for the commission of conventional forms of bullying are summarized in Table 19.2.1.1. The table clearly indicates that the vast majority of studies have found that bullying is more commonly committed by males than by females, although some studies have reported no significant sex differences. Most of the studies that found no significant sex difference involved what is often termed "verbal bullying" or "relational bullying." The first of these has to do with calling a victim an insulting name or spreading hurtful rumors about the victim, while the second form involves intentionally excluding a victim from a circle of friends or from a social gathering.

Table 19.2.1.1 Bullying behavior in general (except cyber-bullying)

Nature of difference	*Pre-pubertal*		*Post-pubertal*		*Wide age range*
		Child	*Adolescent*		
More among males		**EUROPE** *Britain*: Wolke et al. 2000 (indirect/relational, self-reports); *Finland*: Salmivalli et al. 1996 (6th graders); Kumpulainen et al. 1998; *Greece*: Andreou & Mettalidou 2004:33; Andreou & Bonoti 2010:173; *Italy*: Baldry & Farrington 1999 (indirect/relational, self-reports,); *Netherlands*: Kumpulainen et al. 1998 (N = 5,813); Kumpulainen et al. 1999 (ages 8–12, N = 1,268); *Slovenia*: Petel, Geckova et al. 2012:1124 (self-report, 19.0%M vs. 10.7%F, N = 3,674) **NORTH AMERICA** *Canada*: Charach et al. 1995; Craig & Pepler 1997; *United States*: Berne 1930 (derogatory teasing of peers); Luthar et al. 1996:182 (childhood recollections of adult opiate addicts); Hanish & Guerra 2004:Table 1 (N = 1,722) **OCEANIA** *Australia*: Forero et al. 1999		**ASIA** *Taiwan*: Cheng, Lee et al. 2016 **EUROPE** *Britain*: Ahmad & Smith 1993; I Whitney & Smith 1993 (physical bullying); Rivers & Smith 1994; Jolliffe & Farrington 2006:545 (especially physically violent forms); *Denmark*: Lagerspetz et al. 1982; *Finland*: Lagerspetz et al. 1988 (physical bullying); Olafsen & Viemero 2000 (young teens, self-reports); Kaltiala-Heino et al. 2003; Sijtsema et al. 2009:61 (N = 251M + 277F); *Greece*: Kokkonos & Kipritsi 2012; *Germany*: Scheithauer et al. 2006 (N = 2,086); Von Marees & Peternon 2010:181* (physical bullying N = 550); *Italy*: Baldry & Farrington 1999; Baldry et al. 2017:943* (physical & verbal); *Lithuania*: Jankauskiene et al. 2008:151 (N = 534 + 628F); *Netherlands*: Veenstra et al. 2005; Veenstra et al. 2010:482; *Norway*: Olweus 1991; Olweus 1993; Endresen & Olweus 2001; Endresen & Olweus 2002; Salberg & Olweus 2003:257 (9.7% vs. 3.2%); T Ivarsson et al. 2005 (self-report); *Spain*: Feijoo, O'Higgins-Norman et al. 2021:Table 2 (self-report); *Switzerland*: Kuntsche & Klingemann 2004:387 **MIDDLE EAST** *Israel*: Gofin et al. 2002:175 **NORTH AMERICA** *Canada*: Bosworth et al. 1999:353 (middle schoolers); O'Connell et al. 1999; Nansel et al. 2001; Salmivalli & Kaukiainen 2004 (physical bullying); Li 2006:163 (40.8%M, 27.8%F); Pepler et al. 2006; AS Book, Volk & Hosker 2012:221		**EUROPE** *Britain*: Rivers & Smith 1994:362* (child & adolescent, N = 7,000; physical) **NORTH AMERICA** *United States*: J Hoover & Olsen 2001 **OVERVIEW** *Literature Review*: Hymel & Swearer 2015:294

			(N = 121M + 189F); Trach, Himel et al. 2016:120 (N = 4,792 + 4,605); *United States*: Seals & Young 2003:742; Brunstein-Klomek et al. 2007:43; J Wang et al. 2009* (both physical & verbal)		
Not significant		**EUROPE** *Britain*: WM Craig 1998 (relational, self-reports)	**EUROPE** *Britain*: Boulton et al. 2002 (overall bullying); Young & Sweeting 2004; *Germany*: Von Marees & Peternon 2010:181* (non-physical bullying, N = 550); *Italy*: Baldry et al. 2017:943* (relational bullying) **NORTH AMERICA** *United States*: MJ Boulton et al. 2002 (adolescents); J Wang et al. 2009* (relational bullying)		**EUROPE** *Britain*: Rivers & Smith 1994:362* (child & adolescent, N = 7,000; verbal & indirect) **OVERVIEW** *Literature Review*: Ahmad & Smith 1994 (verbal bullying)
More among females					

19.2.1.2 Cyberbullying

Since the advent of social media, a special type of bullying has emerged, known as *cyberbullying*. Typically, this type of bullying occurs when individuals post derogatory messages on social media (such as email, Facebook, or Twitter) about someone they know. In this way, vicious rumors can sometimes be disseminated to hundreds of readers within minutes. Whether the rumors are true or false, or the target/victim reads the message directly or not, they can have devastating consequences, even to the point of provoking thoughts of suicide by the target/victim of such behavior (Kim & Leventhal 2008; Espelage & Holt 2013).

Despite the contemporary nature of cyberbullying, a substantial number of studies have already been published on the topic with respect to sex differences in those who post bullying messages. As shown in Table 19.2.1.2, these studies indicate that, if there is a sex difference in cyberbulling, it leans toward there being a greater proportion of male cyberbullies. Nevertheless, the sex differences appear to be considerably less substantial than in the case of more conventional forms of bullying (shown in the previous table).

19.2.1.3 Cruelty and Sadistic Behavior

Findings from investigations of sex differences in tendencies to be cruel and sadistic, particularly toward animals, are summarized in Table 19.2.1.3. In all cases, males have been found to exhibit such tendencies to a greater degree, or more frequently, than do females. Most studies put the sex difference in the range of 4-to-1.

19.2.1.4 Sexual Assertiveness/Pushiness

Sexual assertiveness/pushiness can range from simply being repeatedly nagging someone for sexual intimacy to being at least verbally coercive toward someone with whom sexual intimacy is desired. While all such behavior is regarded inappropriate by most objective observers, few would consider it to be criminal behavior. The term *sexual harassment* is often used to describe such behavior.

Table 19.2.1.4a shows findings having to do with sexual assertiveness of various forms. One can see that nearly all studies have concluded that males are more sexually assertive than females.

Humans are not alone in being sexually aggressive. As shown in Table 19.2.1.4b, one study of orangutans indicated that males are more prone toward sexual coercion than are females.

Table 19.2.1.2 Cyberbullying

Nature of difference			*Post-pubertal*		*Wide age range*
			Adolescent	*Adult*	
More among males			**ASIA** *Singapore*: Ang & Goh 2010 (ages 12–18, N = 173M + 219F); *Taiwan*: Huang & Chou 2010 (middle schoolers) **EUROPE** *Britain*: Slonje & Smith 2008:151 (self-report); *Finland*: Sourander et al. 2010; *Netherlands*: Dehue et al. 2008 (18.6%M vs. 13.4%F); *Sweden*: Sloje & Smith 2008 (7.2%M vs. 3.1%F); *Portugal*: Almeida et al. 2012 **MIDDLE EAST** *Israel*: Lapidot-Lefler & Dolev-Cohen 2015 (middle & high schoolers); *Turkey*: Erdur-Baker 2010 (ages 10–14) **NORTH AMERICA** *Canada*: Li 2006:163 (22%M vs. 12%F); *United States*: Wang et al. 2009 (9.7%M vs. 7.1%F)	**ASIA** *Taiwan*: Chang, Lee et al. 2013 (undergrad) **EUROPE** *Britain*: Cowie, Bauman et al. 2013 (undergrad, N = 3,135) **MIDDLE EAST** *Turkey*: Akbulut & Eristi 2011 (undergrad, N = 254); Ulubas et al. 2018:216 (cyber-harassment) **NORTH AMERICA** *United States*: Barlett & Gentile 2012 (undergrad, N = 493)	**OVERVIEW** *Literature Review*: Aboujaoude et al. 2015; *Meta-Analysis*: C Barlett & Coyne 2014:478 (albeit only a modest difference, d = .04); Baldry et al. 2015
Not significant			**EUROPE** *Netherlands*: Didden et al. 2009 **MIDDLE EAST** *Turkey*: Aricak et al. 2008 (19.0%M vs. 16.7%F) **NORTH AMERICA** *United States*: Kowalski & Limber 2007 (middle school); Hinduja & Patchin 2008:141 (18.0M vs. 15.6%F, self-report); K Allen 2012 **INTERNATIONAL** *Multiple Countries*: Hinduja & Patchin 2008 (18%M vs. 16%F)		
More among females			**EUROPE** *Spain*: Feijoo, O'Higgins-Norman et al. 2021:Table 3 (self-report)	**NORTH AMERICA** *United States*: CD Marcum, Higgins et al. 2014 (undergrad, on Facebook)	

Table 19.2.1.3 Cruelty and sadistic behavior

Nature of difference	*Pre-pubertal*		*Post-pubertal*		*Wage Age Range*
		Child	*Adolescent*	*Adult*	
More among males		**EUROPE** *Italy*: Baldry 2005* (cruelty to animals, self-report) **NORTH AMERICA** *United States*: Tapia 1971 (cruelty to animals); Rigdon & Tapia 1977 (cruelty to animals)	**EUROPE** *Italy*: Baldry 2004 (cruelty to animals, self-report); Baldry 2005* (cruelty to animals, self-report); *Switzerland*: Lucia & Killias 2011 (17%M vs. 8%F, self-rated)	**NORTH AMERICA** *United States*: Arlike & Luke 1997; KS Miller & Knutson 1997; Flynn 1999:975 (undergrad, self-report of childhood behavior); CP Flynn 2002:141 (undergrad, self-report of childhood cruelty to animals)	**EUROPE** *Britain*: Maughan, Rowe et al. 2004:615 (cruelty to animals, age 5-15) **NORTH AMERICA** *United States*: Gerbasi 2004:Table 2; Karlsson & Kajonius 2020 (sadistic behavior, ages 15–80, internet sample, N = 220) **OVERVIEW** *Literature Review*: C Flynn 2001:74
Not significant					
More among females					

Table 19.2.1.4a Sexual assertiveness/pushiness

Nature of difference			*Post-pubertal*		*Wide age range*
			Adolescent	*Adult*	
More male offenders			**MIDDLE EAST** *Turkey*: Ulubas et al. 2018:216 (ages 9–15, N = 482, (sexual harassment) **NORTH AMERICA** *Canada*: Stermac & Mathews 1987; *United States*: Feltey et al. 1991; Bergman 1992 (among dating couples); DR Carpenter et al. 1995; Foshee 1996 (among rural dating couples); Hand & Sanchez 2000 (sexual harassment)	**NORTH AMERICA** *United States*: Lott et al. 1982 (self-report); Sigelman et al. 1984:538 (undergrad, sexual coercion, self-reports); Pirog-Good & Stets 1989 (young); KM Ryan 1998:384* (undergrad, self-report); DA Hines & Saudino 2003 (self-report) **INTERNATIONAL** *Multiple Countries*: Gamez-Guadix, Straus & Hershberger 2011 ("verbal sexual coercion", undergrad, 32 countries, N = 13,877) **OVERVIEW** *Literature Review*: Davis & Leitenberg 1987	**NORTH AMERICA** *United States*: K Lane & Gwartney-Gibbs 1985 (among dating couples); Makepeace 1986 (among dating couples)
Not significant				**NORTH AMERICA** *United States*: Hogben & Waterman 2000 (undergrad)	
More female offenders					

Table 19.2.1.4b Sexual assertiveness/pushiness among non-humans

Nature of difference			*Post-pubertal*		
				Adult	
More among males				**PRIMATE** *Orangutan*: CD Knott et al. 2010 (sexually coercive)	
Not significant					
More among females					

19.2.1.5 Sexual Abuse of Children

A few studies were located having to do with sexual abuse of children regarding the sex of the offender. Table 19.2.1.5 shows that this type of behavior appears to be more common among males than among females.

Table 19.2.1.5 Sexual abuse of children

Nature of difference			*Post-pubertal*		*Wide age range*
				Adult	
More among males				**NORTH AMERICA** *United States*: Finkelhor et al. 1990; HN Snyder & Sickmund 1999 (arrests)	**NORTH AMERICA** *United States*: Sedlack & Broadhurst 1996
Not significant					
More among females					

19.2.1.6 Commission of Courtship and Intimate Partner Violence

Since the 1980s, considerable research has been undertaken on the subject of courtship violence and violence between intimate partners (e.g., spouses and romantic couples). The questions that have been addressed in many of these studies involve sex differences in perpetrating these violent acts. Table 19.2.1.6a indicates that there is no consistent overall pattern with respect to which gender is most likely to perpetrate courtship violence. This conclusion is noteworthy given that males tend to be more *physically* aggressive (Chapter 17) and are more involved in the commission of violent crime (earlier in the present chapter).

As noted in the above table, studies are very inconsistent regarding evidence of sex differences in the commission of intimate partner (or spousal) violence. This has led some researchers to investigate the possibility that sex differences may be present when attacks that result in minor

Table 19.2.1.6a Commission of courtship and intimate partner violence with significant injury

Nature of difference			*Post-pubertal*		*Wide Age Range*
			Adolescent	*Adult*	
More male offenders			**AFRICA** *South Africa*: Swart et al. 2002:389* (violent to the point of causing physical injury, dating) **NORTH AMERICA** *United States*: Feiring et al. 2002*	**AFRICA** *Nigeria*: Efoghe 1989 (intimate partner violence, d = .23) **ASIA** *India*: Kumagai & Straus 1983* (intimate partner violence: d = .16); *Japan*: Kumagai & Straus 1983* (intimate partner violence, d = .19); Nayak et al. 2003:339* (undergrad); *Korea*: Kim & Cho 1992 (intimate partner violence, d = .31) **EUROPE** *Britain*: R Chester & Streather 1972 **MIDDLE EAST** *Jordan*: Araji & Carlson 2001 (intimate partner violence, d = .16) **NORTH AMERICA** *Canada*: Byles 1978; *United States*: JE O'Brien 1971; D Martin 1976; Dobash & Dobash 1978; Stark et al. 1979; Saunders 1986 (intimate partner violence, excluding self-defense); White & Koss 1991* (undergrad, dating couples, self-report, at least minor injury sustained, 39%M vs 32%F, N = 2,105M + 2,602); Bachman & Saltzman 1995 (physical); Fee & Margolin 1995* (serious injury to victim); Tjaden & Thoennes 1998* (physical); Zlotnick et al. 1998 (physical); McCarroll et al. 2000; Melton & Belknap 2003 (intimate partner violence, based on calls to police); Nayak et al. 2003:339* (undergrad) **OVERVIEW** *Generalization*: Kurtz 1989 (~90%M)	**EUROPE** *Britain*: Dobash et al. 1992 (serious injury to victim) **NORTH AMERICA** *United States*: Stets & Straus 1990 (significant injury to victim); WG Goldberg & Tomlanovich 1994 (emergency room treatment for victim); Vivian & Langhinrichten-Rohling 1994; Perkins & Klaus 1996 **OCEANIA** *Australia*: Queensland Domestic Violence Task Force 1988
Not significant			**NORTH AMERICA** *United States*: O'Keefe et al. 1986 (dating couples); O'Keefe & Treister 1998; J Connolly et al. 2000:305 (self-report); Kaiser &	**ASIA** *India*: Nayak et al. 2003:339* (undergrad) **EUROPE** *Britain*: R West et al. 1990:479; K Graham et al. 2004:389* (as reported by females); *Ireland*: McKeown, Haase & Pratschke 2001 (intimate partner violence, d = .04, F>M) **LATIN/CARIBBEAN AMERICA** *Honduras*:	**NORTH AMERICA** *United States*: Cate et al. 1982 (dating couples); Laner & Thompson 1982 (dating couples); Deal & Wampler 1986* (dating couples); Makepeace 1986* (dating couples); P Burke et al. 1988

(*Continued*)

Table 19.2.1.6a (Continued)

Nature of difference			*Post-pubertal*		*Wide Age Range*
			Adolescent	*Adult*	
			Powers 2006 (dating violence, self-report)	Steinmetz 1981* (d = .02, M>F) **MIDDLE EAST** *Israel*: Steinmetz 1981* (d = .05, M>F); *Kuwait*: Nayak et al. 2003:339* (undergrad) **NORTH AMERICA** *Canada*: Brinkerhoff & Lupri 1988 (d = ,02, F>M); *United States*: Henton et al. 1983* (undergrad, dating couples); Sigelman et al. 1984 (undergrad, dating couples); Aries 1987; Gelles & Straus 1988; Marshall & Rose 1988; Rouse et al. 1988 (undergrad, dating couples); White & Koss 1991* (undergrad, dating couples, self-report, at least minor injury inflicted, 37%M vs 35%F, N = 2,105M + 2,602); Yllo & Straus 1991 (cohabitating couples, intersex violence); Follette 1992; Tontodonato & Crew 1992; J Schafer, Caetano & Clark 1998 (predominantly married couples, both offender & victim reports); McFarlane et al. 2000 (severity of intimate partner violence); Shook et al. 2000 (verbal, courtship violence, undergrad); Capaldi & Owen 2001 (marital violence); J Katz et al. 2002 (undergrad); McCarroll et al. 2004 (in the military); DJ Whitaker et al. 2007 (intimate partner violence) **OCEANIA** *New Zealand*: K Robertson & Murachver 2007* (severe interpersonal violence)	(dating couples); Arias & Johnson 1989 (dating couples); L Marshall & Rose 1990 (dating couples) **EUROPE** *Britain*: Nazron 1995 **NORTH AMERICA** *United States*: M Straus et al. 1974; Straus & Gelles 1986; McNeely & Robinson-Simpson 1987; O'Leary et al. 1989* (serious injury to victim); MA Straus & Gelles 1990 (intersex violence); Pan et al. 1994; CG Ellison et al. 2007:1102 **OVERVIEW** *Literature Review*: MA Straus 1999 (initiation of intimate partner violence)
More female offenders			**AFRICA** *South Africa*: Swart et al. 2002:389* (slapping & other minor violence, dating) **NORTH AMERICA** *United States*: Feiring et al. 2002*; Foshee 1996 (rural dating	**EUROPE** *Britain*: Carrado, George, et al. 1996 (heterosexual partner violence, d = .08); Theobald et al. 2016 (among cohabitating couples, self-report, 21.4%M vs. 39.6%F) **NORTH AMERICA** *United States*: Straus et al. 1980 (violence toward partner); ML Bernard &	**NORTH AMERICA** *United States*: Arias et al. 1987* (dating couples); DeMaris 1987 (dating couples) **EUROPE** *Britain*: Archer & Ray 1989 **NORTH AMERICA** *United States*:

			couples); Capaldi & Crosby 1997; Malik et al. 1997; O'Keefe 1997; Schwartz et al. 1997; Chase et al. 1998; Wekerle & Wolfe 1999; McNaughton Reyes, Foshee 2019:Table 1* (grades 8-10, both moderate & severe, N = 1,420; self-report)	Bernard 1983 (within the family generally); Henton et al. 1983* (young); Straus et al. 1980; Plass & Gessner 1983 (undergrad, dating couples); Sigelman et al 1984; K Lane & Gwartney-Gibbs 1985 (dating couples); Deal & Wampler 1986* (young); Makepeace 1986* (undergrad, self-defense); Straus & Gelles 1986 (violence toward partner or spouse); Arias et al. 1987*; Marshall & Rose 1987; Rouse et al. 1988; McNeely & Mann 1990; Riggs et al. 1990; M Clark et al. 1994 (undergrad, African-Americans); Fagan & Browne 1994 (young); Tjaden & Thoennes 1998* (frequent physical abuse); Archer 2000 (violence towards partner); Hamby & Turner 2013 (reports from offenders & victims) **OCEANIA** *New Zealand*: Magdol et al. 1997 (intimate partner violence, d = .25); Ehrensaft et al. 2004; K Robertson & Murachver 2007* (minor interpersonal assaults) **INTERNATIONAL** *Multiple Countries*: MA Straus 2008:259 (undergrad, both minor and severe interpersonal assaults)	O'Leary & Arias 1988; O'Leary et al. 1989* (minor injury to victim); McNeely & Mann 1990; Magdol et al. 1997 (minor injury or risk to victim)

injuries are separated from those that cause major injuries. The studies summarized in Table 19.2.1.6b show that most studies based on domestic violence with just minor injuries are committed by females.

Table 19.2.1.6b Commission of domestic violence with only minor injury to victim

Nature of difference			*Post-pubertal*		*Wide age range*
				Adult	
More male offenders					
Not significant				**NORTH AMERICA** *United States*: Caetano et al. 2005* (intact couples)	**NORTH AMERICA** *United States*: SB Sorenson et al. 1996:38
More female offenders				**EUROPE** *Britain*: K Graham et al. 2004:389* (slapped domestic partner) **LATIN/CARIBBEAN AMERICA** *Mexico*: MA Straus & Ramirez 2007* (undergrad) **NORTH AMERICA** *United States*: Fee & Margolin 1995 (violence with minimal injury to victim); Mervill & Hervig 1997 (minor injury); Caetano et al. 2005* (re-occurring); MA Straus & Ramirez 2007* (undergrad) **OVERVIEW** *Meta-Analysis*: Archer 2000 (d = .05)	

19.2.1.7 Commission of Domestic Violence (Spousal Violence) with Serious Injury

As shown in the table immediately above, domestic violence resulting in just minor injuries appear to be more often perpetrated by females than by males. Table 19.2.1.7 pertains to domestic violence in which at least one individual suffered serious injuries (i.e., injuries requiring a physician's attention). One can see that the evidence indicates that this form of domestic violence is mainly committed by males.

19.2.1.8 Commission of Non-violent Sexual Abuse

Most acts of non-violent sexual abuse involve close relatives such as a parent victimizing a child (or step-child). Typically, such acts are known as incest. While the research on sex differences were limited, Table 19.2.1.8 shows that the available evidence all indicates that males are more often involved in committing non-violent sexual abuse than are females. (A separate table on sex differences in being the *victim* of sexual abuse will be presented later in this chapter.)

Table 19.2.1.7 Commission of domestic violence (spousal violence) with serious injury

Nature of difference			*Post-pubertal*		
				Adult	
More among males				**LATIN/CARIBBEAN AMERICA** *Mexico*: MA Straus & Ramirez 2007* (undergrad) **NORTH AMERICA** *United States*: Makepeace 1983 (intimate partner violence with serious injury to victim); A Jones 1980 (death of victim); Jurik & Winn 1990 (death of victim); Stets & Straus 1990 (marital violence); Cantos et al. 1994; Vivian & Langhinrichsen-Rohling 1994; Morse 1995; MA Straus 1995 (partner violence); Merrill & Hervig 1997* (serious injury to victim); Tjaden & Thoennes 1998; Greenfield & Snell 1999; MA Straus & Ramirez 2007* (undergrad) **OVERVIEW** *Meta-Analysis*: Archer 2000 (d = .15)	
Not significant					
More among females					

Table 19.2.1.8 Commission of non-violent sexual abuse

Nature of difference			*Post-pubertal*		
			Adolescent	*Adult*	
More among males			**NORTH AMERICA** *United States*: Edinburgh, Saewyc & Levitt 2006:281 (victim not family members); McNaughton Reyes, Foshee 2019:Table 1* (grades 8-10, severe, 8%M vs. 4%F, N = 1,420; self-report)	**EUROPE** *Britain*: G Richardson et al. 1997	
Not significant					
More among females					

19.2.2 Involvement in Disruptive and Reckless Behavior

Some individuals, especially during childhood or adolescence, misbehave in ways that are extremely disruptive to others, such as parents, teachers, or classmates. While such behavior is not normally considered criminal, it often boarders on delinquency. Findings regarding sex differences appear in the tables below.

19.2.2.1 Misbehavior in School

Improper behavior or conduct in school is usually assessed by teachers. The research that was located was all based on studying school-aged children and adolescents. As shown in Table 19.2.2.1, studies have consistently indicated that the behavior of boys while in school is considered more unacceptable and disruptive than that of girls.

Table 19.2.2.1 Misbehavior in school

Nature of difference	*Pre-pubertal*		*Post-pubertal*		
		Child	*Adolescent*		
More among males		**NORTH AMERICA** *Canada*: Eiser et al. 1995b:430; *United States*: Hartley 1978; Medway & Egelson 1980; Clifton et al. 1986	**EUROPE** *Britain*: Warrington et al. 2000 **NORTH AMERICA** *United States*: WJ Myer & Thompson 1963 (teacher rated); RL Spaulding 1963 (teacher rated); PS Sears & Feldman 1966 (teacher rated); KE Miller et al. 2005:187		
Not significant					
More among females					

19.2.2.2 Recipient of Teacher Discipline or School Discipline

Many studies have compared males and females regarding being subjected to disciplinary action by teachers and/or by schools. These actions range from simply being talked to sternly, usually with the understanding that firmer measures will being taken if the behavior is repeated to being suspended and even expelled from school. By viewing Table 19.2.2.2, one can see that every study located has concluded that boys are more likely than girls to be disciplined by teachers or other school authorities. (Information on actual school suspensions and expulsions appear in the following table.)

19.2.2.3 Suspension/Expulsion from School

Studies that pertained to sex differences in being suspended from school are presented in Table 19.2.2.3. They all agree that males are more often suspended than females.

19.2.2.4 Traffic Violations and Speeding

Traffic violations include such offenses as running red lights and exceeding speed limits. Table 19.2.2.4 reveals that nearly all studies have concluded

Table 19.2.2.2 Recipient of teacher discipline or school discipline

Nature of difference	*Pre-pubertal*		*Post-pubertal*		*Wide age range*
		Child	*Adolescent*		
Male students receive more		**NORTH AMERICA** *United States*: Ullman 1952; Meyer & Thompson 1956; R Lippitt & Gold 1959; Spaulding 1963; PW Jackson & Lahaderne 1967; Serbin et al. 1973 (reprimands by teachers); Etaugh & Hughes 1975; LE Berk & Lewis 1977; Lietz & Gregory 1978; Minuchin & Shapiro 1983; D Smith 1991 (teachers of both sexes criticize/ correct male students more); KA Martin 1998:504	**EUROPE** *Britain*: Spender 1982; Delamont 1984; Croll 1985 **NORTH AMERICA** *United States*: Brophy & Good 1970; Irvine 1986; Omvig 1989 (teachers of both sexes criticize/correct male students more); Gregory 1996 (school discipline); Skiba, Peterson & Williams 1997 (middle schoolers, school disciplinary action); Skiba, Michael et al. 2002:327 (middle-schoolers, N = 11,001, referrals, suspensions, & expulsions)		**NORTH AMERICA** *United States*: McFadden, Marsh et al. 1992 (referals, K-grade 12); Imich 1994 (school discipline)
Not significant					
Female students receive more					

Table 19.2.2.3 Suspension/expulsion from school

Nature of difference			*Post-pubertal*		
			Adolescent		
More among males			**NORTH AMERICA** *United States*: MC Taylor & Foster 1986 (school suspensions); Shaw & Braden 1990 (suspensions & expulsions); S Cooley 1995 (suspensions); Costenbader & Markson 1998 (N = 620); Aalsma & Lapsley 2001 (ages 13–18, N = 101M + 73F); Skiba, Michael et al. 2002:327 (suspensions, & expulsions); Feliciano & Rumbaut 2005:1106 (among immigrant offspring); JD Finn & Servoss 2014:Table 4 (school suspension) **OCEANIA** *Australia*: Leder 1987; Bain & MacPherson 1990 (school suspensions)		
Not significant					
More among females					

Table 19.2.2.4 Traffic violations and speeding

Nature of difference		*Child*	*Post-pubertal*		*Wide age range*
			Adolescent	*Adult*	
More among males		**NORTH AMERICA** *United States*: Yagil 2000 (unsafe traffic behavior)	**NORTH AMERICA** *United States*: Rosenbloom et al. 2004 (road safety violations)	**NORTH AMERICA** *United States*: Sagatun 1989 (young); Retting et al. 1999 (having crashed after running a red light); CR Harris et al. 2006:53 (undergrad, N = 657)	**EUROPE** *Britain*: C Corbett 2007:249 (5:1 ratio); *Finland*: Mesken et al. 2002 **LATIN/CARIBBEAN AMERICA** *Chile*: EM Diaz 2002:173 (traffic safety) **NORTH AMERICA** *United States*: DM Harrington & McBride 1970 (controlled for miles driven); Koehler & Willis 1994; Blockey & Hartley 1995; Simon & Corbett 1996 (traffic rules); R Lawton et al. 1997; Aberg & Rimmo 1998; Yagil 1998 (traffic rule violations)
Not significant					**NORTH AMERICA** *United States*: Retting & William 1996 (disobeying stop signs/lights)
More among females					

that males are more likely than females to commit these offenses. The only exception involved disobeying stop signals, for which one study reported no sex difference.

19.2.2.5 Unsafe (Reckless) Driving in General

Research findings on sex differences in reckless driving (other than speeding) are shown in Table 19.2.2.5. One can see that all the studies suggest that such behavior is more common among males than among females.

19.3 Victim of Crimes and Near-Crimes

Especially since the 1980s, crime victimization has become a specialized area of study by criminologists. Consequently, the sex of victims of criminal behavior have been frequently reported. Sex differences in other forms of offending behavior, such as bullying and sexual harassment, have also been documented in the scientific literature.

19.3.1 Crime Victimization

Criminal victimization refers to individuals being intentionally injured or otherwise harmed by another individual. Large numbers of studies have compared males and females with respect to their rates of victimization.

19.3.1.1 Victim of Crime in General

Research findings on sex differences in crime victimization overall are presented in Table 19.3.1.1. As one can see, nearly all the available studies agree that males are more likely than females to be the victims of crime in general.

19.3.1.2 Victim of Infanticide

Infanticide refers to the intentional killing of infants. Typically, infanticide perpetrator are the infant's parents. Circumstances vary, but often involve unwed mothers abandoning their newborn, deformed offspring, or a desire for a boy rather than a girl (JC Caldwell & Caldwell 2006).

Two different types of evidence have been obtained pertaining to sex differences in infanticide victimization. One is evidence of an investigative nature, such as by law enforcement. The other is *inferential evidence*. Findings of these two types are presented here in separate tables. As shown in Table 19.3.1.2a, the evidence is mixed regarding investigative evidence of sex differences in infanticidal victimization.

Inferential evidence of sex differences in infanticide victimization has to do with looking for countries or other geographic regions in which an

Table 19.2.2.5 Unsafe (reckless) driving in general

Nature of difference			*Post-pubertal*		*Wide age range*
			Adolescent	*Adult*	
More among males			**AFRICA** *South Africa*: Flisher & Chalton 1995 (unsafe driving) **EUROPE** *Britain*: E Forsyth 1992 (reckless driving); *Denmark*: Arnett & Jensen 1994* (reckless driving); *Estonia*: Eensoo et al. 2007:313 (road racing) **MIDDLE EAST** *Turkey*: Özkan & Lajunen 2005 **NORTH AMERICA** *Canada*: J Rothe 1987 (reckless driving); *United States*: Ebbesen & M Haney 1973 (reckless driving); R Hagen 1975 (reckless driving); L Evans & Wasielewski 1983 (reckless driving); Wasielewski 1984 (reckless driving); D Elliot 1987 (reckless driving); L Evans 1991 (reckless driving); D Parker et al. 1992; Arnett & Jensen 1994* (reckless driving); Harre et al. 1996; Bina et al. 2006	**AFRICA** *Ethiopia*: Dessie & Larson 1991 (unsafe driving) **ASIA** *Malaysia*: Hartley, Ellis & Hoskin 2019:Table 3* (reckless driving & road racing, self-report) **NORTH AMERICA** *United States*: Hartley, Ellis & Hoskin 2019:Table 3* (reckless-driving & road racing, self-report)	**AFRICA** *Ghana*: Mock et al. 1999 (unsafe driving) **EUROPE** *Lithuania*: Motiejunaite-Timinskiene & Bulolaite 2012 (arrested for drunk driving) **NORTH AMERICA** *United States*: Ebbesen & Haney 1973 **OVERVIEW** *Meta-Analysis*: JP Byrnes, Miller & Schafer 1999 (risky driving, d = .29)
Not significant					
More among females					

Table 19.3.1.1 Victim of crime in general

Nature of difference			*Post-pubertal*		*Wide age range*
			Adolescent	*Adult*	
More among males			**EUROPE** *Britain*: J Warner et al. 2005* (criminal violence, 17th & 18th Century); **NORTH AMERICA** *United States*: Daigle et al. 2008	**EUROPE** *Britain*: J Warner et al. 2005* (criminal violence, 17th & 18th Century); Abe, Lebedev et al. 2021:Table 1 (ages 40–69, N = 8,432M + 9,488F)	**EUROPE** *Britain*: Estevez & Emler 2011:277 (adolescents & adults); *Germany*: Fetchenhauer & Rohde 2002; *Scotland*: Monaghan 1997:22; DJ Smith & Ecob 2007 **NORTH AMERICA** *United States*: Lebowitz 1975; Empey 1982:138; Warr 1984; Jensen & Brownfield 1986; Akers et al. 1987; Liska et al. 1988; Harlow 1991; Karmen 1991; Mayhew et al. 1993; Sacco et al. 1993; EJ Christiansen & Evans 2005 **OCEANIA** *Australia*: Fagan & Mazerolle 2011 **INTERNATIONAL** *Multiple Countries*: Kesteren et al. 2014 (16 countries)
Not significant				**NORTH AMERICA** *United States*: Jang 2007:537 (self-report, blacks)	
More among females					

Table 19.3.1.2a Victim of infanticide, investigative evidence

Nature of difference	*Prepubertal*	
	Infant	
More among males	**EUROPE** *Britain*: Marks & Kumar 1996* (newborn victim); Brookman & Nolan 2006:Table 1 (95M victims vs. 60F victims) **NORTH AMERICA** *United States*: Herman-Giddens et al. 2003 (N = 34, 58.8%M) **INTERNATIONAL** *Multiple Countries*: Lester 1991a:84 (40 countries)	
Not significant	**EUROPE** *Britain*: Marks & Kumar (25M vs. 20F); Marks & Kumar 1996* (infant victims more than a day old); *Croatia*: Marcikic 2006 (12M vs. 11F)	
More among females	**ASIA** *India*: Nath 1973 (victim of infanticide by parents, 19th Century); R Jeffery et al. 1984 (victim of infanticide by parents); Chunkath & Athreya 1997 (victim of infanticide by parents)	

unusually high rate of male-over-female births are being recorded. In Chapter 1, evidence was reviewed indicating that the secondary sex ratio in nearly all societies tends to favor males (i.e., usually in the range of 104 males for every 100 females). If one finds geographic regions where the secondary sex ratio is much higher than 104:100, one can reasonable suspect that an unusually high number of female infants are being killed. Table 19.3.1.2b indicates that at least in India, females may be either selectively killed soon after birth or aborted before birth than is the case for males.

Table 19.3.1.2b Victim of infanticide, inferential evidence

Nature of difference	*Prepubertal*	
	Infant	
More among males		
Not significant		
More among females	**ASIA** *India*: Sudha & Rajan 1999:Table 1 (especially in north-western India, sometimes including late-term abortions); Sahni, Verma et al. 2008 (inferred by noting increased proportions of boys being born after first child was a girl)	

19.3.1.3 Victim of Murder/Homicide (Except Infanticide)

A large number of studies have sought to determine if males or females are more likely to be the victims of murder. As shown in Table 19.3.1.3, nearly all of these studies have concluded that males have higher probabilities of being murdered than do females.

Table 19.3.1.3 Victim of murder/homicide (except infanticide)

Nature of difference	*Pre-pubertal*		*Post-pubertal*		*Wide age range*
		Child	*Adolescent*	*Adult*	
More among males			**AFRICA** *South Africa*: Flisher et al. 1992	**AFRICA** *South Africa*: Lerer 1992* **ASIA** *Russia*: Eckhardt & Pridemore 2009:Table 2 (court records, N = 225) **NORTH AMERICA** *United States*: Waldron 1982:73; AL Kellermann & Mercy 1992 (N = 215,273) **INTERNATIONAL** *Multiple Countries*: AV Lysova et al. 2012:458 (Russia, Ukraine & Belarus)	**AFRICA** *South Africa*: Southall 1960:217 (Alur tribe); Duflou 1986; Butchart & Brown 1991; Lerer 1992:95*; Byarugaba & Kielkowski 1994; Meel 2003; Seedat et al. 2009:1012 (7:1 ratio); *Mozambique*: Dgedge et al. 2001; *Uganda*: Mushanga 1970; *Various African Tribal Societies*: Bohannan 1967:219; Hewlett 1991:20 **ASIA** *Ceylon*: Jayewardene & Ranasinghe 1963; *China*: Yang, Lam et al. 2005:Table 2; *India*: Elwin 1943; Driver 1961; Rao 1968; *Russia*: Mesle et al. 1994; *Former Soviet Union*: Wasserman & Varnik 1998 **EUROPE** *Britain*: McClintock 1963:42; Hair 1971 (16th Century); Givern 1977 (13th Century); Hanawalt 1979:153 (14th Century); M Shaw et al. 2005 (from 1980-2000); *Denmark*: Svalastoga 1956; *Estonia*: Leinsalu et al. 2003:1085; *Finland*: Koskinen & Martelin 1994:1392; Martikainen 1995:365; *France*: Peyeferitte 1976; *Germany*: Sessar 1973; Stephan 1976; EA Johnson 1985; *Italy*: Preti & Miotto 2000 (1980-1994); *Netherlands*: van Dijk & Vianen 1978:17; *Portugal*: Ferreira de Castro et al. 1991; *Sweden*: von Hofer 1990:31 (19th Century) **LATIN/CARIBBEAN AMERICA** *Brazil*: J Murray et al. 2013 **NORTH AMERICA** *Canada*: Langevin & Handy 1987:411 (over 60%M); Maxim & Keane 1992 (1951-1986); Gartner 1995:200; D Lester 1994b; RE Mann et al. 2006:1745; *United States*: Brearley 1932:79; PE Enterline 1961:327 (death, among whites); Langberg 1967:2; Voss & Hepburn 1968:501; Statistical Bulletin of Metropolitan Life Insurance 1974:2 (1900-1970); Nathanson 1977:164 (16.8/100,000M vs. 4.0/100,000F); Shin et al. 1977:400; Verbrugge 1976:278; Shin et al. 1977:400; National Center for Health Statistics 1983; Tardiff 1985:632; Verbrugge 1985b:158; JA Mercy et al. 1986 (78%M); US Department of Justice 1988:28; TM Becker et al. 1990; Caputi & Russell 1990; Texas Department of Health 1990; Kellermann & Mercy 1992 (77%M); CR Block 1993:284; National Center for Health Statistics 1993; MD Smith & Kuchta 1995:669; Spergel 1995:108 (gang-related homicide); Geronimus et al. 1996; Andon 1997:25; Powell 1997; Kramarow et al. 1999; Rennison & Rand 2003; Kruger & Nesse 2004:Figure 2 **OCEANIA** *Australia*: A Wallace 1986; Day & Sherrard 1996:286 **INTERNATIONAL** *Multiple Countries*: Verkko 1967:38; Gartner et al. 1990:600; *Multiple Industrial Countries*: C Pritchard & Evans 2001:88
Not significant		**AFRICA** *South Africa*: N Abrahams et al. 2016:Table 2 (children under age 5, N = 454)			**EUROPE** *Sweden*: Ekman et al. 2007 (ages 1–20, victim of "fatal violence")
More among females					**EUROPE** *Italy*: Pollack 1950:80 (19th Century) **OCEANIA** *Australia*: Mouzos 1999:45 (resulting from domestic violence)

Most of the few exceptions have to do with child victims, where the evidence is mixed regarding any sex differences. In the case of adults and adolescent victims, one study found that victims of homicide during domestic disturbances were more likely to be females. Also, a Swedish study of victims under the age of 20 found no significant sex difference in homicide victimization. Finally, one study involving Italian data from the 1800s of homicide victims regardless of age and one study of domestic violence in Australia reported higher overall rates among female.

19.3.1.4 Victim of Violent Offenses Other than Murder (Non-sexual)

Findings pertaining to which sex is most likely to be the victim of physical assault or violent crime of a general or non-sexual nature appear in Table 19.3.1.4a. One can see that the findings are not entirely consistent but largely indicative of greater male than female victimization.

In a strictly legal sense, only humans can commit or be the victim of crime. Nevertheless, other animals commit and suffer the consequences of violence as are experienced by human crime victims (Ellis 1998). Sex differences in physical injury at the hands of another member of one's own species have been studied in at least one study. As shown in Table 19.3.1.4b, the study indicated that, among chimpanzees living in the wild, more males than females sustain injuries inflicted by other chimpanzees.

19.3.1.5 Victim of Property Crime

A few studies were located on sex differences in being the victims of property crimes. By examining Table 19.3.1.5, one can see that some studies have found that males are victimized more, while other studies have found that there is no significant sex difference.

19.3.1.6 Victim of Child Abuse/Neglect (Non-sexual)

Findings pertaining to sex differences in child abuse victimization appear in Table 19.3.1.6 (excluded from this table are instances of abuse of a sexual nature). One can see that the findings have been quite inconsistent regarding any sex differences.

19.3.1.7 Victim of Sexual Abuse

The differences between sexual assault (referenced in the preceding table) and sexual abuse are obviously a matter of degree, with sexual abuse being less severe. Another difference is that sexual abuse usually targets children and young adolescents rather than older adolescents and adults. As shown in

Table 19.3.1.4a Victim of violent offenses other than murder (non-sexual)

Nature of difference			*Post-pubertal*		*Wide age range*
			Adolescent	*Adult*	
More among males			**EUROPE** *Britain*: Hough & Mayhew 1983; Gottfredson 1984; Hough & Mayhew 1985; Shepherd 1990; *Netherlands*: Wiegman et al. 1983:208 **NORTH AMERICA** *Canada*: Moyer 1992:398; *United States*: US Department of Justice 1976:7; US Department of Justice 1977:5; Curtis 1977:165; Hindelang et al. 1978:188; Balkan 1979; Gordon et al. 1980:S145; Bowker 1981:161; RJ Simon 1981:35; Empey 1982:136; US Department of Justice 1988:27; Bureau of Justice Statistics 1991:18; Reiss & Roth 1993:69; Kingery et al. 1995:341; Kachur et al. 1996; Farrell & Bruce 1997; Fehon et al. 2001 (psychiatric patients); Snyder & Sickmund 2006 (juveniles, simple and aggravated assaults known to police) **INTERNATIONAL** *Multiple Countries*: van Dijk et al. 1991:49	**EUROPE** *Britain*: B Andrews et al. 2003:425; *Norway*: Thapa & Hauff 2005:81 (victims of torture, self-report, among immigrants) **NORTH AMERICA** *United States*: SP Taylor & Epstein 1967 (undergrad); MB Harris 1992 (undergrad)	**EUROPE** *Britain*: Shepherd 1990 (emergency room treatment); Mirlees-Black et al. 1996; *Sweden*: Engstrom et al. 2003 (children and adolescents, injuries); Hodgins et al. 2007 (self-report) **NORTH AMERICA** *United States*: Kruttschnitt 1994; Mustaine & Tewkasbury 2000 (violent crimes); Lauritsen & Heimer 2008; Mustaine & Tewksbury 2000 (violent crime); Lauritsen & Heimer 2008; Truman & Langton 2014; Truman & Langton 2015 **INTERNATIONAL** *Multiple Countries*: van Dijk et al. 1991:49; Kesteren et al. 2014* (16 countries) **OVERVIEW** *Meta-Analysis*: Tolin & Foa 2006:976
Not significant			**NORTH AMERICA** *United States*: Bensley et al. 1999		**NORTH AMERICA** *United States*: Truman & Rand 2011: Table 5; Truman & Morgan 2016; Morgan & Kena 2017
More among females			**EUROPE** *Finland*: Kantola, Norocel & Repo 2011 (school shootings victims) **NORTH AMERICA** *United States*: McCabe et al. 2002 (among delinquents; N = 513M + 112F)	**NORTH AMERICA** *United States*: Wechsberg et al. 1998 (drug addicts)	**NORTH AMERICA** *United States*: D Smith & Brewer 1992 (urban); Craven 1996; Marvell & Moody 1999; Rennison 1999 **INTERNATIONAL** *Multiple Countries:* J Gardner 1990

Table 19.3.1.4b Being the victim of violent offenses among non-humans

Nature of difference					*Wide age range*
More among males					**PRIMATE** *Chimpanzee*: KC Baker et al. 2000:167 (serious physical injury)
Not significant					
More among females					

Table 19.3.1.5 Victim of property crime

Nature of difference					*Wide age range*
More among males					**NORTH AMERICA** *Canada*: Keane & Arnold 1996:466; *United States*: Empey 1982:138; Snyder & Sickmund 2006 (juveniles, robberies known to police); Lauritsen & Heimer 2008 (stranger robberies)
Not significant					**NORTH AMERICA** *United States*: Schoepfer & Piquero 2009 (fraud victimization) **INTERNATIONAL** *Multiple Countries*: Kesteren et al. 2014* (16 countries, car theft, burglary, petty property crime)
More among females					

Table 19.3.1.7, while little research findings on sex differences in sexual abuse victimization were found, they all agree that females are victimized more.

19.3.1.8 Victim of Unwanted Sexual Contact/Intercourse

Research pertaining to which sex is most often the victim (or recipient) of unwelcomed sexual contact or intercourse is summarized in Table 19.3.1.8. Based on self-reports, the table indicates that findings have been inconsistent.

19.3.1.9 Victim of Coerced/Forced Sex

There are fine gradations in the degree of coercion that can be used to have sex with another person, especially when one considers both verbal and relational forms of coercion (as opposed to strictly physical coercion). The degree of illegality in these "milder" forms of coercion are also quite varied from one political jurisdiction to another.

Table 19.3.1.6 Victim of abuse/neglect (non-sexual)

Nature of difference	*Pre-pubertal*		*Post-pubertal*		*Wide age range*
	Infant/Toddler	*Child*	*Adolescent*		
More among males		**ASIA** *China*: So-Kum Tang 1998* **NORTH AMERICA** *United States*: MI Wilson et al. 1980* (abuse & neglect); Corliss et al. 2002:1170*	**EUROPE** *Lithuania*: Stoniene & Narkauskaite 2020 **OCEANIA** *Guam*: Pinhey & Millman 2004		**ASIA** *South Korea*: Chun 1989:157 (from birth through adolescence)
Not significant		**NORTH AMERICA** *United States*: Corliss et al. 2002:1170* (emotional abuse)			**EUROPE** *Sweden*: R Ekman et al. 2005:30 (ages 1–20, death due to violence) **OVERVIEW** *Literature Review*: Haskett, Marziano & Dover 1996:1179
More among females	**ASIA** *China*: So-Kum Tang 1998* **NORTH AMERICA** *United States*: MI Wilson et al. 1980* (abuse & neglect)		**NORTH AMERICA** *United States*: MI Wilson et al. 1980* (abuse & neglect)		**NORTH AMERICA** *United States*: US Department of Health and Human Services 1998 (by parents)

Table 19.3.1.7 Victim of sexual abuse

Nature of difference	*Pre-pubertal*		*Post-pubertal*		
		Child	*Adolescent*		
More among males					
Not significant					
More among females		**EUROPE** *Britain*: Cawson et al. 2000 **NORTH AMERICA** *United States*: Faller 1989	**EUROPE** *Sweden*: Edgard 1992		

Table 19.3.1.8 Victim of unwanted sexual contact/intercourse

Nature of difference			*Post-pubertal*		
				Adult	
More among males				**NORTH AMERICA** *United States*: Muehlenhard & Cook 1988 (undergrad)	
Not significant				**NORTH AMERICA** *United States*: Rouse 1988:316 (undergrad)	
More among females				**NORTH AMERICA** *United States*: Larimer et al. 1999:301 (undergrad, fraternity/sorority members)	

In any case, Table 19.3.1.9 provides a summary of research findings regarding sex differences in being victimized by relatively "mild" forms of coerced sex. As one can see, the vast majority of studies have concluded that females are more often the victims of coerced sexual intercourse than are males, although a couple of studies failed to identify any significant sex difference.

19.3.1.10 Victim of Rape or Sexual Assault

Table 19.3.1.10 pertains to victimization in which one is physically forced to have sex with an assailant. Sometimes, the assailant has a romantic relationship with the victim, in which case the offense is often termed *date rape* or *acquaintance rape*. Other times, the assailant may be unknown to the victim, thereby committing what is known as *stranger rape*. Of course, not all forms of rape are successful in the sense that penetration occurs. In these cases, the descriptive term often used is *attempted rape* (or *sexual assault*). As one can see, all the evidence agrees that most victims of rape or sexual assault are females.

Table 19.3.1.9 Victim of coerced/forced sex

Nature of difference	*Pre-pubertal*		*Post-pubertal*		*Wide age range*
		Child	*Adolescent*	*Adult*	
More among males					
Not significant			**ASIA** *China*: WCW Wong et al. 2004:473	**NORTH AMERICA** *United States*: Chadwick & Top 1993:62 (self-report)	
More among females		**AFRICA** *Ghana*: Erulkar 2004:185*	**AFRICA** *Ghana*: Erulkar 2004:185* **EUROPE** *Scotland*: D Wight et al. 2000 (adolescent) **NORTH AMERICA** *United States*: KA Moore et al. 1989; SM Jackson et al. 2000	**AFRICA** *Ghana*: Erulkar 2004:185* **EUROPE** *Britain*: Abe, Lebedev et al. 2021:Table 1 (sexual abuse, ages 40–69, N = 8,432M + 9,488F); *Germany*: Krahe, Schuster & Tomaszewska 2021 (undergrad, N = 417M + 755F, 37.5%M vs. 62.1%F); *Sweden*: Lottes & Weinberg 1997*; *Multiple European Countries*: Krahe, Berger et al. 2015 (ten countries, 27.1%M vs. 32.2%F) **NORTH AMERICA** *Canada*: O'Sullivan et al. 1998; *United States*: Poppen & Siegel 1988 (undergrad); Kalof & Wade 1995; Waldner-Haugrud & Magruder 1995; Hogben et al. 1996; Lottes & Weinberg 1997*; O'Sullivan et al. 1998 (undergrad); KM Ryan 1998:384 (young); Shrier et al. 1998 (young); Larimer et al. 1999:301; Menard et al. 2003 (undergrad); Struckman-Johnson 1988*; Harned 2001 (sexual aggression by dating partners, undergrad); Struckman-Johnson et al. 2003 (coerced) **OCEANIA** *Australia*: McConaghy & Zamir 1995 (medical students, self-report)	**MIDDLE EAST** *Turkey*: Schuster, Krahe & Toplu-Demirtas 2016 (ages 15+, undergrad, N = 1,376, 65.5%M vs. 77.6%F) **NORTH AMERICA** *United States*: Finkelhor et al. 1990 (victim report); Breiding et al. 2014 (23.4%M vs. 43.9F %F)

Table 19.3.1.10 Victim of rape or sexual assault

Nature of difference	*Pre-pubertal*		*Post-pubertal*		*Wide age range*
		Child	*Adolescent*	*Adult*	
More among males					
Not significant					
More among females		**AFRICA** *Ghana*: Erulkar 2004:185* **NORTH AMERICA** *United States*: Cappelleri et al. 1993; McCabe et al. 2002 (among delinquents)	**AFRICA** *Ghana*: Erulkar 2004:185* **EUROPE** *Britain*: Hartless et al. 1995:119; G Richardson et al. 1995 (& other sex offenses); Dolan et al. 1996 (& other sex offenses); *Sweden*: Langstrom & Lindblad 2000:118 (& other sex offenses) **NORTH AMERICA** *Canada*: E Saunders et al. 1986; *United States*: ER Hall & Flannery 1984; Fehrenbach et al. 1986; TJ Kahn & Chambers 1991; Bergman 1992; G Ryan et al. 1996; Lipschitz et al. 2000:352 (among psychiatric patients); Fehon et al. 2001 (psychiatric patients); Forbes & Adams-Curtis 2001:876	**AFRICA** *Ghana*: Erulkar 2004:185* **ASIA** *Japan*: Matsuda 2008 **EUROPE** *Britain*: B Andrews et al. 2003:425 (among victims of all violent crimes); Walby & Allen 2004; *Germany*: Krahe & Berger 2013 (undergrad) **LATIN/CARIBBEAN AMERICA** *Chile*: Schuster & Krahe 2019* (sexual assault, undergrad, N = 1,098, self-report) **MIDDLE EAST** *Turkey*: Schuster & Krahe 2019* (sexual assault, undergrad, N = 885, self-report) **NORTH AMERICA** *Canada*: Perreault & Brennan 2010; Conroy & Cotter 2017 (victim data); Rotenberg 2017 (police data); *United States*: Christenson & Gregg 1970; Groth & Burgess 1980:806 (calls to rape crisis center); Lott et al. 1982 (undergrad); Hall & Flannery 1984 (2%M vs. 12%F victimized); Sigelman et al. 1984:538 (undergrad); Makepeace 1986 (young); Calderwood 1987:53 (undergrad); Koss et al. 1987 (undergrad); Sandberg et al. 1987 (undergrad, by an acquaintance); Muehlenhard & Linton 1987 (undergrad, 25%M vs. 60%F, self-report); Sorenson, Stein et al. 1987 (self-report); Aizenman & Kelley 1988 (undergrad, by an acquaintance); Muehlenhard & Cook 1988 (undergrad); Struckman-Johnson 1988	**EUROPE** *Multiple European Countries*: DL Payne et al. 1999: 29-30* **NORTH AMERICA** *United States*: Kagan 1964:143; Murstein 1970:475; Smith 1974:188; Metzger 1976; Marcus 1977:44; Wetrogan 1988 (lifetime risk: 3.0%M vs. 17.8%F); DL Payne et al. 1999: 29-30*; Groth & Burgess 1980:806 (calls to police); Kaufman et al. 1980; Poppen & Segal 1988; Anonymous 1989; US Dept. of Justice 1989:297; R Bachman 1998 (victim survey); Pino & Meier 1999:985; Sorenson & Siegel 1992:96; Frazier 1993 (emergency room patients, 94.9%F); Wechsberg et al. 1998 (drug addicts); Breslau et al. 1999:816; N Riggs et al. 2000; HN Snyder

			(undergrad, physically forced by an acquaintance); Koss 1989; US Department of Justice 1989:267; L Ellis et al. 1990:1210 (undergrad, self-report); Koss 1990 (undergrad, self-report); MB Harris 1992 (undergrad); Hutchings & Dutton 1993 (mental health patients, 17%M vs. 42%F, self-report); Laumann et al. 1994:335; N McCormick 1994; JW White & Kowalski 1994; Kessler et al. 1995; Dekeseredy 1997 (undergrad, 16%F vs. 4%M); L Martin, Rosen et al. 1998 (self-report, military personnel); Tjaden & Thoennes 1998; Fish & Scott 1999; Larimer et al. 1999:301 (undergrad, fraternity/sorority members); Pino & Meier 1999:985; Tjaden & Thoennes 2000 (self-report, intimate partner rape); Rozee & Koss 2001; Breslau 2002; Kimerling et al. 2002:528 (persons seeking help at a rape crisis center); DM Elliott, Mok & Briere 2004:205 (N = 469M + 472F, 3.8%M vs. 22%F); RB Felson & Pare 2005 (general population); Wilke et al. 2005:90 (forced sex); L Ellis, Widmayer & Palmer 2009:Table 1 (undergrad, self-report, 12%M vs. 30%F); Felson & Cundiff 2011; Truman & Rand 2011 (victim data); DA Hines, Armstrong et al. 2012 (undergrad, self-report); Hamly & Turner 2013:331 **OCEANIA** *Australia*: McConaghy & Zamir 1995 (medical students, self-report, attempts)	2000:4; Tjaden & Thoennes 2006; Breiding et al. 2014 (lifetime rape risk, 0.5%M vs. 8.8%F)

19.3.1.11 Victim of Sexual Abuse in General (Excluding Sexual Assault Specifically)

Large numbers of studies have been undertaken to determine if there is a sex difference in sexual abuse victimization. Table 19.3.1.11 shows that nearly all these studies have concluded that females are victimized more than are males.

19.3.1.12 Victim of Spouse Abuse/Domestic Violence

As shown in Table 19.3.1.12, most research surrounding spousal abuse and domestic violence has concluded that females are more likely than males to be the victims, particularly when the resulting injuries are significant or severe.

19.3.2 Victim of Bullying and Non-criminal Aggression

Not all forms of victimization are the result of criminal behavior. For example, being a victim of bullying or of minor forms of aggression can be hurtful even though such behavior rarely violates any criminal statue. The following tables pertain to studies of sex differences in these forms of victimization.

19.3.2.1 Being Bullied in General

Bullying generally refers to repeated teasing or badgering someone in hurtful ways. Most acts of bullying occur among peers (persons of roughly the same age) and are particularly common among children and adolescents. Bullying can be physical, verbal, or via the internet, known as *cyberbullying*. Studies summarizing sex differences in bully victimization generally are shown in Table 19.3.2.1. One can see that most research indicates that more males than females are likely to be the victims of bullying.

19.3.2.2 Being Physically Bullied

Physical forms of bullying behavior include being pushed around or even beaten up by others. Table 19.3.2.2 shows that most studies have found males being more often physically bullied than are females, with a few studies reporting no significant sex differences.

19.3.2.3 Being Verbally Bullied

Verbal bullying involves persistently insulting and teasing someone, usually about their behavior or appearance. Inspecting Table 19.3.2.3 leads one to concluded that there appears to be no consistent evidence regarding sex differences in the tendency to be verbally bullied or teased.

Table 19.3.1.11 Victim of sexual abuse in general (excluding sexual assault specifically)

Nature of difference	*Pre-pubertal*		*Post-pubertal*		*Wide age range*
		Child	*Adolescent*	*Adult*	
More among males					
Not significant		**NORTH AMERICA** *United States*: Senn et al. 2006 (reported by adults attending a STD clinic, 47%M vs. 53%F)		**NORTH AMERICA** *United States*: DA Hines & Saudino 2003 (self-report); DM Johnson et al. 2003	
More among females		**NORTH AMERICA** *United States*: J Jason et al. 1982; Bergsmann 1989 (prisoners, as children); Finkelhor et al. 1990 (reported in adulthood); Trickett & Putnam 1993; Brenner 1994 (self-reported in adulthood); RJR Levesque 1994 (87M vs. 303F); CL Cooper et al. 1996*; Vogeltanz et al. 1999 (reported in adulthood); Briere & Elliot 2003 (reported as adults) **OCEANIA** *Australia*: G Martin et al. 2004:496	**EUROPE** *Britain*: G Richardson et al. 1997 **NORTH AMERICA** *Canada*: Stermac & Mathews 1987; Corrado et al. 2001 (juvenile offenders); *United States*: Finkelhor 1979; McCormack, Janus & Burgess 1986 (among home runaways); Viale-Val & Sylvester 1993 (among delinquents); DD Nelson et al. 1994; Gallup International Organization 1995; Worling 1995; CL Cooper et al. 1996*; PM Harrison et al. 1997; LS Bensley 1999a; LS Bensley 1999b; Cauce et al. 2000 (homeless youth); JA Hunter et al. 2000:87; KM McCabe, Lansing et al. 2002 (self-report, among delinquents); Edinburgh, Saewyc & Levitt 2006:281 (victim not family members); RJ Johnson et al. 2006 (homeless youth)	**LATIN/CARIBBEAN AMERICA** *Nicaragua*: Olsson et al. 2000:1583 **NORTH AMERICA** *United States*: CA Allen 1991 (among convicted sexual abusers, self-report, 36%M vs. 72%F); D Baker et al. 1998 (military); O'Sullivan et al. 1998 (undergrad); Wechsberg et al. 1998 (among substance abusers); BP Marx & Sloan 2003:1638 **OCEANIA** *New Zealand*: Flett et al. 2004 **OVERVIEW** *Literature Review*: Nolen-Hoeksema & Girgus 1994; Pelissier & Jones 2005 (among substance abusers)	**EUROPE** *Denmark*: McElroy, Shevlin et al. 2016 (lifetime, 85%F, N = 434); *Germany*: Perkonigg & Wittchen 1999; Perkonigg et al. 2000; *Sarajevo*: Rosner et al. 2003 (ethnic war) **MIDDLE EAST** *Turkey*: Buker & Erbay 2020 **NORTH AMERICA** *United States*: D Russell 1986 (incest); Finkelhor Hotaling et al. 1990 (16%M vs. 27%F, N = 1,145M + 1,481F); Finkelhor 1994; Breslau et al. 1997; Kaplan et al. 1999; Kessler 2000; Molnar et al. 2000; Breslau 2002

Table 19.3.1.12 Victim of spouse abuse/domestic violence

Nature of difference				*Post-pubertal*	*Wide age range*
				Adult	
More among males				**NORTH AMERICA** *United States*: Schafer et al. 1998 (self-reports, intact couples)	**NORTH AMERICA** *United States*: Gelles 1972; Straus 1986; Dobash & Dobash 1979
Not significant				**EUROPE** *Britain*: Home Office 1998 (self-reports) **NORTH AMERICA** *United States*: MA Straus & Gelles 1995; Straus 1999*	
More among females				**EUROPE** *Britain*: Worrall & Pease 1986 (sustained more injuries); Dobash & Dobash 1992 (domestic violence, death) **NORTH AMERICA** *United States*: MA Straus et al. 1980 (sustain more injuries); RA Berk et al. 1983* (sustain more injuries); Langan & Innes 1986 (sustain more injuries); MD Schwartz 1987 (sustain more injuries); Mercy & Saltzman 1989 (domestic violence, death); Bograd 1990; Stets 1990 (sustain more injuries); Stets & Straus 1990 (needing medical treatment); Cantos et al. 1994 (couples in counseling); JW White & Kowalski 1994 (domestic violence); Bachman & Saltzman 1995 (sustain physical injuries); Holtzworth-Munroe et al. 1995 (newlyweds); McCauley et al. 1995 (domestic violence, requiring medical treatment); Tjaden & Thoennes 1998 (sustain physical injuries); Zlotnick et al. 1998 (sustain physical injuries); Straus 1999* (sustain more injuries); Rennison & Welchans 2000 (self-report); Tjaden & Thoennes 2000 (arrests data); Avakame & Fyke 2001 (arrest data); Samuelson & Campbell 2005 **OCEANIA** *Australia*: Dal Grande et al. 2003:545 (domestic violence)	**NORTH AMERICA** *United States*: RA Berk et al. 1983*; SB Sorenson et al. 1996:38 **OCEANIA** *Australia*: GL Roberts et al. 1993 (hospital visits)

Table 19.3.2.1 Being bullied in general

Nature of difference	*Pre-pubertal*		*Post-pubertal*		
		Child	*Adolescent*		
More among males		**EUROPE** *Germany*: Scheithauer et al. 2006 (5th graders, N = 2,086); *Greece*: Andreou & Mettalidou 2004:33 (self-report); Andreou & Bonoti 2010:17; *Netherlands*: Kumpulainen et al. 1998 (N = 5,813) **NORTH AMERICA** *United States*: Grills & Ollendick 2002	**MIDDLE EAST** *Turkey*: Ulubas et al. 2018:216 **EUROPE** *Finland*: Lagerspetz et al. 1982 (13.7%M vs. 5.4%F, mainly physical bullying); Sijtsema et al. 2009:61 (N = 251M + 277F); *Netherlands*: Kumpulainen et al. 1999 (N = 1,268); Veenstra et al. 2005 (N = 2,230); *Spain*: Feijoo, O'Higgins-Norman et al. 2021:Table 2 (self-report) **NORTH AMERICA** *United States*: Nansel, Overpeck et al. 2001 (self-report); Klomek et al. 2007:43 (1,272M vs. 908F)		
Not significant			**EUROPE** *Germany*: Scheithauer et al. 2006 (N = 2,086); *Lithuania*: Jankauskiene et al. 2008:151 (N = 534M + 628F); *Netherlands*: Veenstra et al. 2005 (N = 2,230)		
More among females					

19.3.2.4 Being Bullied Online (Cyberbully Victimization)

A few studies were located having to do with being bullied online. As shown in Table 19.3.2.4, the evidence is mixed, with about half of the relevant studies indicating that females report being the victim of cyber-bullying more than do males.

19.3.2.5 Informing an Adult about Having Been Bullied

A few studies have been undertaken to determine if there is a sex difference in tendencies by victims of bullying to tell others or to seek help from others (such as parents or teachers). Table 19.3.2.5 shows that most studies have found females being more likely than males to tell an adult or to seek help from an adult if they are being bullied by peers.

19.3.2.6 Victim of Physical Aggression in General (Except Criminal)

Obviously, no sharp distinction can be made between forms of aggression that are criminal and those that are not. Nonetheless, noncriminal forms of physical aggression usually include scuffles and minor acts of assault in

Table 19.3.2.2 Being physically bullied

Nature of difference	*Pre-pubertal*		*Post-pubertal*		*Wide age range*
		Child	*Adolescent*		
More among males		**EUROPE** *Britain*: I Rivers & Smith 1994:363*; Eslea & Mukhtar 2000 (among Asian immigrants); *Finland*: Kumpulainen et al. 1999; *Germany*: Schafer et al. 2002 (older, peer-report); Von Marees & Peternon 2010:181 (N = 550); *Italy*: Baldry & Farrington 1999; *Netherlands*: Verkuyten & Thijs 2002:216 **NORTH AMERICA** *United States*: Sackin & Thelen 1984 (physical, by both sexes); Crick & Grotpeter 1996 (self-report); D Schwartz et al. 1997 (physical); Crick et al. 1999 (teacher report); PK Smith & Shu 2000	**EUROPE** *Britain*: Boulton & Underwood 1992; I Rivers & Smith 1994*; G Salmon et al. 1998; MJ Boulton et al. 1999*; *Finland*: Lagerspetz et al. 1982; Bjorkqvist et al. 1992; Kaltiala-Heino et al. 1999; *Germany*: Scheithauer et al. 2006 (N = 2,086); *Malta*: Borg 1998 (young); *Scotland*: Hunter et al. 2004 (young); *Sweden*: MJ Boulton et al. 1999* **MIDDLE EAST** *Israel*: Gofin et al. 2002:175; *Turkey*: Ulubas et al. 2018:216 **NORTH AMERICA** *Canada*: Le 2006; *United States*: I Whitney & Smith 1993; Galen & Underwood 1997* (older adolescents, by peers); Paquette 1997 (young); Crick & Bigbee 1998 (peer report); K Rigby 2000; Brunstein-Klomek et al. 2007:43 (1,272M vs. 908F)		**NORTH AMERICA** *United States*: Borg 1999; Seals & Young 2003
Not significant		**EUROPE** *Britain*: Young & Sweeting 2004*; *Spain*: Monks et al. 2002:466	**EUROPE** *Britain*: Young & Sweeting 2004*; *Italy*: Baldry & Winkel 2003 (self-report); *Switzerland*: Kuntsche & Klingemann 2004:387 **NORTH AMERICA** *United States*: Galen & Underwood 1997* (young, by peers)		
More among females					

Table 19.3.2.3 Being verbally bullied

Nature of difference	*Pre-pubertal*		*Post-pubertal*		
		Child	*Adolescent*		
More among males		**NORTH AMERICA** *United States*: DG Perry et al. 1988 (peer report); Crick & Bigbee 1998 (peer report); Crick et al. 1999 (teacher report); CER Phelps 2001 (by peers, self-report); Storch et al. 2003 (self-report)	**MIDDLE EAST** *Turkey*: Ulubas et al. 2018:216 **NORTH AMERICA** *United States*: Prinstein et al. 2001 (by peers, self-report); Rudolph 2002 (by peers, self-report); Storch & Esposito 2003 (self-report)		
Not significant		**EUROPE** *Britain*: Young & Sweeting 2004*; *Germany*: Von Marees & Peternon 2010:181 (N = 550) **NORTH AMERICA** *United States*: Sandstrom & Cillessen 2003	**EUROPE** *Britain*: Young & Sweeting 2004*; *Italy*: Baldry & Winkel 2003 (self-report) **NORTH AMERICA** *United States*: Grills & Ollendich 2002 (by peers, self-report); Storch et al. 2002 (young, self-report)		
More among females		**NORTH AMERICA** *United States*: NR Crick & Nelson 2002 (relational aggression victim) **OCEANIA** *Australia*: A Slater & Tiggemann 2011 (ages 12–16, N = 714, self-report, being teased about one's weight)	**EUROPE** *Finland*: Bjorkqvist et al. 1992; *Sweden*: Olweus 1991		

Table 19.3.2.4 Being bullied online (cyberbully victimization)

Nature of difference			*Post-pubertal*		
			Adolescent		
Males more			**MIDDLE EAST** *Turkey*: Ulubas et al. 2018:216		
Not significant			**EUROPE** *Spain*: Feijoo, O'Higgins-Norman et al. 2021:Table 3 (self-report) **NORTH AMERICA** *Canada*: Q Li 2006:163 (N = 130M + 134F); *United States*: Hinduja & Patchin 2008:141 (32.7%M vs. 36.4%F, self-report)		
Females more			**EUROPE** *Britain*: Slonje & Smith 2008:151 (self-report) **NORTH AMERICA** *Canada*: S Kim, Kimber et al. 2019:Table 1 (N = 4,940); *United States*: Kowalski & Limber 2007 (middle schoolers, N = 1,852M + 1,915F, 7.0%M vs. 15.1F%)		

Table 19.3.2.5 Informing an adult about having been bullied

Nature of difference			*Post-pubertal*		
			Adolescent		
More by males			**EUROPE** *Malta*: Borg 1998 (young)		
Not significant					
More by females			**EUROPE** *Britain*: S Sharp 1995; Cowie 2000 (self-report to others); D Glover et al. 2000; *Scotland*: Hunter & Boyle 2004 (young); Hunter et al. 2004:383 (young) **NORTH AMERICA** *Canada*: Q Li 2006:163 (cyberbullying, tell an aduls, N = 130M + 134F); Trach, Himel et al. 2016:120 (N = 4,792M + 4,605F) **OVERVIEW** *Literature Review*: S Hymel & Swearer 2015:294 (tell or seek help from an adult)		

which the victim suffers bruises, scratches, and cuts not needing professional medical attention. Such aggression is more common among children and adolescents as they interact with age-mates.

Table 19.3.2.6a shows that most studies have found males being more likely than females to be the victims of physical aggression. This even includes several experimental studies in which research participants are allowed to vary the amount of aggression they impose on others, usually in the form of electric shock.

Research findings pertaining to sex differences in being victimized by physical aggression among non-humans are presented in Table 19.3.2.6b. One can see that the findings are mixed with regard to sex differences in such victimization.

19.3.2.7 Victim of Relational Aggression

Relational aggression involves attempting to make someone's life unpleasant by withholding or withdrawing friendships. As shown in Table 19.3.2.7, about half of the studies have found females to be the recipient of this form of aggression more, while the remaining studies reported no significant sex differences.

19.3.2.8 Victim of Dating or Domestic Partner Violence

As shown in Table 19.3.2.8, research on dating violence has rather consistently concluded that females are more likely than males to have been physically victimized in a dating relationship. (Incidentally, dating violence that is of a sexual nature is not considered here; instead see *victim of sexual assault*.) A couple of exceptional studies failed to find statistically significant

Table 19.3.2.6a Victim of physical aggression in general (except criminal)

Nature of difference	*Pre-pubertal*		*Post-pubertal*		
		Child	*Adolescent*	*Adult*	
More among males		**NORTH AMERICA** *Canada*: Dhami et al. 2005 (low poverty schools); *United States*: McNeilly-Choque et al. 1996 (from peers); NR Crick et al. 1997 (from peers); Crick & Bigbee 1998; Crick et al. 1999; Crick & Nelson 2002 (by peers, self-report); A Russell et al. 2003* (from peers); Ostrov et al. 2004 (age 3); Ostrov & Keating 2004 (from peers); Thompson et al. 2004 (abuse) **OCEANIA** *Australia*: A Russell et al. 2003* (from peers)	**MIDDLE EAST** *Turkey*: Ulubas et al. 2018:216 **EUROPE** *Switzerland*: Kuntsche & Klingemann 2004:387 (hit by peers) **NORTH AMERICA** *United States*: Fitzpatrick & Boldizar 1993 (blacks); Hausman et al. 1994; Schwab-Stone et al. 1995; Lipschitz et al. 2000:352 (among psychiatric patients, assault); Springer & Padgett 2000:374; McNaughton Reyes, Foshee 2019:Table 1* (grades 8-10, severe, from peers, 22%M vs. 12%F, N = 1,420; self-report)	**NORTH AMERICA** *United States*: AH Buss 1966 (experimental, electric shock); SP Taylor & Epstein 1967; Youssef 1968 (experimental, electric shock); AH Buss 1971 (experimental, electric shock); WH Silverman 1971 (by both sexes, experimental); KS Larsen et al. 1972 (experimental shock study); L Levitt & Viney 1973 (by both sexes, experimental); Shope et al. 1978 (experimental); DR Richardson & Green 1999 (from both sexes, N = 56M + 57F, self-report); Pimlott-Kubiak & Cortina 2003 (long-term suffering); Basow et al. 2007 (undergrad, recall)	
Not significant			**NORTH AMERICA** *United States*: Cooley-Quille et al. 1995; Giaconia et al. 1995 (older); McNaughton Reyes, Foshee 2019:Table 1* (grades 8-10, moderate, from peers, 36%M vs. 36%F, N = 1,420; self-report)	**NORTH AMERICA** *United States*: AV Shack et al. 2004 (records obtained from psychiatric patients)	
More among females				**NORTH AMERICA** *United States*: A Jacobson & Richardson 1987 (among patients at a psychiatric clinic)	

Table 19.3.2.6b Victim of physical aggression in general among non-humans

Nature of difference				*Post-pubertal*	
				Adult	
More among males				**RODENT** *Gerbil*: HH Swanson 1974 (by mixed pair females) **PRIMATE** *Japanese Macaque*: TW Clark 1978	
Not significant					
More among females				**PRIMATE** *Chimpanzee*: Goodall 1986 (by males); *Spider Monkey*: LM Fedigan & Baxter 1984 (by males) **RODENT** *Rat*: Boice & Adams 1983 (intruder into an established group)	

differences between the sexes. If psychological abuse during courtship is considered, more males than females have been found to have been victimized.

19.3.2.9 Victim of Sexual Harassment (or Unwelcomed Sexual Overtures)

Sexual harassment refers to the tendency to make unwanted sexual advances toward someone (the victim). As shown in Table 19.3.2.9, the vast majority of studies have concluded that females are more often the victims of sexual harassments than are males. Two of the three exceptional findings had to do with same-sex sexual harassment instead of opposite-sex harassment.

19.3.2.10 Stalking Victim (Including Kidnapping)

A few studies have sought to determine if sex differences exist in tendencies to be stalked (including being kidnapped). As shown in Table 19.3.2.10, all the research that was located have concluded that such victimization is more common among females than among males.

19.3.2.11 Pressured to Have Sex

Pressuring someone to have sex can take many forms, ranging all the way from badgering and threatening to spreading rumors about them to using various types of physical force. Of course, when physical force is involved, mere "pressure" gives way to sexual assault and rape. Table 19.3.2.11 is largely concerned with forms of pressure that involve little use of physical force. One can see that nearly all the available research has indicated that females are more often the victims of pressure to have sex than are males.

Table 19.3.2.7 Victim of relational aggression

Nature of difference	*Pre-pubertal*		*Post-pubertal*		
	Infant/Toddler	*Child*	*Adolescent*	*Adult*	
More among males					
Not significant		**EUROPE** *Germany*: Schafer et al. 2002* (based on self-report) **NORTH AMERICA** *United States*: Phelps 2001 (self-report); Crick & Nelson 2002 (by peers, self-report)	**EUROPE** *Italy*: Baldry & Winkel 2003 **NORTH AMERICA** *United States*: Prinstein et al. 2001 (self-report)	**NORTH AMERICA** *United States*: Basow et al. 2007 (recollections about the past)	
More among females	**NORTH AMERICA** *United States*: Ostrov et al. 2004 (age 3)	**EUROPE** *Germany*: Schafer et al. 2002* (peer report) **NORTH AMERICA** *United States*: McNeilly-Choque et al. 1996 (from peers); NR Crick et al. 1997 (from peers); Crick & Bigbee 1998; Cricks et al. 1999 (teacher report); Harned 2001 (sexual, by dating partners, undergrad); A Russell et al. 2003* (from peers); Ostrov & Keating 2004 (from peers) **OCEANIA** *Australia*: A Russell et al. 2003* (from peers)			

Table 19.3.2.8 Victim of dating violence or domestic partner violence

Nature of difference			*Post-pubertal*		*Wide age range*
			Adolescent	*Adult*	
More among males			**NORTH AMERICA** *United States*: McNaughton Reyes, Foshee 2019:Table 1* (grades 8-10, severe, 7%M vs. 5%F, N = 1,420; self-report)	**NORTH AMERICA** *Canada*: Pederson & Thomas 1992 (undergrad, psychological abuse); *United States*: Kasian & Painter 1992 (undergrad, psychological abuse); Jenkins & Aube 2002 (overall dating violence)	
Not significant			**NORTH AMERICA** *United States*: McNaughton Reyes, Foshee 2019:Table 1* (grades 8-10, moderate, 14%M vs. 14%F, N = 1,420; self-report)	**EUROPE** *Britain*: R West et al. 1990:479 (undergrad) **NORTH AMERICA** *United States*: Harned 2001 (undergrad, excluding sexual violence); J Katz et al. 2002 (undergrad); Schumacher & Leonard 2005 (spousal aggression) **OCEANIA** New Zealand: Magdol et al. 1997; Robertson & Murachver 2007:645	**OVERVIEW** *Meta-Analysis*: Archer 2000* (overall)
More among females			**AFRICA** *South Africa*: Swart et al. 2002:389 **NORTH AMERICA** *United States*: Foshee 1996* (sustained physical injuries); Capaldi & Crosby 1997	**NORTH AMERICA** *United States*: Plass & Gressner 1983 (young); K Lane & Gwartney-Gibbs 1985 (young, sustained more injuries); Deal & Wampler 1986 (young); Makepeace 1986:386 (serious violence); FS Christopher et al. 1993 (undergrad, to gain sexual access); Foshee 1996* (sustain more injuries); Greenfield et al. 1998; SM Jackson et al. 2000 (physical aggression from a dating partner); J Katz et al. 2002 (undergrad, to gain sexual access); CA Field & Caetano 2005 (severe violence, self-report)	**NORTH AMERICA** *United States*: Makepeace 1986 (sustained physical injuries); Stets & Pirog-Good 1987 (sustained physical injuries); Stets & Pirog-Good 1989 (sustained physical injuries) **OVERVIEW** *Literature Review*: Saunders 2002 (sustaining psychological distress); *Meta-Analysis*: Archer 2000* (severe)

Table 19.3.2.9 Victim of sexual harassment (or unwelcomed sexual overtures)

Nature of difference			*Post-pubertal*		
			Adolescent	*Adult*	
More among males			**MIDDLE EAST** *Turkey*: Ulubas et al. 2018:216 (ages 9–15, N = 482, (sexual harassment)	**NORTH AMERICA** *United States*: Waldo et al. 1998 (by the same-sex); Foote & Goodman-Delahunty 1999 (by the same-sex)	
Not significant					
More among females			**EUROPE** *Britain*: Hartless et al. 1995:119; VE Lee et al. 1996; Stratton & Backes 1997; Kopels & Dupper 1999; *Norway*: Pedersen, Bakken et al. 2022 (online sexual victimization, N = 4,580 + 5,245F) **NORTH AMERICA** *United States*: Hand & Sanchez 2000 (self-report) **OCEANIA** *New Zealand*: Jackson et al. 2000	**ASIA** *China*: CS Tang et al. 1996 (undergrad); Shi & Zheng 2022 (N = 898, 52.5%M vs. 57.9%F) **NORTH AMERICA** *Canada*: Runtz & O'Donnell 2003:969 (undergrad); *United States*: J Carlson 1976 (among married couples); Adams et al. 1983 (undergrad); Reilly et al. 1986; Fain & Anderton 1987 (at work); LF Fitzgerald et al. 1988*; Muehlenhard & Cook 1988; Schafer 1990 (among military personnel, 17%M vs. 66%F); JG Beck et al. 1991 (undergrad); LF Fitzgerald & Ormerod 1991 (undergrad); Culbertson & Rosenfeld 1994 (among military personnel); Sprecher et al. 1994; US Merit Systems Protection Board 1995; RC Katz et al. 1996 (undergrad); Lottes & Weinberg 1996 (undergrad); O'Sullivan & Allgeier 1998 (among dating couples); Rosen & Martin 1998 (among military personnel); KM Ryan 1998 (undergrad, sexual victimization); Shepela & Levesque 1998 (undergrad); Stockdale 1998:528; Magley et al. 1999 (military personnel); Rosen & Martin 2000 (among military personnel); Kalof et al. 2001:296; Lipari & Lancaster 2003 (among military personnel); Menard et al. 2003 (undergrad) **OCEANIA** *Australia*: McConaghy & Zamir 1995	

Table 19.3.2.10 Stalking victim

Nature of difference			*Post-pubertal*		*Wide age range*
				Adult	
More among males					
Not significant					
More among females				**NORTH AMERICA** *United States*: Patton 1994 (stalking); De Becker 1997 (stalking); Tjaden & Thoennes 1998 (stalking); Pimlott-Kubiak & Cortina 2003 (stalking); Fox et al. 2009 (stalking)	**NORTH AMERICA** *United States*: Snyder & Sickmund 2006 (kidnapping victims known to police) **OVERVIEW** *Literature Review*: Tjaden & Thoennes 2000

19.3.3 Residual Forms and Aspects of Victimization

A few additional forms of victimization have been studied with reference to sex differences. The findings are summarized below.

19.3.3.1 Being the Victim of Peer Pressure

A couple of studies sought to determine if males or females were more likely to experience peer pressure to become sexually active. As shown in Table 19.3.3.1, both studies indicated that males reported more pressure than did females.

19.3.3.2 Being the Victim of Job Discrimination

Job discrimination refers to the tendency of employers to give hiring preferences to people based on race, sex, religion, or some other demographic characteristics. One study, cited in Table 19.3.3.2, reported that females experienced more job discrimination than was the case for males.

19.3.3.3 Relationship between Victimization and Poor Health

Research findings having to do with sex differences in any adverse relationship between victimization and ill health are provided in Table 19.3.3.3. One can see that the relationship appears to be stronger for females than for males.

Table 19.3.2.11 Pressured to have sex

Nature of difference			*Post-pubertal*		
			Adolescent	*Adult*	
More among males					
Not significant			**NORTH AMERICA** *United States*: McNaughton Reyes, Foshee 2019:Table 1 (grades 8-10, 9%M vs. 10%F, N = 1,420, self-report)		
More among females			**NORTH AMERICA** *United States*: Erickson & Rapkin 1991 (sexual coercion victim); Brenner 1994 (sexual coercion victim)	**NORTH AMERICA** *United States*: Koss et al. 1987 (undergrad, sexual redomin); Sandberg et al. 1987 (sexual coercion victim, undergrad); Aizenman & Kelley 1988 (undergrad); Muehlenhard & Cook 1988 (sexual coercion victim, undergrad); Poppen & Segal 1988 (sexual coercion victim, undergrad); Rouse 1988:316 (undergrad, verbally pressured); Bergman 1992 (victim of pushy sexual behavior); Aizenman & Kelley 1988 (sexual coercion victim, short of intercourse, undergrad); Lottes 1991 (undergrad); Sorenson & Siegel 1992 (sexual coercion victim); Hogben et al. 1995 (undergrad, sexual coercion); Byers & O'Sullivan 1998:156 (sexual coercion victim); O'Sullivan et al. 1998 (sexual coercion victim, undergrad); Spitzberg 1999 (undergrad, sexual coercion); Pimlott-Kubiak & Cortina 2003 (suffer from sexual violence)	

Table 19.3.3.1 Being the victim of peer pressure

Nature of difference			*Post-pubertal*		
			Adolescent	*Adult*	
More among males			**NORTH AMERICA** *United States*: De Gaston, Weed & Jensen 1996 (to have sex, N = 1,800)	**NORTH AMERICA** *United States*: Muehlenhard & Cook 1988 (to have sex, undergrad)	
Not significant					
More among females					

Table 19.3.3.2 Being the victim of job discrimination

Nature of difference			*Post-pubertal*		
				Adult	
More among males					
Not significant					
More among females				**EUROPE** *Spain*: Borrell et al. 2010:89 (self-report)	

Table 19.3.3.3 Relationship between victimization and poor health

Nature of difference			*Post-pubertal*		
			Adolescent	*Adult*	
Greater among males					
Not significant					
Greater among females			**EUROPE** *Greenland*: T Curtis et al. 2002* (childhood sexual abuse victims)	**EUROPE** *Greenland*: T Curtis et al. 2002* (childhood sexual abuse victims); *Denmark*: Sundaram et al. 2004 (assault victims)	

20 Education, Work, Social Status, and Territorial Behavior

This chapter will review an immense amount of scientific research on sex differences in work and work preparation. In addition, the formation of social status hierarchies, status-striving, status achievement, and the acquisition of territories will be covered. Overall, the behavioral traits covered in this chapter pertain to how individuals access resources and make a living.

20.1 Education and Preparation for Work

For humans, especially those living in industrial societies, education plays a central role in preparing for productive labor. This section will review evidence of sex differences in education.

20.1.1 Overall Academic Effort

People vary a great deal in terms of the efforts they make in school. These efforts manifest themselves in terms of the time they spend paying attention in class and regularly doing homework assignments. Findings regarding sex differences in these various forms of academic effort are reviewed below.

20.1.1.1 Paying Attention in Class

One obvious indicator of academic effort involves paying attention in class. Studies of sex differences in this regard are summarized in Table 20.1.1.1. It indicates that, on average, most studies have concluded that girls pay attention in academic settings to a greater degree than do males.

20.1.1.2 Regular Class Attendance

Several studies of sex differences in regular class attendance have been conducted among college students. In Table 20.1.1.2, one can see that all studies agree that females are more regular in attending than are males.

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Table 20.1.1.1 Paying attention to details rather than to general patterns when learning

Nature of difference	*Pre-pubertal*		*Post-pubertal*	
	Child		*Adolescent*	
More among males				
Not significant	**EUROPE** *Germany*: Krombholz 2006:480 (attending physical education classes)			
More among emales	**EUROPE** *Britain*: JD Cummings 1944 (paying attention in school, teacher ratings) **NORTH AMERICA** *United States*: Eisenberg et al. 2001 (maintaining attention)		**NORTH AMERICA** *United States*: Farkas et al. 1990 (paying attention in class); S Kim 2003; Geary, Hoard & Nugent 2021 (8th graders, N = 159M + 173F, d = .34)	

Table 20.1.1.2 Regular class attendance

Nature of difference			*Post-pubertal*	
			Adult	
More among males				
Not significant				
More among females			**EUROPE** *Britain*: Hovell et al. 1979 (undergrad, class attendance); Lamdin 1996 (undergrad, class attendance); Lamdin 1998 (undergrad, class attendance); Zwick 2002:151 (undergrad, attend classes more); Farsides & Woodfield 2003 (undergrad, class attendance); Woodfield, Jessop & McMillan 2006:6 (undergrad, N = 308M + 323F) **NORTH AMERICA** *United States*: Wainer & Steinberg 1992 (undergrad); Romer 1993 (undergrad, attend class more regularly)	

20.1.1.3 Truancy

In most countries, children and young adolescents are legally required to attend school regularly, at least up to the early teenage years. Those who skip school are known as *truants* (except for absences excused due to illness or family emergencies). Studies of sex differences in truancy are shown in Table 20.1.1.3. One can see that most of these studies have concluded that school truancy is more common among males.

Table 20.1.1.3 Truancy

Nature of difference	*Pre-pubertal*		*Post-pubertal*		
		Child	*Adolescent*		
More among males		**EUROPE** *Britain*: M Wadsworth 1986	**EUROPE** *Britain*: Woodfield et al. 2006 (recollections by undergrad students); *Ireland*: Darmody, Smyth & McCoy 2008 (ages 12-18, N = 5,344); Slovakia: Pitel et al. 2012:1124 (6.9%M vs. 5.4%F, N = 1,789M + 1,885F) **NORTH AMERICA** *United States*: HD Williams 1927; Garry 1996; Silliker & Quirk 1997:290; Puzzanchera et al. 2003; Cammarota 2004 (immigrants from Latin American countries)		
Not significant			**NORTH AMERICA** *United States*: SE Gump 2004 (recollections by undergrad students, N = 18M + 20F); Balsa, Giuliano & French 2011:Table 1 (N = 2,049M + 2,243F) **INTERNATIONAL** *Multiple Countries*: Steketee, Junger & Junger-Tax 2013:Table 1		
More among females					

20.1.1.4 Time Spent Studying and Doing Homework

A substantial amount of research has been undertaken to determine if males or females exert more effort to learn while in an academic setting. As shown in Table 20.1.1.4, without exception, research has concluded that females spend more time studying and doing homework assignments than do males.

20.1.1.5 Quality of Study Skills

Some research has sought to assess sex differences in the quality of individual's study skills. As one can see in Table 20.1.1.5, the findings have not been consistent regarding any sex differences. The inconsistencies may be partly due to difficulties precisely measuring what constitutes "good study skills."

20.1.2 Years of Education

Some studies of sex differences are based on entire populations in a country, rather than being based on samples. This is particularly true of studies to be reviewed in this section. When entire populations are studied, sampling error is no longer an issue. For these population-wide studies, therefore, when differences between males and females exceeded 5%, a "significant" difference was declared; otherwise, differences were considered "not significant."

Table 20.1.1.4 Time spent studying and doing homework

Nature of difference			*Post-pubertal*		
			Adolescent	*Adult*	
More among males					
Not significant					
More among females			**ASIA** *Singapore*: Liu 2005 (academic effort) **EUROPE** *Britain*: *Britain*: CG Rogers et al. 1998; Walters 1998; B Francis 2000; Mau & Lynn 2000; *Norway*: Undheim & Nordwik 1992:95; Storvoll & Wichstrom 2002:189 (self-report); *Slovenia*: Peklaj & Pecjak 2002; *Spain*: Hernando et al. 2013 (N = 1,068M + 1,232F) **MIDDLE EAST** *Israel*: Tamir 1985b; Tamir 1988 **NORTH AMERICA** *United States*: Perry 1929; EA Adams 1936 (time in libraries); JC Flanagan et al. 1964; Marini 1974; Marini 1978:494; BA Jacob 2002:592 (doing homework); Downey & Vogt Yuan 2005; Duckworth & Seligman 2006:204 (d = .71, N = 140) **OCEANIA** *Australia*: Martin 2004 (effective learning strategies, more focused on studies); Schober et al. 2004 (among gifted students)	**EUROPE** *Britain*: Rudd 1984 (undergrad); Mellanby et al. 2000 (undergrad); *Netherlands*: A Hofman & van den Berg 2000 (undergrad) **NORTH AMERICA** *United States*: Veldman 1968 (undergrad, study more); CJ Striker et al. 1993 (undergrad, study more); Astin et al. 1995 (doing homework, undergrad); Ablard & Lipschultz 1998; Wintre & Yaffe 2000 (undergrad)	

Table 20.1.1.5 Quality of study skills

Nature of difference	*Pre-pubertal*		*Post-pubertal*		
		Child		*Adult*	
More among males				**EUROPE** *Britain*: Sadler-Smith 1996* (undergrad, deep approach)	
Not significant				**ASIA** *China*: Sadler-Smith & Tsang 1998 (undergrad, Hong Kong) **EUROPE** *Britain*: JT Richardson 1993 (undergrad); Duff 2002 (undergrad) **OCEANIA** *Australia*: Watkins 1982 (undergrad); RM Clarke 1986 (medical undergrad); KL Wilson et al. 1996 (undergrad)	
More among females		**NORTH AMERICA** *United States*: Stroud & Lindquist 1942		**EUROPE** *Britain*: Sadler-Smith 1996* (undergrad, surface approach)	

20.1.2.1 Years of Education in General

Findings from the large number of studies on sex differences in years of education are summarized in Table 20.1.2.1. One can see that findings are extremely inconsistent, with more studies indicating that males receive more education than do females amidst many studies reporting no significant differences. More information on years of education is presented in subsequent tables having to do with both attending and completion of various grade levels.

20.1.2.2 Individual Variability in Years of Education

One study was located having to do with sex differences in individual variability in the average years of education received. Table 20.1.2.2 shows that this study concluded that males exhibited greater variability than did females.

20.1.2.3 Attending Primary School

Investigations regarding sex differences in having attended primary school are summarized in Table 20.1.2.3. One can see that the findings are primarily split between those indicating that males are more likely to have attended primary school to studies reporting no significant sex differences. The one study to report higher attendance among females was conducted in the United States.

20.1.2.4 Completion of Primary School

A few studies were located regarding sex differences in the completion of primary school. Table 20.1.2.4 shows that the findings are not consistent, although the age of individuals seem to be related to the findings.

20.1.2.5 Attending Secondary School

Results from studies of sex differences in years of education beyond elementary school are shown in Table 20.1.2.5. It shows that the evidence is quite inconsistent regarding any significant sex differences in this regard.

20.1.2.6 Graduating from High School

Many studies have compared the sexes with respect to individuals being high school graduates (as opposed to so-called *high school dropouts*). As shown in Table 20.1.2.6, these studies provide a mixed picture

Table 20.1.2.1 Years of education in general

Nature of difference	*Pre-pubertal*		*Post-pubertal*		*Wide age range*
		Child	*Adolescent*	*Adult*	
More among males		**LATIN/ CARIBBEAN AMERICA** *Guatemala*: Gorman & Pollitt 1992; Stith et al. 2003:622		**AFRICA** *Cameroon*: Fezeu et al. 2006:108 (N = 1,301M + 1,530F); *Egypt*: Knodel & Jones 1996; *Ghana*: Fentiman et al. 1999; *Multiple Sub-Saharan Countries*: Odaga & Heneveld 1995 **ASIA** *Bangladesh*: Ruback et al. 2002:108*; *China*: X Wei et al. 1999:174; Anson & Sun 2002:1047*; PH Brown & Park 2002:527 (rural); Yi et al. 2003 (elderly); Shu 2004:332 (average: 8.62M vs. 6.97F); *India*: Sohoni 1998; Grover et al. 2003:4; Mathuranath et al. 2003:1059 (elderly); Raina et al. 2003:184; *Pakistan*: Ruback et al. 2002:108*; *South Korea*: Jeon, Jang et al. 2007:S336 (elderly); *Taiwan*: Hsu 2005:11 (elderly); *Thailand*: Sobieszczyk et al. 2003 (elderly); *Multiple Asian Countries*: Seguino 2000* **EUROPE** *Estonia*: Neinsalu et al. 2004:587* (persons over 50); *France*: Dufouil et al. 1997:407 (among older adults, 11.3M vs. 10.3F, N = 574M + 815F); *Germany*: J Smith & Baltes 1998 (elderly); Lotze, Domin et al. 2019:Table 3 (ages 21-90, N = 2,838); *Multiple European Countries*: D Weber, Skirbekk et al. 2014:11676 **LATIN/CARIBBEAN AMERICA** *Brazil*: Barreto et al. 2004:112 (elderly) **MIDDLE EAST** *Israel*: Y Cohen & Haberfeld 1998; *Saudi Arabia*: Amin, Khoudair et al. 2012:Table 1 (N = 2,176); *Turkey*: Temur 1971; *Multiple Arab Countries*: P Mansfield 1985:496; Tansel 2002; Dayioglu 2004; Dayioglu & Turut-Asik 2007:256 **NORTH AMERICA** *Canada*: V Walters et al. 2002:683; Prus & Gee 2003:307 (elderly); M Denton, Prus & Walters 2004:2591 (N = 60,000, 13.11M vs. 12.83F); Bourque et al. 2005 (elderly); *United States*: CW Mueller 1980:147; Sewell, Hauser & Wolf 1980:Table 3 (N = 3,411 + 2,620F, 13.8M vs. 12.99F); Verbrugge 1989:287; Nopoulos, Flaum et al. 2000:Table 1 (N = 42M + 42F); M Elliott 2001:169; Charles & Luoh 2003:561* (by age 25, 1936-1954); Stranges et al. 2004:951 (middle age/elderly); Berg & DeLisi 2006:637 (among prisoners); Franklin, Schlundt et al. 2007:Table 2; Swann et al. 2009 **OCEANIA** *Papua New Guinea*: Ulijaszek 2003:325 (averages: 6.1M vs. 5.0F) **INTERNATIONAL** *Multiple Countries*: Dixon 1975; Papanek 1985; Blossfeld & Shavit 1993* (in 9/13 countries); PT Schultz 1993; Maylor et al. 2007:239* (ages 30 to 65); *Multiple Developing Countries*: Barro & Lee 1993:390; E King & Hill 1993	**AFRICA** *Kenya*: Kiriti & Tisdell 2005:500; *Nigeria*: Egbo 2000:7; *South Africa*: Mwabu & Schultz 2000:311; *Multiple Sub-Saharan Countries*: Odaga & Heneveld 1995 **MIDDLE EAST** *Turkey*: Dayioqlu et al. 2009:400 **NORTH AMERICA** *United States*: Albrecht & Heaton 1984:50; Winkleby et al. 1992:817; Kuo & Hauser 1996:127; Kuo & Hauser 1997 **OCEANIA** *Indonesia*: Deolalikar 1993 **INTERNATIONAL** *Multiple Countries*: Barro & Lee 2001:Table 5; Thevenon & del Pero 2015:14* (30 OECD countries in 1960)

Not significant				**ASIA** *China*: Anson & Sun 2002:1044; *Japan*: O'Reilly 1983:69*; *Vietnam*: Mooch et al. 2003:506; *Multiple Southeast Asian Countries*: MJ Grant & Gehrman 2010 (1990-1999: 7.7M vs. 7.6F; 2000-2006: 8.3M vs. 8.7F) **EUROPE** *Britain*: Rahman et al. 2012:Table 1; *Finland*: Koivusilta et al. 1998:787; *Netherlands*: Fetchenhauer & Buunk 2005:102; *Norway*: Mastekaasa 2005; *Sweden*: Hultin & Szulkin 1999:463 (among full-time workers); Thilers et al. 2006:Table 2 (N = 1,107M + 1,276F) **LATIN/CARIBBEAN AMERICA** *Mexico*: Santibanez et al. 2005; Creighton & Park 2010 **MIDDLE EAST** *Israel*: Leviatan et al. 1976; G Kaplan et al. 2010:933 **NORTH AMERICA** *Canada*: J McIntosh 1998:457; Drolet 2002:5 (among full-time workers); Juster, Raymond et al. 2016:Table 1 (N = 60M + 144F; 16.4M vs. 16.5F); *United States*: Marini 1978b:494; Behrman & Taubman 1986:S136; Santelli et al. 2000:1584; Koscik, O'Leary et al. 2009:Table 1 (adult, N = 38M + 38F, 111M vs. 111F) **OCEANIA** *Australia*: Cherbuin et al. 2008:Table1; *Philippines*: Seguino 2000* **INTERNATIONAL** *Multiple Countries*: Maylor et al. 2007:239* (ages 20-29)	**ASIA** *China*: Anson & Sun 2002:1044*; *Japan*: O'Reilly 1983:69* **EUROPE** *Norway*: Mastekaasa 2005 **NORTH AMERICA** *United States*: England & Browne 1992:34; LB Dixon et al. 2000:550 (Hispanics); Berggren 2006 **INTERNATIONAL** *Multiple Countries*: Thevenon & del Pero 2015:14* (30 OECD countries in 2010)
More among females			**NORTH AMERICA** *United States*: Rumbaut 2005 (offspring of immigrants)	**EUROPE** *Estonia*: Neinsalu et al. 2004:587* (ages 25-40); *Poland*: Grajek 2003:27 **LATIN/CARIBBEAN AMERICA** *Multiple Latin American Countries*: MJ Grant & Gehrman 2010 (1990-1999, average years: 6.6M vs. 7.0F; 2000-2006: 7.9M vs. 8.4F) **NORTH AMERICA** *Canada*: JK Folger & Nam 1967; Nakhaie & Curtis 1996:495 (young); *United States*: Charles & Luoh 2003:561* (by age 25, 1960-1972); Lleras 2008:895 **OCEANIA** *Philippines*: Estudillo et al. 2001 (current generation) **INTERNATIONAL** *Multiple Countries*: Blossfeld & Shavit 1993* (in 4/13 countries)	**EUROPE** *Finland*: Haukkala 1999:448 **NORTH AMERICA** *United States*: O'Neill & Polachek 1993:209 (among full-time workers in 1950)

Table 20.1.2.2 Individual variability in years of education

Nature of difference			*Post-pubertal*		
				Adult	
More among males				**EUROPE** *Finland*: Koivusilta et al. 1998:797 (young)	
Not significant					
More among females					

Table 20.1.2.3 Attending primary school

Nature of difference	*Pre-pubertal*				
		Child			
More among males		**AFRICA** *Cameroon*: Amin & Fonkeng 2000:131; *Egypt*: El-Zanaty & Way 2001 (rural) **ASIA** *Japan*: Ali et al. 2001:391* (from 1894-1906) **MIDDLE EAST** *Multiple Middle Eastern Countries*: Population Action International 1998* (in 1995) **OCEANIA** *Indonesia*: Deolalikar 1993:910 (having at least some schooling)			
Not significant		**AFRICA** *Kenya*: Lloyd & Blanc 1996 **ASIA** *Japan*: Ali et al. 2001:391* (from 1906-1920); *Sri Lanka*: Population Action International 1998* (in 1995) **EUROPE** *Greece*: Hopf & Hatzichristou 1999:5 **OCEANIA** *Philippines*: Lim 2000:1300			
More among females		**NORTH AMERICA** *United States*: Chowdhury et al. 2002 (in 2000)			

Table 20.1.2.4 Completion of primary school

Nature of difference	*Pre-pubertal*		*Post-pubertal*		
		Child	*Adolescent*	*Adult*	
More among males				**ASIA** *Vietnam*: J Freidman et al. 2003:600 (elderly)	
Not significant				**ASIA** *Pakistan*: Khan & Reza 1998:67 (64%M vs. 62%F)	
More among females		**OCEANIA** *Indonesia*: Deolalikar 1993:910	**LATIN/CARIBBEAN AMERICA** *Multiple Latin American Countries*: MJ Grant & Gehrman 2010 (by age 18, 1990-1999: 60.3%M vs. 74.9%F; 2000-2006: 72.6%M vs. 77.4%F)		

Table 20.1.2.5 Attending secondary school

Nature of difference			*Post-pubertal*		
			Adolescent		
More among males			**AFRICA** *Liberia*: Republic of Liberia 1983 **ASIA** *China*: Post 2004:1246* (1971-1981, Hong Kong) **INTERNATIONAL** *Multiple Countries*: Seguino 2002*		
Not significant			**OCEANIA** *Philippines*: Lim 2000:1300; Seguino 2002* **INTERNATIONAL** *Multiple Western Countries*: Keeves 1973:49		
More among females			**AFRICA** *East Africa*: Stamback 2000 (Chagga tribe) **ASIA** *China*: Seguino 2002*; Post 2004:1246* (1991-2001, Hong Kong); *Malaysia*: Seguino 2002*; *Thailand*: Knodel 1997; Thailand National Statistical Office 2001 **NORTH AMERICA** *United States*: RJ Turner & Gil 2002 **OCEANIA** *Philippines*: Estudillo et al. 2001b:374 (rural); *Sri Lanka*: Seguino 2002*		

with respect to sex differences. Some of the inconsistencies may be explained in generational terms: In the past, males were more likely than females to attend high school (and therefore to graduate), whereas, in recent decades, there has been greater equality in regard to attendance and graduation, especially in Western industrialized countries.

20.1.2.7 Attending College

Studies undertaken to determine which sex is more likely to attend college, apart from whether they graduate, have led to mixed conclusions. As summarized in Table 20.1.2.7, most of the inconsistencies can be explained by noting that in many countries, greater proportions of females began attending college in the 1960s and 1970s. By the late 1980s to early 1990s, female college attendance began to reach parity with male attendance, and, since that time, female attendance has surpassed the attendance of males (Schofer & Meyer 2005:910, S Mead 2006:13).

20.1.2.8 Having Attended a Prestigious College

A few studies were located pertaining to sex differences in attending (or having attended) prestigious or highly selective colleges and universities. As shown in Table 20.1.2.8, most studies indicate that males are more likely to attend these institutions than are females. However, in one study, the findings varied according to the birth cohorts who were compared.

Table 20.1.2.6 Graduating from high school

Nature of difference	*Adolescents and Adults*		*Wide age range*
	Adolescents or Young-to-Full Adults	*Elderly*	
More among males	**ASIA** *China*: Kinsella & Velkoff 2001:86*; Jeong, Choi et al. 2008:Table 1 (adult, N = 1,417) **EUROPE** *Germany*: Kinsella & Velkoff 2001:86* **LATIN/CARIBBEAN AMERICA** *Bolivia*: Kinsella & Velkoff 2001:86* **OCEANIA** *Australia*: MacCann 1995 (longitudinal survey of academic performance); *Indonesia*: Deolalikar 1993:910 **INTERNATIONAL** *Multiple Western Countries*: Keeves 1973:49 (young)	**ASIA** *Bangladesh*: Ofsledal et al. 2004* (elderly); *Russia*: Kinsella & Velkoff 2001:86*; *Singapore*: Kinsella & Velkoff 2001:86*; Ofsledal et al. 2004* (elderly); *Taiwan*: Ofsledal et al. 2004* (elderly); Hsu 2005:11 (elderly, 16%M vs. 3.1%F in 1989); *Thailand*: Ofsledal et al. 2004*; *Vietnam*: Ofsledal et al. 2004* (elderly) **EUROPE** *Germany*: Kinsella & Velkoff 2001:86*; *Romania*: Kinsella & Velkoff 2001:86*; *Sweden*: Kinsella & Velkoff 2001:86* **OCEANIA** *Philippines*: Ofsledal et al. 2004* (elderly) **LATIN/CARIBBEAN AMERICA** *Bolivia*: Kinsella & Velkoff 2001:86*	**ASIA** *Thailand*: Sakamoto et al. 2001:390 **NORTH AMERICA** *United States*: Simoni-Wastila 2000:291 **INTERNATIONAL** *Multiple Countries*: Hosseinpoor et al. 2012:7
Not significant	**ASIA** *Singapore*: Kinsella & Velkoff 2001:86* **EUROPE** *Romania*: Kinsella & Velkoff 2001:86*; *Sweden*: Kinsella & Velkoff 2001:86* **LATIN/CARIBBEAN AMERICA** *Brazil*: Kinsella & Velkoff 2001:86* **NORTH AMERICA** *Canada*: M Shannon & Kidd 2001:453; Ratner et al. 2006:609 (N = 427M + 549F); *United States*: Mare 1995; U.S. Bureau of the Census 1998:Table 261; Kinsella & Velkoff 2001:86*; BA Jacob 2002:594 **OCEANIA** *Australia*: Kinsella & Velkoff 2001:86*	**ASIA** *China*: Kinsella & Velkoff 2001:86*; *Malaysia*: Ofsledal et al. 2004* (elderly) **LATIN/CARIBBEAN AMERICA** *Brazil*: Kinsella & Velkoff 2001:86* **MIDDLE EAST** *Israel*: Carmel et al. 2007:520 **NORTH AMERICA** *United States*: Kinsella & Velkoff 2001:86* **OCEANIA** *Australia*: Kinsella & Velkoff 2001:86*; *Indonesia*: Ofsledal et al. 2004* (elderly)	
More among females	**ASIA** *Russia*: Kinsella & Velkoff 2001:86* **EUROPE** *Finland*: Koivusilta et al. 1998:797; *Germany*: Statistisches Bundesamt 2010; Hannover & Kessels 2011; *Ireland*: Friel, Newell & Kelleher 2005:Table 3; *Poland*: Grajek 2003:27 **LATIN/CARIBBEAN AMERICA** *Cuba*: Nunez Sarmiento 2003:11 **NORTH AMERICA** *Canada*: Breslin et al. 2006:650; *United States*: U.S. Bureau of the Census 1975:369; DJ Carter & Wilson 1993 (blacks); Whaley & Smyer 1998 (blacks); BD Hawkins 1996 (blacks); Wilds 2000 (blacks); Orfield et al. 2004:4 (64.1%M vs. 72.0%F); Coates & Draves 2006; Goldin, Katz & Kuziemko 2006; Heckman & LaFontaine 2007; TD Snyder & Dillow 2007 (89%M vs. 92%F); Heckman & LaFontaine 2010; Ceci et al. 2014:79 (1995–2011)	**NORTH AMERICA** *United States*: S Mead 2006:10 (65%M vs. 72%F)	**NORTH AMERICA** *Canada*: Marsden & Harvey 1971:18

Table 20.1.2.7 Attending college

Nature of difference	*Wide Adult Age Range*
More among males	**AFRICA** *Nigeria*: Adeyemi & Akpotu 2004:368; *South Africa*: Mwabu & Schultz 2000* (whites, Indians) **ASIA** *China*: B Hooper 1991; Shu & Bian 2002 (in industrialized cities); Post 2004:1246* (in Hong Kong, 1971–1981); *Korea*: Korean Educational Development Institute 1982; *Thailand*: TP Schultz 1995 **MIDDLE EAST** *Turkey*: Tansel 2002; Dayioğlu & Türüt-Aşik 2007 **EUROPE** *Netherlands*: van Arensbergen et al. 2012:Figure 1* (in 1998); *Norway*: Storen & Arnesen 2007:258* (1980) **NORTH AMERICA** *Canada*: Statistics Canada 1975; Boulet & Lavallee 1984:28; Looker & McNutt 1989; Kunz & Giesbrecht 1999 (Indo-Pakistanis); Andres & Adamuti-Trache 2007:96* (in 1980); *United States*: Hearn 1991 (selective colleges, adolescents); Davies & Guppy 1997 (selective colleges); CC Cole 1956; Werts 1966; Werts 1968; Marini 1974; GS Becker 1975:178; Averett & Burton 1996:38* (from 1960 to 1974); U.S. Department of Education 1997* (1970s); U.S. Bureau of the Census 1998:Table 259* (in 1960); Fonda 2000* (before 1980); Charles & Luoh 2003:576* (1967–1978); S Mead 2006:13* (1970–1978) **INTERNATIONAL** *Multiple Countries*: JA Jacobs 1996:Table 1* (42/67); K Bradley 2000:2 (1960–1990); *Multiple Western Countries*: Keeves 1973:49 (in 1964); JA Jacobs 1996:158* (in 1990, 43/67 countries)
Not significant	**AFRICA** *South Africa*: Mwabu & Schultz 2000* (blacks) **ASIA** *China*: Post 2004:1246* (in 1991, Hong Kong) **EUROPE** *Britain*: J Jones & Castle 1986 **NORTH AMERICA** *United States*: U.S. Department of Commerce 1979:38 (in 1978); Averett & Burton 1996:38* (from 1985 to 1986); S Mead 2006:13* (1978–1980) **INTERNATIONAL** *Multiple Countries*: JA Jacobs 1996:158* (in 1990, 7/67 countries)
More among females	**AFRICA** *Algeria*: Stoet & Geary 2020:343 (62.7%F); *Egypt*: Furnham & Mottabu 2004:85 (admission, American University of Cairo) **ASIA** *China*: ACK Lee 2003:489 (in Hong Kong, 44%M vs. 56%F); Post 2004:1246* (in 2001); *Japan*: Inoue & Ebara 1995; *Malaysia*: J Goodwin & Goodwin 1999; A Ahmad 2009:69; *Thailand*: Thailand National Statistical Office 2001 **EUROPE** *Netherlands*: van Arensbergen et al. 2012:Figure 1* (in 2010); *Norway*: Storen & Arnesen 2007:258 (1980); *Spain*: J Fernandez & Mateo 1997:999; *Sweden*: Berggren 2007:113 (multiple age) **NORTH AMERICA** *Canada*: D Kimura 1997; M Shannon & Kidd 2001:450 (1985–1998); Andres & Adamuti-Trache 2007:96* (in 2003); *United States*: Averett & Burton 1996:38* (in 1990); U.S. Department of Education 1997* (after 1985); U.S. Bureau of the Census 1998:Table 259* (in 1996); Gose 1999; Mortenson 1999; National Science Foundation 1999; Bae et al. 2000; Bradley 2000; Fonda 2000* (after 1980); Gerald & Hussar 2000 (52% in 1985, 57% in 1999); J King 2000 (undergrad); Jacob 2002:589; Charles & Luoh 2003:576* (1980–1995); Sum et al. 2003; CE Freeman 2004; Bozick & DeLuca 2005; DiPrete & Buchmann 2006; C Goldin et al. 2006; JE King 2006 (56%F in 1995–96 & 58%F in 2003–04); S Mead 2006:13* (1980–2005); D Cho 2007 (since ~1990); Snyder & Dillow 2012 (57%F) **OCEANIA** *Indonesia*: Deolalikar 1993:910 **INTERNATIONAL** *Multiple Countries*: Bradley & Ramirez 1996; JA Jacobs 1996:158* (in 1990, 17/67 countries); Schofer & Meyer 2005:910

Table 20.1.2.8 Having attended a prestigious college

Nature of difference	*Wide Adult Age Range*
More among males	**EUROPE** *Finland*: Kivinen et al. 2007:238* (1946 birth cohort) **NORTH AMERICA** *United States*: Hearn 1991 (selective colleges); Jacobs 1995; Davies & Guppy 1997 (selective colleges)
Not significant	
More among females	**EUROPE** *Finland*: Kivinen et al. 2007:238* (1966 & 1976 birth cohorts)

20.1.2.9 Graduating from College (Awarded Bachelor's Degrees)

Table 20.1.2.9 reveals inconsistent research findings regarding sex differences in having graduated from college with bachelor's degrees. However, most of the inconsistencies are due to the years surveyed. Especially in industrial societies, beginning in the 1960s, there has been a substantial increase in the proportion of female college students, so much so that by the early 1980s, countries such as the United States found that the proportion of females graduating from college has actually surpassed that of males doing so (Bachmann & DePrete 2006:Figure 1).

Table 20.1.2.9 Graduating from college (awarded bachelor's degrees)

Nature of difference	*Wide Adult Age Range*
More among males	**ASIA** *China*: Kinsella & Velkoff 2001:87*; *India*: Kinsella & Velkoff 2001:87*; *Russia*: Kosyakova et al. 2015; *South Korea*: Kinsella & Velkoff 2001:87* **EUROPE** *Germany*: Kinsella & Velkoff 2001:87*; *Italy*: Kinsella & Velkoff 2001:87*; *Netherlands*: Kinsella & Velkoff 2001:87*; Nyhus & Pons 2005:381 **MIDDLE EAST** *Jordan*: Kinsella & Velkoff 2001:87*; *Turkey*: Kinsella & Velkoff 2001:87* **NORTH AMERICA** *Canada*: W Clark 2001 (in 1998); Ratner et al. 2006:609 (34.5% vs. 27.0%, N = 427M + 549F); *United States*: HM Berg & Ferber 1983 (young); Wingard et al. 1983:168 (whites); Widnall 1988:1741 (young); U.S. Department of Commerce 1990* (1961–1980); Karen 1991 (between 1960–1990); National Center for Educational Statistics 1994 (in 1992); U.S. Department of Education 1997* (1970s); McGlen & O'Connor 1998* (57%M in 1970); U.S. Bureau of the Census 1998:Table 325* (prior to 1990); Kinsella & Velkoff 2001:87*; U.S. Department of Education 2000* (in 1970); Surette 2001 (transfers from 2-year undergrads); Charles & Luoh 2003:562* (by age 25, 1965–1980); DiPrete & Buchmann 2006* (from 1960 to 1979); P England & Li 2006:664* (between 1971 & 1980); C Goldin, Katz & Kuziemko 2006:Figure 1* (1870–1960, by age 35)
Not significant	**ASIA** *China*: Kinsella & Velkoff 2001:87*; *Indonesia*: Kinsella & Velkoff 2001:87*; *Thailand*: Sakamoto et al. 2001:390 **EUROPE** *Britain*: E Rudd 1984 (honors); *Ireland*: Friel, Newell & Kelleher 2005:Table 3; *Italy*: Kinsella & Velkoff 2001:87*; *Poland*: Kinsella & Velkoff 2001:87*; Adamchik & Bedi 2003:705; *Portugal*: Kinsella & Velkoff 2001:87*; *Sweden*: Kinsella & Velkoff 2001:87* **LATIN/CARIBBEAN AMERICA** *Argentina*: Kinsella & Velkoff 2001:87*; *Brazil*: Kinsella & Velkoff 2001:87* **NORTH AMERICA** *Canada*: Andres & Adamuti-Trache 2007:102* (1979–1984); *United States*: Thiessen & Ross 1990:301 (undergrad); U.S. Bureau of the Census

(*Continued*)

Table 20.1.2.9 (Continued)

Nature of difference	*Wide Adult Age Range*
	1997*; Kinsella & Velkoff 2001:87*; Gill & Leigh 2000:165* (in 1970); DiPrete & Buchmann 2006* (from 1980 to 1985); C Goldin et al. 2006:Figure 1* (1961–1975); National Science Foundation 2007 (52%M vs. 48%F in 2001) **OCEANIA** *Australia*: Kinsella & Velkoff 2001:87*; *Indonesia*: Kinsella & Velkoff 2001:87*
More among females	**EUROPE** *Britain*: JTE Richardson 1993 (honors); J Smith & Naylor 2001 (honors); *Hungary*: Piko & Fitzpatrick 2007:355 (26%M vs. 30%F); *Poland*: Grajek 2003 **LATIN/CARIBBEAN AMERICA** *Cuba*: Nunez Sarmiento 2003:11 **NORTH AMERICA** *Canada*: M Shannon & Kidd 2001:453; Andres & Adamuti-Trache 2007:102* (1985–2004); *United States*: United States Department of Commerce 1990* (in 1990); JA Jacobs 1995; BD Hawkins 1996 (blacks); U.S. Bureau of the Census 1997*; U.S. Department of Education 1997* (after 1985); McGlen & O'Connor 1998* (42%M vs. 58%F in 1995); U.S. Bureau of the Census 1998:Table 325* (since the early 1990s); Gill & Leigh 2000:165* (in 1993); U.S. Department of Education 2000*; Charles & Luoh 2003:562* (by age 25, 1985–1998); Sum et al. 2003; Freeman 2004 (in fewer years); National Center for Education Statistics 2005; C Buchmann & DiPrete 2006; DiPrete & Buchmann 2006* (after 1986); D Cho 2007 (since 1990); P England & Li 2006:664* (between 1990 & 2002); C Goldin, Katz & Kuziemko 2006:Figure 1* (1976–2000 by age 35); TD Snyder & Dillow 2007 (58%F); Zhang 2008:243 (18.9%M vs. 22.2%F in 2002); Ceci, Ginther et al. 2014:79 (1994–2011, about 55%F); Crawley 2014

20.1.2.10 Enrollment in an Advanced Degree Program

Advanced educational degree programs are those beyond the bachelor's degree, most notably master and doctorate degrees. As shown in Table 20.1.2.10, most studies on sex differences in advanced degree program enrollment have concluded that males are more likely than females to be in these programs.

Table 20.1.2.10 Enrollment in an advanced degree program

Nature of difference			*Post-pubertal*		
				Adult	
More among males				**ASIA** *South Korea*: Myoung-Sun et al. 2010:Table 1 **EUROPE** *Norway*: Mastekaasa 2005 (among persons enrolled in PhD programs) LE **NORTH AMERICA** *United States*: Strutter et al. 1971 (in medical school); M Patterson & Engelberg 1978 (medical school); E Seymour & Hewitt 1997 (under grad & graduate training); Sax 2001 (under grad & graduate training); Mullen et al. 2003 (enroll in PhD programs); Association of American Medical Undergrads 2005 (medical school, with a trend toward greater equality); Tjia, Givens & Shea 2005 (175M vs. 147F); RG Weaver et al. 2005 (admission to dental school, 58%M)	
Not significant					
More among females				**EUROPE** *Britain*: D James & Driver 1999 (accepted to medical school)	

20.1.2.11 Receiving an Advanced/Graduate Degree in General

Many studies have compared the sexes regarding their being the recipient of advanced (or graduate degrees), i.e., primarily masters and doctorate degrees. Inspection of Table 20.1.2.11 reveals that the vast majority of studies concluded that more males are awarded these degrees than is the case for females. Nevertheless, there does appear to be a lessening of the sex difference in recent decades, at least in industrial societies.

Table 20.1.2.11 Receiving an advanced/graduate degree in general

Nature of difference	*Post-pubertal*	
		Adult
More among males		**EUROPE** *Britain*: AL Booth & Satchell 1995 (adult, completion of PhD program); *Netherlands*: van Arensbergen et al. 2012:Figure 1 (PhDs); *Norway*: Storen & Arnsen 2007:259 (doctorate degrees,1980-2001) **NORTH AMERICA** *Canada*: D Kimura 1997* (PhD); *United States*: WJ Knox 1970:1031 (doctorates); Daymont & Andrisani 1984:413; US Department of Commerce 1990 (PhDs, 1961-1990); Bowen & Rudenstine 1992 (doctorate degrees in general); National Center for Educational Statistics 1994; US Bureau of the Census 1997* (advanced degrees); Commission on Professionals in Science and Technology 1997 (doctorate degrees, 80% in the sciences); JG Baker 1998 (PhDs); McGlen & O'Connor 1998 (advanced degree); US Bureau of the Census 1998:Table 325* (PhDs through 1995 & masters degrees in 1971); P England et al. 2007:24 (1971-2002); National Science Foundation 2007 (PhDs, 71% in 2001); Hyde & Mertz 2009:8804 (PhDs, between 1890 through 2008 the %M varies from 95% to 70%); Sapienza et al. 2009 (381M vs. 169F) **INTERNATIONAL** *Multiple Industrial Countries*: Charles & Bradley 2002:581	
Not significant		**EUROPE** *Britain*: T Wright & Cochrane 2000 (adult, completion of PhD program); *Norway*: Mastekaasa 2005:388 (adult, completion of PhD program) **NORTH AMERICA** *United States*: Ehrenberg & Mavros 1995 (adult, completion of PhD program)	
More among females		**NORTH AMERICA** *Canada*: D Kimura 1997* (MA); *United States*: US Bureau of the Census 1998:Table 325* (masters degrees in 1995)	

20.1.2.12 Receiving an Advanced/Graduate Degree in a Specific Field

In addition to studies of sex differences in the receipt of masters or doctorate degrees in general, substantial research has sought to determine if differences exist in these degrees being awarded with respect to specific fields of study. By inspecting Table 20.1.2.12, one can see that sex differences in receiving advanced degrees in education depend on the fields of study involved. Generally speaking, males are more likely to be awarded advanced degrees in the STEM (science, technology, engineering, and math) fields, while females are more likely to obtain advanced degrees in education, public administration, and the social/behavioral sciences, especially in recent decades.

Table 20.1.2.12 Receiving an advanced/graduate degree in a specific field

Nature of difference	*Post-pubertal*	
		Adult
More among males		**EUROPE** *Germany*: Bornmann & Enders 2004:28 (doctorates in biology, business/economics, electrical engineering, German, mathematics, & social science) **NORTH AMERICA** *United States*: DG Johnson & Hutchins 1966 (medical school); SG Bruch 1991 (in engineering or the natural sciences); Alper & Gibbons 1993 In the natural sciences); Vetter 1994 (in engineering or the natural sciences); JG Baker 1996 (PhD in natural science & engineering); Commission on Professionals in Science and Technology 1997 (doctorate degrees, 80%M in the sciences); TR Turner 2002* (PhDs in biological anthropology; in the 1960s, 1970s, & 1980s); ST Hill & Johnson 2004 (PhDs in science and engineering, 63%M); Monastersky 2005 (PhDs in math); Hyde & Mertz 2009:8804 (PhDs in math, 89%M in 1890, 70%M between 2000 & 2008); Z Elliott 2017:4* (PhDs in business 61%M, in physical & earth sciences 67%M, in math and computer sciences 73%M, in engineering 78%M)
Not significant		**NORTH AMERICA** *United States*: Z Elliott 2017:4* (PhDs in life sciences, 49%M vs. 51%F)
More among females		**NORTH AMERICA** *United States*: TR Turner 2002* (PhD in biological anthropology; in the 1990s); Z Elliott 2017:4* (PhDs in health sciences 70%F, in education 67%F, in public administration 61%F, in social/behavioral sciences 60%F, in arts & humanities 53%F)

20.1.2.13 Age When Starting School

Are there any sex differences in the age at which individuals first begin attending school? According to Table 20.1.2.13, three studies have found that girls begin kindergarten or the first grade at slightly younger ages than do males. This presumably reflects the feelings of either parents or teachers that young girls are intellectually a bit more mature than young boys at comparable ages.

Table 20.1.2.13 Age when starting school

Nature of difference	*Pre-pubertal*				
		Child			
Earlier among males					
Not significant					
Earlier among females		**NORTH AMERICA** *United States*: Gullo & Burton 1992 (1st grade); Grave & DiPerna 2000 (kindergarten); LM Malone et al. 2006 (kindergarten)			

20.1.2.14 Failing to Pass a Grade

A few studies have investigated sex differences in the number of individuals who fail to be passed on to a new grade each year. Table 20.1.2.14 shows that these studies have all concluded that males were more likely than females to be held back in school.

Table 20.1.2.14 Failing to pass a grade

Nature of difference	*Pre-pubertal*				
		Child			
More among males		**NORTH AMERICA** *United States*: McCoy & Reynolds 1999; NH Falkner et al. 2001:37; KL Alexander et al. 2003; Malone et al. 2006; Entwisle et al. 2007			
Not significant					
More among females					

20.1.3 Courses Taken

How do the sexes compare regarding the academic courses that they take? The evidence addressing this question is summarized in the following brief section.

20.1.3.1 Language Courses Taken

Two studies were located pertaining to sex differences in the taking of courses dealing with language, either in a country's native language or in some foreign language. As one can see by viewing Table 20.1.3.1, both studies concluded that females took more language-related courses, at least in high school, than did males.

Table 20.1.3.1 Language courses taken

Nature of difference			*Post-pubertal*		
			Adolescent		
More among males					
Not significant					
More among females			**EUROPE** *Britain*: S Sharpe 1976; K Thomas 1990		

20.1.3.2 Math Courses Taken

Several studies of sex differences in the taking of courses in mathematics were located. Table 20.1.3.2 shows that both in high school and in

undergrad, most studies indicate that males take more courses in math than do females. Nevertheless, two studies of high school students found no significant sex differences.

Table 20.1.3.2 Math courses taken

Nature of difference			*Post-pubertal*		
			Adolescent	*Adult*	
More among males			**EUROPE** *Britain*: Lees 1993 **NORTH AMERICA** *Canada*: Mura 1982; *United States*: Ernest 1976; Fennema & Sherman 1977; LR Brush 1980; Armstrong 1981; Sells 1980; Fennema & Carpenter 1981; Benbow & Stanley 1982a; Perl 1982 (elected courses); Pallas & Alexander 1983; Elmore & Vasu 1986; van Langen et al. 2006 (take more math courses in high school)	**NORTH AMERICA** *Canada*: G Anderson et al. 1994:112 (undergrad, in algebra & calculus); *United States*: J Ernest 1976 (undergrad)	
Not significant			**NORTH AMERICA** *United States*: C Blair et al. 2005; Catsambis 2005 (math classes in HS)		
More among females					

20.1.3.3 Science Courses Taken

A couple of studies were found regarding sex differences in the number of science courses taken in high school. Table 20.1.3.3 reveals that both studies concluded that females take more courses in science than do males.

Table 20.1.3.3 Science courses taken

Nature of difference			*Post-pubertal*		
			Adolescent		
More among males					
Not significant					
More among females			**EUROPE** *Britain*: Lees 1993 **NORTH AMERICA** *United States*: Xie & Shauman 2003 (both biology classes & chemistry classes, among HS graduates)		

20.1.4 Main Areas of Educational Training

Findings of sex differences in the types of specialized educational training students obtain are reviewed below. The majority of these studies have to do with the college majors that individuals choose. It is worth noting that sex differences in educational majors appear to be important in explaining average wages differentials between males and females (Christie & Channon 2001).

20.1.4.1 Masculine (vs. Feminine) College Majors

Masculine undergrad majors tend to be "things-oriented" and "ideas-oriented" (such as science, mathematics, architecture, and engineering) whereas feminine college majors are usually "people-oriented" and "helping-oriented" (such as psychology, social science, nursing, and the humanities). Table 20.1.4.1 shows that all the available research indicates that males are more likely to choose masculine majors than are females.

Table 20.1.4.1 Masculine (vs. feminine) college majors

Nature of difference	*Post-pubertal*		
		Adult	
More among males		**EUROPE** *Britain*: Arnot 2007 (undergrad, STEM majors); *Netherlands*: Van Langen & Dekkers 2007 (undergrad, STEM majors); *Scotland*: C Cronin & Roger 1999 (undergrad, STEM majors) **NORTH AMERICA** *United States*: Polachek 1978 (undergrad); Beller 1984 (undergrad); JA Jacobs 1985 (undergrad); Betz et al. 1990 (undergrad); JE Jacobs 1995b (undergrad); Bradley 2000; Charles & Bradley 2002 (undergrad); P England & Li 2006 (undergrad, STEM majors); Y Ma 2011 (undergrad, STEM majors) **INTERNATIONAL** *Multiple Countries*: Charles & Bradley 2009 (undergrad, STEM majors, 44 countries); Stoet & Geary 2018:Figure 4 (67 countries) **OVERVIEW** *Literature Review*: JE Jacobs 2005 (STEM majors)	
Not significant			
More among females			

20.1.4.2 Feminine (vs. Masculine) College Majors

Given the preceding table, it is to be expected that more females would choose college majors that are considered feminine. While the number of studies is fewer, one can see in Table 20.1.4.2 that females tend to choose majors that are feminine in nature (i.e., non-STEM).

Table 20.1.4.2 Feminine (vs. masculine) college majors

Nature of difference	*Post-pubertal*		
		Adult	
More among males			
Not significant			
More among females		**NORTH AMERICA** *United States*: Dawson-Threat & Hula 1996 **OVERVIEW** *Literature Review*: JE Jacobs 1996	

20.1.4.3 Majoring (or Taking Advanced Courses) in Agriculture

Studies that have assessed sex differences in completing a degree in the field of agriculture are summarized in Table 20.1.4.3. One can see that three of them concluded that more males received specialized training in this area of study although one study failed to find a significant sex difference.

Table 20.1.4.3 Majoring (or taking advanced courses) in agriculture

Nature of difference	*Post-Pubertal*		
		Adult	
More among males		**NORTH AMERICA** *United States*: National Research Council 1995 (PhD); National Research Council 1998 (PhD); Buttel & Goldberger 2002 (PhD)	
Not significant		**NORTH AMERICA** *Canada*: Christie & Shannon 2001:169 (undergrad)	
More among females			

20.1.4.4 Majoring (or Taking Advanced Courses) in Anthropology

A few studies were located concerning sex differences in people majoring in anthropology. In Table 20.1.4.4, one can see that this major has been consistently found to be more popular among females than among males.

Table 20.1.4.4 Majoring (or taking advanced courses) in anthropology

Nature of difference	*Post-Pubertal*		
		Adult	
More among males			
Not significant			
More among females		**NORTH AMERICA** *United States*: MF Small 1984 (grad school, primatology); LM Fedigan 1994 (primatology); L Joy 2000:472 (undergrad); TR Turner 2002 (since 1995, obtaining PhDs)	

20.1.4.5 Majoring (or Taking Advanced Courses) in Architecture

Research findings having to do with sex differences in the likelihood of majoring in architecture are summarized in Table 20.1.4.5. One can see that males do so to a greater degree than females.

Table 20.1.4.5 Majoring (or taking advanced courses) in architecture

Nature of difference	*Post-pubertal*		
		Adult	
More among males		**EUROPE** *Norway*: Gotestam 1990b (undergrad); *Multiple European Countries*: Osborn, Rees et al. 2000:9 **NORTH AMERICA** *United States*: National Center for Educational Statistics 1980; Shauman 2006:608 (undergrad)	
Not significant			
More among females			

20.1.4.6 Majoring (or Taking Advanced Courses) in Biology

Table 20.1.4.6 summarizes findings concerning which sex is most likely to major in biology as an undergrad or take elective courses in high school biology. One can see that the evidence is quite mixed regarding sex differences.

Table 20.1.4.6 Majoring (or taking advanced courses) in biology

Nature of difference	*Post-pubertal*		
	Adolescent (in high school)	*Adult (in undergrad)*	
More among males	**NORTH AMERICA** *United States*: Bobbitt-Zeher 2007:11 (natural science)	**EUROPE** *Norway*: Storen & Arnesen 2007:258* (1980-1995) **NORTH AMERICA** *Canada*: Andres & Adamuti-Trache 2007:96* (undergrad, in 2003); *United States*: Commission on Professionals in Science and Technology 1997 (doctorate, 74%M); National Research Council 1998 (PhD) **INTERNATIONAL** *Multiple Countries*: Charles & Bradley 2002:582 (10/12 countries)	
Not significant		**NORTH AMERICA** *Canada*: Christie & Shannon 2001:169 (undergrad); *Canada*: Andres & Adamuti-Trache 2007:96* (undergrad, in 1980); *United States*: L Joy 2000:472 (undergrad); Z Elliott 2017:4 (PhDs 49%M vs. 51%F)	
More among females	**MIDDLE EAST** *Israel*: Ayalon 1995 (high school) **NORTH AMERICA** *United States*: Xie & Shauman 2003 **INTERNATIONAL** *Multiple Countries*: Keeves & Kotte 1992	**EUROPE** *Britain*: Higher Education Statistics Agency 2001 (undergrad); *Germany*: Bornmann & Enders 2004:30 (undergrad); *Norway*: Storen & Arnesen 2007:258 (2001) **NORTH AMERICA** *United States*: Shauman 2006:608 (undergrad)	

20.1.4.7 Majoring (or Taking Advanced Courses) in Business

Studies of sex differences in the tendency to major in business are summarized in Table 20.1.4.7. It shows that most studies have concluded that this major is more often chosen by males although a few studies have found no significant difference.

Table 20.1.4.7 Majoring (or taking advanced courses) in business

Nature of difference	*Post-pubertal*		
	Adolescent	*Adult*	
More among males	**NORTH AMERICA** *United States*: Bobbitt-Zeher 2007:11	**EUROPE** *Germany*: Bornmann & Enders 2004:30 **NORTH AMERICA** *Canada*: Christie & Shannon 2001:169 (undergrad); RE White et al. 2006:26 (MBA program); Andres & Adamuti-Trache 2007:96* (undergrad, in 1980-81); *United States*: Daymont & Andrisani 1984:412; Yupin et al. 2000; Sapienza et al. 2009 (N = 381M + 169F); Z Elliott 2017:4 (PhDs, 61%M)	
Not significant		**NORTH AMERICA** *Canada*: Andres & Adamuti-Trache 2007:96* (undergrad, in 2003-04); *United States*: L Joy 2000:472 (undergrad); C Morgan et al. 2001:302 (undergrad)	
More among females			

20.1.4.8 Majoring (or Taking Advanced Courses) in Communications

Just one study of sex differences in majoring in communications were found. One can see in Table 20.1.4.8 that this study found a shift from more males choosing this major in the 1970s to more females doing so in the early 21st century.

Table 20.1.4.8 Majoring (or taking advanced courses) in communications

Nature of difference	*Post-pubertal*		
		Adult	
More among males		**NORTH AMERICA** *United States*: England & Li 2006:666* (1971-1976)	
Not significant		**NORTH AMERICA** *United States*: England & Li 2006:666* (1978-1999)	
More among females		**NORTH AMERICA** *United States*: England & Li 2006:666* (2000-2002)	

20.1.4.9 Majoring (or Taking Advanced Courses) in Computer Science

Numerous studies have sought to determine the proportion of each sex who choose to major in or take advanced courses in computer science. Table 20.1.4.9 shows that, without exception, males choose this field of study more than do females.

Table 20.1.4.9 Majoring (or taking advanced courses) in computer science

Nature of difference	*Post-pubertal*		
	Adolescent	*Adult*	
More among males	**NORTH AMERICA** *United States*: Hess & Miura 1985 (high school computer-related training); HG Taylor & Mounfield 1991 (training for computer programming); Whitley 1996:281*	**ASIA** *China*: ACK Lee 2003:489 (Hong Kong, 81%M) **EUROPE** *Britain*: Spertus 1991*; UCCA 1992 (undergrad); Schofield 1995; Higher Education Statistics Agency 2001 (undergrad); *Multiple European Countries*: Osborn, Rees et al. 2000:9 **NORTH AMERICA** *Canada*: Finnie 2001; Gadalla 2001; Andres & Adamuti-Trache 2007:96* (undergrad); *United States*: National Center for Educational Statistics 1980; ME Lockheed et al. 1983 (undergrad, training for computer programming); PF Campbell & McCabe 1984 (undergrad); MC Linn 1985a (undergrad, more courses); MC Linn 1985b (undergrad, more courses); Jagacinski et al. 1988 (undergrad); VA Clarke & Chambers 1989 (undergrad); HM Lips & Temple 1990 (undergrad); WL Flake 1991 (undergrad, take more courses); Leveson 1991 (undergrad, major); Spertus 1991*; Whitley 1996:281* (computer classes); Commission on Professionals in Science and Technology 1997 (attain doctorates, 88%M); Radcliff 1999; L Joy 2000:472 (undergrad); Venkatesh et al. 2000; Yupin et al. 2000; Pantelli et al. 2001 (major); Applewhite 2002 (undergrad); P England & Li 2006:666 (1971-2002); Shauman 2006:608 (undergrad); Ceci et al. 2014:130; Z Elliott 2017:4 (PhDs **OCEANIA** *Australia*: Trauth et al. 2003 **INTERNATIONAL** *Multiple Industrial Countries*: van Langen & Dekkers 2005:3 (12/12 countries); M Charles & Bradley 2006 (undergrad)	
Not significant			
More among females			

20.1.4.10 Majoring (or Taking Advanced Courses) in Criminal Justice

Two studies pertaining to sex differences in tendencies to major in criminal justice (or criminology) were located. One can see in Table 20.1.4.10 that both studies concluded that more males than females chose this field as their major.

Table 20.1.4.10 Majoring (or taking advanced courses) in criminal justice

Nature of difference	*Post-pubertal*		
		Adult	
More among males		**NORTH AMERICA** *United States*: L Joy 2000:472 (undergrad); Shauman 2006:608 (undergrad)	
Not significant			
More among females			

20.1.4.11 Majoring (or Taking Advanced Courses) in Dentistry

A couple of studies compared the sexes with respect to their majoring in dentistry (or pre-dentistry). Table 20.1.4.11 shows that at least during the 1970s and 1980s, more males majored in dentistry. However, in more recent decades, one study indicated that the sex ratio had shifted to more females doing so.

Table 20.1.4.11 Majoring (or taking advanced courses) in dentistry

Nature of difference	*Post-pubertal*		
		Adult	
More among males		**NORTH AMERICA** *Canada*: Andres & Adamuti-Trache 2007:96* (in 1980); *United States*: Freeman 2004 (99%M in 1970)	
Not significant			
More among females		**NORTH AMERICA** *Canada*: Andres & Adamuti-Trache 2007:96* (in 2003)	

20.1.4.12 Majoring (or Taking Advanced Courses) in Earth Science (Geology)

Table 20.1.4.12 shows that a couple of studies reported on sex differences in those majoring in or taking advanced courses in earth science. Both studies indicated that more males than females do so.

Table 20.1.4.12 Majoring (or taking advanced courses) in earth science (geology)

Nature of difference	*Post-pubertal*		
		Adult	
More among males		**NORTH AMERICA** *Canada*: Andres & Adamuti-Trache 2007:96 (undergrad); *United States*: Z Elliott 2017:4 (PhDs)	
Not significant			
More among females			

20.1.4.13 Majoring (or Taking Advanced Courses) in Economics

Several studies have investigated sex differences in the tendency for college students to major in economics. One can see in Table 20.1.4.13 that all research agrees that this major is more popular among males than among females.

Table 20.1.4.13 Majoring (or taking advanced courses) in economics

Nature of difference	*Post-pubertal*		
		Adult	
More among males		**EUROPE** *Britain*: Higher Education Statistics Agency 2001 (undergrad); *Germany*: Bornmann & Enders 2004:30 **NORTH AMERICA** *Canada*: Andres & Adamuti-Trache 2007:96 (in 1980 & 2003); *United States*: Lumsden & Scott 1986 (undergrad); Canes & Rosen 1995 (undergrad); Dynan & Rouse 1997 (undergrad); EJ Jensen & Owen 2000 (undergrad); L Joy 2000:472 (undergrad); EJ Jensen & Owen 2001 (undergrad); P England & Li 2006:666 (1971-2002); Shauman 2006:608 (undergrad)	
Not significant			
More among females			

20.1.4.14 Majoring (or Taking Advanced Courses) in Education

Table 20.1.4.14 provides a summary of research findings pertaining to sex differences in the tendency to major in education. One can see that all studies agree that females are more likely than males to do so.

Table 20.1.4.14 Majoring (or taking advanced courses) in education

Nature of difference	*Post-pubertal*		
	Adolescent	*Adult*	
More among males			
Not significant			
More among females	**NORTH AMERICA** *United States*: Bobbitt-Zeher 2007:11	**NORTH AMERICA** *Canada*: Andres & Adamuti-Trache 2007:96 (in 1980 & 2003); *United States*: National Center for Educational Statistics 1980; Daymont & Andrisani 1984:413; Jacobs 1989:126 (undergrad) L Joy 2000:472 (undergrad); C Morgan et al. 2001:301 (undergrad); National Center for Education Statistics 2004:78 (college age, 77%F); P England & Li 2006:666 (elementary education, 1971-2002); Shauman 2006:608 (undergrad); Z Elliott 2017:4 (PhDs 67%F) **INTERNATIONAL** *Multiple Countries*: Charles & Bradley 2002:582 (12/12 industrial countries)	

20.1.4.15 Majoring (or Taking Advanced Courses) in Engineering

Numerous studies have sought to determine if men or women who attend college are more likely to major in engineering. As shown in Table 20.1.4.15, all these studies concluded that males are more likely to do so.

Table 20.1.4.15 Majoring (or taking advanced courses) in engineering

Nature of difference	*Post-pubertal*		
	Adolescent	*Adult*	
More among males	**NORTH AMERICA** *United States*: Bobbitt-Zeher 2007:11	**ASIA** *Malaysia*: A Ahmad 2009 (undergrad) **AFRICA** *Nigeria*: Adeyemi & Akpotu 2004:372 (undergrad) **EUROPE** *Britain*: Weinreich-Haste 1981 (undergrad); McCrum 1994 (undergrad); Holdstock 1997; Holdstock 1998 (undergrad); Higher Education Statistics Agency 2001 (undergrad); McNabb et al. 2002; Woodfield & Earl-Novell 2006 (undergrad); *Germany*: Bornmann & Enders 2004:30 (electrical engineering); *Multiple European Countries*: Osborn, Rees et al. 2000:9 **NORTH AMERICA** *Canada*: Andres & Adamuti-Trache 2007:96 (in 1980 & 2003); *United States*: National Center for Educational Statistics 1980; Jagacinski & LeBold 1981; BM Vetter 1981; LG Humphreys 1984 (PhD); BM Vetter 1988; Jacobs 1989:126 (undergrad); Ransom 1990 (undergrad); National Science Foundation 1994; JA Jacobs 1995; Rosser 1995:103 (undergrad); E Seymour 1995; JG Baker 1996 (PhD, gap is slowly narrowing); Commission on Professionals in Science and Technology 1997 (doctorate, 96%M); National Research Council 1998 (PhD); National Science Foundation 1998; National Science Foundation 1999; L Joy 2000:472 (undergrad); Yupin et al. 2000; National Opinion Research Center 2001 (PhD); ST Hill & Johnson 2004 (PhD, 63%M); National Center for Education Statistics 2004:78 (college age, 80%M); P England & Li 2006:34 (electrical engineering, 1971-2002); Shauman 2006:608 (undergrad); Ceci et al. 2014:88 (~70% M awarded PhDs, 2011-2013); Z Elliott 2017:4 (PhDs 78%M); Meiksins, Layne 2017 (bachelor's degree) **INTERNATIONAL** *Multiple Countries*: K Bradley 2000; Ramirez & Watipka 2001; Charles & Bradley 2002:582 (12/12 industrial countries); van Langen & Dekkers 2005:3 (12/12 industrial countries); Storen & Arnesen 2007:257 (9/9 countries)	
Not significant			
More among females			

20.1.4.16 Majoring (or Taking Advanced Courses) in Fine Arts

Table 20.1.4.16 summarizes findings regarding sex differences in college students who major in fine arts. As one can see, all studies agree that this major is more common among females than among males.

Table 20.1.4.16 Majoring (or taking advanced courses) in fine arts

Nature of difference	*Post-pubertal*		
		Adult	
More among males			
Not significant			
More among females		**EUROPE** *Britain*: Bligh et al. 1980 (undergrad), McCrum 1994 (undergrad); JTE Richardson 2000 (undergrad); McNabb et al. 2002 (undergrad); Richardson & Woodley 2003 (undergrad); Woodfield & Earl-Novell 2006 (undergrad) **NORTH AMERICA** *Canada*: Christie & Shannon 2001:169 (undergrad); Shauman 2006:608 (undergrad); Andres & Adamuti-Trache 2007:96 (undergrad, in 1980 and 2003); *United States*: K Bradley 2000	

20.1.4.17 Majoring (or Taking Advanced Courses) in Geography

Just one study of sex differences in the tendency to major in geography was located. Table 20.1.4.17 shows that it found males are more likely than females to do so.

Table 20.1.4.17 Majoring (or taking advanced courses) in geography

Nature of difference	*Post-pubertal*		
		Adult	
More among males		**NORTH AMERICA** *United States*: L Joy 2000:472 (undergrad)	
Not significant			
More among females			

20.1.4.18 Majoring (or Taking Advanced Courses) in History

Research findings on sex differences in those who choose to focus on history as a course of study appear in Table 20.1.4.18. One can see that greater proportions of males than females do so.

Table 20.1.4.18 Majoring (or taking advanced courses) in history

Nature of difference	*Post-pubertal*		
		Adult	
More among males		**NORTH AMERICA** *United States*: L Joy 2000:472 (undergrad); England & Li 2006:666 (undergrad major, 1971-2002); Shauman 2006:608 (undergrad)	
Not significant			
More among females			

20.1.4.19 Majoring (or Taking Advanced Courses) in the Humanities

The humanities cover such areas of study as the languages, philosophy, and sometimes history (thus overlapping the social sciences to some extent). Table 20.1.4.19 indicates that women are more likely than men to take advanced courses in the humanities.

Table 20.1.4.19 Majoring (or taking advanced courses) in the humanities

Nature of difference	*Post-pubertal*		
		Adult	
More among males			
Not significant			
More among females		**EUROPE** *Britain*: Bligh et al. 1980 (undergrad), McCrum 1994 (undergrad); JTE Richardson 2000 (undergrad); McNabb et al. 2002 (undergrad); Richardson & Woodley 2003 (undergrad); Wheelwright, Baron-Cohen et al. 2006:49; Woodfield & Earl-Novell 2006 (undergrad); Billington, Baron-Cohen & Wheelwright 2007; *Norway*: Storen & Arnesen 2007:258 (undergrad); *Sweden*: Jonsson 1999 **LATIN/CARIBBEAN AMEREICA** *Brazil*: Correa, Varella et al. 2016:160 (undergrad, 1980-2015) **MIDDLE EAST** *Israel*: Ayalon & Yogev 1997 **NORTH AMERICA** *Canada*: Christie & Shannon 2001:169 (undergrad); Andres & Adamuti-Trache 2007:96 (undergrad, in 1980 and 2003); *United States*: Daymont & Andrisani 1984:413 (undergrad); C Morgan et al. 2001:302 (undergrad) **INTERNATIONAL** *Multiple Industrial Countries*: K Bradley 2000; Charles & Bradley 2002:582 (12/12 countries)	

20.1.4.20 Majoring (or Taking Advanced Courses) in Language

Substantial research has compared the sexes regarding tendencies to major in language courses. As one can see in Table 20.1.4.20, all studies agree that language majors are more popular among females than among males.

Table 20.1.4.20 Majoring (or taking advanced courses) in language

Nature of difference	*Post-pubertal*		
	Adolescent	*Adult*	
More among males			
Not significant			
More among females	**EUROPE** *Netherlands*: Claessen et al. 1975 (foreign) **NORTH AMERICA** *United States*: Bacon & Finnemann 1992 (foreign); DB Downey & Vogt Yuan 2005:310; Bobbitt-Zeher 2007:11 (English, in high school)	**EUROPE** *Britain*: S Boyd & Hewlett 2001 (speech or language therapy); Higher Education Statistics Agency 2001 (undergrad); McNabb et al. 2002 (undergrad); *Germany*: Bornmann & Enders 2004:30 (undergrad; German) **NORTH AMERICA** *United States*: Fox, Tobin, & Brady 1979 (foreign language courses); National Center for Educational Statistics 1980; L Joy 2000:472 (undergrad); England & Li 2006:666 (undergrad major, 1971-2002); Shauman 2006:608 (undergrad, English)	

20.1.4.21 Majoring (or Taking Advanced Courses) in Law or Pre-Law

Table 20.1.4.21 summarizes studies that have compared males and females regarding the tendency to major in law (or pre-law). While more males did so in the 1970s and 1980s, this trend appears to have shifted to females choosing law as a major since the turn of the 21st century.

Table 20.1.4.21 Majoring (or taking advanced courses) in law or pre-law.

Nature of difference	*Post-pubertal*		
		Adult	
More among males		**NORTH AMERICA** *Canada*: Andres & Adamuti-Trache 2007:96* (major, in 1980); *United States*: Freeman 2004 (95% in 1970)	
Not significant			
More among females		**NORTH AMERICA** *Canada*: Andres & Adamuti-Trache 2007:96* (major, in 2003) **INTERNATIONAL** *Multiple Countries*: K Bradley 2000	

20.1.4.22 Majoring (or Taking Advanced Courses) in Library Science

The single study of sex differences in library science majors is presented in Table 20.1.4.22. It indicated that women were more likely than men to major in this field of study.

Table 20.1.4.22 Majoring (or taking advanced courses) in library science

Nature of difference	*Post-pubertal*		
		Adult	
More among males			
Not significant			
More among females		**NORTH AMERICA** *United States*: National Center for Educational Statistics 1980	

20.1.4.23 Majoring (or Taking Advanced Courses) in Mathematics

Many studies have compared the sexes with respect to majoring in mathematics – or, in the case of high school students – whether they take elective courses in mathematics. As one can see in Table 20.1.4.23, all the studies of college students have concluded that males are more likely to major in mathematics than are females. Regarding high school students, findings have been mixed, but when sex differences have been found they indicate that males are more likely than females to take advanced or elective courses in mathematics.

Table 20.1.4.23 Majoring (or taking advanced courses) in mathematics

Nature of difference	*Post-pubertal*		
	Adolescent (advanced courses in high school)	*Adult (college majors)*	
More among males	**EUROPE** *Britain*: Tabar 1992; *Germany*: Heller & Ziegler 1996; *Netherlands*: Ten Dam & Volman 1991; *Scotland*: Croxford 1994a; *Switzerland*: Beerman et al. 1992 **MIDDLE EAST** *Israel*: Ayalon & Yogev 1997; Zorman & David 2000; Ayalon 2002* (Jews) **NORTH AMERICA** *United States*: Haven 1972 (advanced courses); Fennema & Sherman 1977:55; Pedro et al. 1980 (9th & 10th grade); Fennema & Carpenter 1981; Pedro et al. 1981 (high school); Sherman 1981; Meece, Parsons et al. 1982; SM Malcolm 1983; Eccles 1984; Eccles-Parsons 1984; JM Armstrong 1985; Chipman & Wilson 1985;	**EUROPE** *Britain*: Weinreich-Haste 1981; McCrum 1994; Holdstock 1998; McNabb et al. 2002; Woodfield & Earl-Novell 2006; *Germany*: Bornmann & Enders 2004:30; *Multiple European Countries*: Osborn, Rees et al. 2000:9; Barone 2011 (undergrad) **MIDDLE EAST** *Israel*: Ayalon 2003 (undergrad) **NORTH AMERICA** *Canada*: Andres & Guppy 1991; Christie & Shannon 2001:169; Gadalla 2001 (undergrad); Andres & Adamuti-Trache 2007:96 (undergrad, in 1980 and 2003); *United States*: J Ernest 1976; LA Brush 1980; National Center for Educational Statistics 1980; LW Sells 1980; JM Armstrong 1981; Lawrence Hall Science 1982; Berryman 1983; Chipman & Thomas 1984 (66%M for masters degrees, 85%M for PhDs); JV Andrews 1985; Jacobs 1989:126;	

(*Continued*)

Table 20.1.4.23 (Continued)

Nature of difference	*Post-pubertal*		
	Adolescent (advanced courses in high school)	*Adult (college majors)*	
	Benbow & Minor 1986:427 (gifted); LV Jones et al. 1986; J Oakes 1990; Catsambis 1994; Colley et al. 1994; Eccles 1994; Colangelo et al. 1996 (gifted students); Tai & Sadler 2001:1027 (high school, calculus); Xie Shauman 2003:241* (1970-1993); van Langen et al. 2006 (in high school); Bobbitt-Zeher 2007:11 **OCEANIA** *Australia*: B Walsh 1979; S Lamb 1996	K Wilson & Boldizar 1990; Ransom 1990 (undergrad); Oakes 1990; Wainer & Steinberg 1992:326; Rosser 1995:103; E Seymour 1995; Stumpf & Stanley 1996; SE Turner & Bowen 1999; L Joy 2000:472; Panteli et al. 2001; C Morgan et al. 2001; National Science Foundation 2007* (undergrad, in 2001, 52%M, 48%F); Andreescu et al. 2008 (PhDs, ~70%M); Hyde & Mertz 2009:8804 (PhDs, 1890: 89%, 2000: 70%, Figure 2); Ceci et al. 2014:129 (~95%M in 1970, ~ 70%M in 2010); Z Elliott 2017:4 (PhDs) **INTERNATIONAL** *Multiple Industrial Countries*: K Bradley 2000; Charles & Bradley 2002:582; van Langen & Dekkers 2005:3 (12/12 industrial countries) **OVERVIEW** *Literature Review*: Gallagher & Kaufman 2005	
Not significant	**EUROPE** *Britain*: LB Barnett & Corazza 1998 (gifted students) **MIDDLE EAST** *Israel*: Ayalon 2002* (Arabs) **NORTH AMERICA** *United States*: Eccles 1984:118; Stocking & Goldstein 1992 (gifted students); Xie Shauman 2003:241* (1993-2000)		
More among females			

20.1.4.24 Majoring (or Taking Advanced Courses) in Medicine or the Health Sciences

Several studies of sex differences in people majoring in the health sciences have been conducted. As shown in Table 20.1.4.24, the findings have been quite mixed.

20.1.4.25 Majoring (or Taking Advanced Courses) in Pharmacy

One study of sex differences in those who major in pharmacy was found. As shown in Table 20.1.4.25, it indicated that more females than males chose this as a major.

Table 20.1.4.24 Majoring (or taking advanced courses) in medicine or the health sciences

Nature of difference	*Post-pubertal*		
		Adult	
More among males		**NORTH AMERICA** *Canada*: J Park et al. 2005 (specialize in surgery); *United States*: Zeldow et al. 1985 (medical school, 80M vs. 23F); RW Schwartz et al. 1989 (surgeon); Gordin et al. 1991 (surgeon); Redmond et al. 1994 (surgeon); Novielli et al. 2001 (surgeon); Gelfand et al. 2002 (surgeon); Freeman 2004 (92%m in 1970); Hamel et al. 2006* (95% in 1960)	
Not significant		**MIDDLE EAST** *Jordan*: Al-Ma'aitah et al. 1996:223 (nursing) **NORTH AMERICA** *Canada*: S Evans & Sarani 2002; *United States*: C Morgan et al. 2001:302 (undergrad, health sciences); American Association of Medical Undergrads 2004; Hamel et al. 2006* (50%M vs. 50%F in 2005)	
More among females		**EUROPE** *Multiple European Countries*: Osborn, Rees et al. 2000:9 (pre-medicine) **NORTH AMERICA** *Canada*: Andres & Guppy 1991; Christie & Shannon 2001:169 (undergrad, nursing); Andres & Adamuti-Trache 2007:96 (in 1980 & 2003); *United States*: England & Li 2006:666 (majoring, 1971-2002); Z Elliott 2017:4 (health sciences, PhDs 70%F)	

Table 20.1.4.25 Majoring (or taking advanced courses) in pharmacy

Nature of difference	*Post-pubertal*		
		Adult	
More among males			
Not significant			
More among females		**NORTH AMERICA** *Canada*: Andres & Adamuti-Trache 2007:97 (in 1980 & 2003)	

20.1.4.26 Majoring (or Taking Advanced Courses) in Physics, Chemistry, or General Physical Science

Table 20.1.4.26 provides a summary of numerous findings regarding sex differences in the tendency to take advanced courses and/or to major in the fields of physics, chemistry, or general physical science. Regarding undergrad, all available research has found males to be more likely to major in these disciplines.

In the case of adolescents (i.e., people attending high school), nearly all studies have found more males than females taking advanced courses in these disciplines. One exception involved Arabs living in Israel. It may be understood in terms of the sex-segregated education that most Arab

Table 20.1.4.26 Majoring (or taking advanced courses) in physics, chemistry, or general physical science

Nature of difference	*Post-pubertal*		
	Adolescent (advanced courses in HS)	*Adult (college major)*	
More among males	**EUROPE** *Britain*: Tabar 1992; *Germany*: Heller & Ziegler 1996; *Netherlands*: Ten Dam & Volman 1991; *Scotland*: Croxford 1994a; *Sweden*: Engstrom & Noonan 1990; Jonsson 1999 (natural science & technology) **MIDDLE EAST** *Israel*: Tamir 1990; Ayalon & Yogev 1997; Ayalon 1995 (high school) **NORTH AMERICA** *United States*: Benbow & Minor 1986:431 (physics, among the gifted students); Crowley & Lane 1986 (high school); A Kelly 1988; J Oakes 1990; Peltz 1990; NC Holmes 1991; Mullis et al. 1991; Otto 1991; Catsambis 1994; Kumagai 1995:73 (physics); Burkam et al. 1997; Tai & Sadler 2001:1027*; L McCullough 2002 (56%M vs. 44%F); Xie & Shauman 2003:241 (physics); Riegle-Crumb & Moore 2013 **INTERNATIONAL** *Multiple Countries*: A Kelly 1976; Keeves & Kotte 1992 (physical science)	**AFRICA** *Nigeria*: Adeyemi & Akpotu 2004:372 **EUROPE** *Britain*: Weinreich-Haste 1981; McCrum 1994; Holdstock 1998; Higher Education Statistics Agency 2001; McNabb et al. 2002; Woodfield & Earl-Novell 2006 **NORTH AMERICA** *Canada*: Andres & Guppy 1991 (physics major); Finnie 2001 (physics major); Gadalla 2001 (physics major); Andres & Adamuti-Trache 2007:96* (physics major & chemistry major in 1980); *United States*: LR Harmon & Soldz 1963 (PhD); MS White 1970; E Smith 1978; A Kelly 1979; National Center for Educational Statistics 1980; Berryman 1983; LG Humphreys 1984 (PhD); TL Hilton & Lee 1988; Ware & Lee 1988; KC Green 1989; Jacobs 1989:126 (physical science, undergrad); Ransom 1990 (undergrad); Wilson & Boldizar 1990; SG Brush 1991:406 (PhD courses); National Research Council 1991; Frazier-Kouassi et al. 1992 (physical science); EF Keller 1992; Rosser 1995:103 (undergrad); JG Baker 1996 (gap is slowly narrowing); S Hanson 1996 (natural science); Strumpf & Stanley 1996 (undergrad); Commission on Professionals in Science and Technology 1997 (doctorates, 90%M); Curtin et al. 1997 (PhD in physics); E Seymore et al. 1997; National Research Council 1998 (PhD); National Science Foundation 1998 (natural science); Bug 2000; L Joy 2000:472 (undergrad, physical science); National Opinion Research Center 2000 (PhD courses); National Science Foundation 2000 (PhD); Yupin et al. 2000 (physical science); National Opinion Research Center 2001 (PhD); C Morgan et al. 2001 (undergrad); Tai & Sadler 2001:1027* (undergrad); Ferreira 2003 (completion of PhD in physical science); ST Hill & Johnson 2004 (PhD, 63%M); England & Li 2006:666 (physics majors, 1971-2002); Cavallaro et al. 2007:21 (PhD) **INTERNATIONAL** *Multiple Countries*: Ramirez & Watipka 2001; K Bradley 2000; van Langen & Dekkers 2005:3 (12/12 industrial countries)	
Not significant	**MIDDLE EAST** *Israel*: Ayalon 2002 (among Arabs)	**NORTH AMERICA** *Canada*: Andres & Adamuti-Trache 2007:96* (chemistry major in 2003)	
More among females	**NORTH AMERICA** *United States*: Xie & Shauman 2003 (chemistry)		

students receive. Specifically, sex-segregated education has been associated with females taking more mathematics and science courses than when they attend sex-integrated schools (Lee & Lockheed 1990; Gillibrand et al. 1999). The other exception was a study of U.S. high schoolers indicating that girls took more advanced courses in chemistry than was the case for males.

20.1.4.27 Majoring (or Taking Advanced Courses) in Political Science

One study was located regarding sex differences in becoming political science majors in undergrad. Table 20.1.4.27 shows that this study found no significant sex difference in this field of study.

Table 20.1.4.27 Majoring (or taking advanced courses) in political science

Nature of difference	*Post-pubertal*		
		Adult	
More among males		**NORTH AMERICA** *United States*: P England et al. 2007:34 (PhD, 1971-2002)	
Not significant		**NORTH AMERICA** *United States*: L Joy 2000:472 (undergrad)	
More among females			

20.1.4.28 Majoring (or Taking Advanced Courses) in Physical Science and Technology

The physical sciences primarily include astronomy, physics, and geology. Most disciplines in the field of technology are subsumed under the discipline of engineering. Table 20.1.4.28 shows that all these academic disciplines are primarily studied by males. (It should be noted that this table overlaps with Table 20.1.4.26, and will be merged with it in the next edition.)

20.1.4.29 Majoring (or Taking Advanced Courses) in Psychology

Several studies have compared males and females regarding their receiving advanced training in the field of psychology. Table 20.1.4.29 shows that there has been significant change in this regard, at least in the United States. Whereas males were more likely to major in and receive advanced degrees in psychology in the 1970s and 1980s, by the early 21st century, more females than males were majoring in and obtaining advanced degrees in psychology than were males.

Table 20.1.4.28 Majoring (or taking advanced courses) in physical science and technology

Nature of difference	*Post-pubertal*		
	Adolescent	*Adult*	
More among males	**EUROPE** *Germany*: Heller & Ziegler 1996; *Netherlands*: van Langen et al. 2006 (advanced HS science classes); *Sweden*: Engstrom & Noonan 1990 **MIDDLE EAST** *Israel*: Tamir 1988 **NORTH AMERICA** *United States*: Adenika-Morrow 1996; van Langen et al. 2006 (in high school); Bobbitt-Zeher et al. 2007:11	**ASIA** *Malaysia*: A Ahmad 2009* (undergrad, engineering & computer science) **EUROPE** *Britain*: Her Majesty's Stationary Office 1994 (undergrad); McNabb et al. 2002; Wheelwright, Baron-Cohen et al. 2006:49 (physical science); Billington, Baron-Cohen & Wheelwright 2007; *Switzerland*: Beerman et al. 1992; *Multiple European Countries*: Barone 2011 (undergrad, physical science) **LATIN/CARIBBEAN AMEREICA** *Brazil*: Correa, Varella et al. 2016:160 (undergrad, 1980-2015) **NORTH AMERICA** *United States*: Berryman 1983; Chipman & Thomas 1984; National Science Foundation 1984; Oakes 1990 (undergrad); Colley et al. 1994; Strenta et al. 1994 (undergrad); E Seymour 1995; Sonnert 1995 (undergrad); KA Heller & Ziegler 1996; Commission on Professionals in Science and Technology 1997 (80%M, doctorate degrees); Lupart et al. 2004: Mulvey & Necholson 2008 (PhDs in physics, 89%M vs. 11%F) **INTERNATIONAL** *Multiple Countries*: Storen & Arnesen 2007:257 (9/9)	
Not significant		**EUROPE** *Germany*: F Fischer et al. 2013:534 (college freshmen who are taking advanced classes in science, N = 317M + 353F)	
More among females			

Table 20.1.4.29 Majoring (or taking advanced courses) in psychology

Nature of difference	*Post-pubertal*		
		Adult	
More among males		**NORTH AMERICA** *United States*: Pion et al. 1996* (undergrad major, in 1971); Commission on Professionals in Science and Technology 1997 (doctorates, 59%M); P England et al. 2007:34* (undergrad major, 1971); Willyard 2011* (75%F of PhDs in 1971)	
Not significant			
More among females		**NORTH AMERICA** *Canada*: Andres & Adamuti-Trache 2007:96 (undergrad, in 1980 & in 2003); *United States*: JA Howard et al. 1986 (receiving PhDs); Ostertag & McNamara 1991 (PhDs since the late 1980s); Pion et al. 1996* (undergrad major, in 1995); National Center for Education Statistics 1999 (undergrad); L Joy 2000:472 (undergrad); Harton & Lyons 2003 (undergrad); Cynkar 2007 (PhDs since the early 1990s); P England et al. 2007:34* (major, 1976-2002); Willyard 2011* (70%F of PhDs in 2008); Ceci et al. 2014:88 (~ 75% of PhDs in psychology, 2011-2013)	

20.1.4.30 Majoring (or Taking Advanced Courses) in Secretarial Studies

The one available study on sex differences in majoring in secretarial studies is cited in Table 20.1.4.30. One can see that it concluded that more females than males did so.

Table 20.1.4.30 Majoring (or taking advanced courses) in secretarial studies

Nature of difference	*Post-pubertal*		
		Adult	
More among males			
Not significant			
More among females		**NORTH AMERICA** *Canada*: Christie & Shannon 2001:169 (undergrad)	

20.1.4.31 Majoring (or Taking Advanced Courses) in Social Science

The social sciences nearly always include the disciplines of sociology, anthropology, and political science, and often also economics, history, and psychology. Table 20.1.4.31 shows that studies of sex differences in choosing social science as a major have reached inconsistent conclusions.

Table 20.1.4.31 Majoring (or taking advanced courses) in social science

Nature of difference	*Post-pubertal*		
	Adolescent	*Adult*	
More among males		**EUROPE** *Britain*: Bligh et al. 1980 (undergrad), McCrum 1994 (undergrad); JTE Richardson 2000 (undergrad); McNabb et al. 2002 (undergrad); Richardson & Woodley 2003 (undergrad); Woodfield & Earl-Novell 2006 (undergrad); *Germany*: Bornmann & Enders 2004:30 **NORTH AMERICA** *United States*: Daymont & Andrisani 1984:413; Commission on Professionals in Science and Technology 1997 (doctorate degrees, 75%M)	
Not significant		**NORTH AMERICA** *Canada*: Christie & Shannon 2001:169 (undergrad); *United States*: National Research Council 1998 (PhD); C Morgan et al. 2001:302 (undergrad)	
More among females	**NORTH AMERICA** *United States*: Bobbitt-Zeher 2007:11	**EUROPE** *Britain*: McNabb et al. 2002 (undergrad) **NORTH AMERICA** *United States*: Z Elliott 2017:4 (PhDs in social/behavioral sciences 60%F) **INTERNATIONAL** *Multiple Countries*: K Bradley 2000	

20.1.4.32 Majoring (or Taking Advanced Courses) in Social Work

Findings from studies of sex differences in people majoring in the field of social work appear in Table 20.1.4.32. One can see that they indicate that women were more likely to men to major in this field of study.

Table 20.1.4.32 Majoring (or taking advanced courses) in social work

Nature of difference	*Post-pubertal*		
		Adult	
More among males			
Not significant			
More among females		**NORTH AMERICA** *Canada*: Andres & Guppy 1991 (major); Andres & Adamuti-Trache 2007:96 (major, in 1980 & 2003); *United States*: L Joy 2000:472 (undergrad); Shauman 2006:608 (undergrad)	

20.1.4.33 Majoring (or Taking Advanced Courses) in Sociology

Table 20.1.4.33 summarizes findings having to do with sex differences in becoming a sociology major in college. It shows that all the available studies indicate that this is a more popular major for females than for males.

Table 20.1.4.33 Majoring (or taking advanced courses) in sociology

Nature of difference	*Post-pubertal*		
		Adult	
More among males			
Not significant			
More among females		**NORTH AMERICA** *Canada*: Andres & Adamuti-Trache 2007:96 (major, in 1980 & 2003); *United States*: L Joy 2000:472 (undergrad); P England et al. 2007:34 (major, 1971-2002)	

20.1.4.34 Majoring (or Taking Advanced Courses) in Theology

Some research has compared males and females regarding becoming a theology major. Table 20.1.4.34 shows that this area of study is more popular among males than among females.

Table 20.1.4.34 Majoring (or taking advanced courses) in theology

Nature of difference	*Post-pubertal*		
		Adult	
More among males		**NORTH AMERICA** *United States*: L Joy 2000:472 (undergrad); Shauman 2006:608 (undergrad); P England et al. 2007:34 (PhD, 1971-2002)	
Not significant			
More among females			

20.1.4.35 Vocational/Technical Training Other Than Undergrad

As an alternative to undergrad, some people obtain formal technical training in any of a number of areas. Two studies were located concerning sex differences in this regard. Table 20.1.4.35 shows that both concluded that males were more likely than females to obtain such training.

Table 20.1.4.35 Vocational/technical training other than undergrad

Nature of difference	*Post-pubertal*		*Wide age range*
		Adult	
More among males		**EUROPE** *Poland*: Grajek 2003:27	**NORTH AMERICA** *United States*: CF Epstein & Feldman 1972:605
Not significant			
More among females			

20.1.4.36 Trends toward Sex Equality in College Majors

A single study was located having to do with whether the sexes are becoming more or less equal over time regarding their college majors. Table 20.1.4.36 shows that there appears to be a trend toward greater equality during the 20-year time frame sampled (1972–1992).

Table 20.1.4.36 Trends toward sex equality in college majors

Nature of difference	*Post-pubertal*		
		Adult	
Increase in equality		**INTERNATIONAL** *Multiple Countries*: Ramirez & Watipka 2001 (1972-1992)	
Not significant			
Decrease in equality			

20.1.5 Variables Related to Years of Education

Some research was located having to so with sex differences in how years of education were correlated with other variables. Findings are summarized below.

20.1.5.1 Relationship between Years of Education and Obesity

Years of education has been found to be inversely correlated with rates of obesity (reviewed by Ellis, Hoskin, & Ratnasingam 2018:160). As shown in Table 20.1.5.1, this relationship appears to be stronger for females than for males.

Table 20.1.5.1 Relationship between years of education and obesity

Nature of difference			*Post-pubertal*		
				Adult	
Stronger inverse correlation among males					
Not significant					
Stronger inverse correlation among females				**EUROPE** *Spain*: Gutierrez-Fisac et al. 1996; Gutierrez-Fisac et al. 2000; Regidor, Gutierrez-Fisac 2004	

20.1.5.2 Relationship between Years of Education and Premarital Sexual Activity

One study was located regarding the inverse relationship between years of education and premarital sexual activity. Table 20.1.5.2 shows that this study indicated that females with relatively low years of education are more likely to be sexually active before marriage than are males with relatively low years of education.

Table 20.1.5.2 Relationship between years of education and reduced premarital sexual activity

Nature of difference			*Post-pubertal*		
				Adult	
Stronger among males					
Not significant					
Stronger among females				**NORTH AMERICA** *United States*: WC Wilson 1975 (especially for females, at 21 years of age)	

20.1.5.3 Relationship between College Attendance and Single-Parent Households

The likelihood that individuals will attend college decreases among those raised in a single parent (as opposed to a dual parent) household (DeLeire & Kalil 2002). Table 20.1.5.3 indicates that this may be truer for males than for females.

Table 20.1.5.3 Relationship between college attendance and single-parent households

Nature of difference				*Post-pubertal*	
				Adult	
Stronger among males				**NORTH AMERICA** *United States*: BA Jacob 2002:595	
Not significant					
Stronger among females					

20.1.5.4 Relationship between Years of Education and Occupational Status

In one study, researchers assessed the strength of the relationship between years of education and occupational status. As shown in Table 20.1.5.4, they reported these two variables were more strongly correlated with one another among males than among females.

Table 20.1.5.4 Relationship between years of education and occupational status

Nature of difference				*Post-pubertal*	
				Adult	
Stronger among males				**EUROPE** *Finland*: Marikainen et al. 2007:500	
Not significant					
Stronger among females					

20.1.5.5 Financial Return from Education

Few would be surprised to learn that education and income are positively correlated, although findings have shown that the relationship is rather modest in this regard, i.e., r = ~.30 (review: Ellis, Hoskin & Ratnasingam 2018:7). Several researchers have sought to determine if there are sex differences in the extent to which education and income correlate.

As shown in Table 20.1.5.5, the findings have been mixed, with a slight tendency for most studies to report that females financially benefit from education to a greater degree than do males. It is worth adding that the actual amounts of education and the areas in which the training was concentrated could be responsible for the inconsistencies. For example, at least two of the studies indicating that males benefit more noted that individuals who receive training in high-income occupations, such as physical science and engineering, seem to benefit the most from their education. And, as noted later in this chapter, males are more likely than females to receive training in these particular fields of study.

Table 20.1.5.5 Financial return from education

Nature of difference	*Post-pubertal*	
		Adult
Greater among males		**ASIA** *Russia*: Gerber & Schaefer 2004 (undergrad, major in fields that receive higher income) **EUROPE** *Finland*: Kivinen et al. 2007:244 **NORTH AMERICA** *Canada*: Ornstein 1983:43; *United States*: Gerhart & Rynes 1991 (among MBA graduates); Davies & Guppy 1997 (undergrad, major in fields that receive higher income); K Bradley 2000 (undergrad, major in fields that receive higher income); Gensowski et al. 2011
Not significant		**ASIA** *Taiwan*: Gannicott 1986 **LATIN/CARIBBEAN AMERICA** *Brazil*: Birdsall & Berhman 1990; Khandker 1990 **NORTH AMERICA** *United States*: Belman & Heywood 1991* (among high school grads without undergrad)
Greater among females		**ASIA** *China*: Jamison & van der Gaag 1987; Hannum et al. 2013; *India*: Duraisamy 2002 (undergrad); *Vietnam*: Stroup & Hargrove 1969 **EUROPE** *Britain*: Chevalier & Walker 2001; *Sweden*: Albrecht et al. 2003:Table A1; *Former Soviet Bloc Countries*: Brainerd 2000:158 (both before and since the fall the Soviet Union); *Multiple European Countries*: Psacharopoulos & Patrinos 2002; Harmon et al. 2003 **LATIN/CARIBBEAN AMERICA** *Nicaragua*: Behrman & Wolfe 1990 **NORTH AMERICA** *United States*: Murphy & Welch 1989; Belman & Heywood 1991* (among college grads); Murphy & Welch 1992 (among college grads); Card 1999; Surette 2001:161 (among transfers from 2-year undergrads); Dougherty 2005; Bronars & Oettinger 2006; DiPrete & Buchmann 2006 **OCEANIA** *Indonesia*: Deolalikar 1993 (secondary & tertiary education)

20.1.5.6 Financially Benefit from Job Training

Individuals who participate in job training programs appear to benefit from these programs in terms of upward job mobility as well as lifetime earnings (Greenberg, Michalopoulo & Robins 2003). A few studies have sought to determine if male or female workers appear to benefit more. As one can see in Table 20.1.5.6, research has reached inconsistent conclusions in this regard, although most studies indicate that females benefit more.

Table 20.1.5.6 Financially benefit from job training

Nature of difference				*Post-pubertal*	
				Adult	
More among males				**NORTH AMERICA** *United States*: Grossberg & Sicilian 1999	
Not significant					
More among females				**EUROPE** *Switzerland*: Li et al. 2000 (mobility) **NORTH AMERICA** *United States*: Ashenfelter 1978 (higher earnings); LM Lynch 1991 (mobility); Couch 1992 (higher earnings)	

20.2 Division of Labor

Social science research regarding sex differences in the division of labor has a long history, particularly in the disciplines of anthropology, economics, and sociology. The tables below provide a summary of what has been learned with respect to how males and females differ in their contributions to both the paid and unpaid labor force throughout the world.

20.2.1 Participation in the Paid Workforce

Being part of the paid workforce means that one receives monetary compensation for engaging in activities on behalf of the individual providing the compensation. Research findings regarding sex differences in being involved in the paid workforce are summarized below.

20.2.1.1 Participation in the Paid Workforce in General

Many studies have compared the proportional representation of males and females in the overall workforce. Table 20.2.1.1 shows that, with respect to adult workers, males have been shown to be substantially more highly represented than females, with a few exceptions, such as being employed as domestic workers. However, the table also shows that in some rural areas of developing Asian countries, the sex ratio of paid workers during childhood and adolescence is roughly equal, or even greater, among females than among males.

20.2.1.2 Trends in Sex Differences in Paid Workforce Participation

Even though males continue to spend more time in the paid workforce than do females (see Chapter 20), there appears to have been substantial changes in many countries toward greater equality in this regard. As shown in Table 20.2.1.2, all the available research has indicated that

Table 20.2.1.1 Participation in the paid workforce in general

Nature of difference	*Pre-pubertal*		*Post-pubertal*		*Wide age range*
		Child	*Adolescent*	*Adult*	
More among males		**AFRICA** *Botswana*: Mueller 1984* (rural) **ASIA** *Bangladesh*: Cain 1980* (rural) **OCEANIA** *Indonesia*: Nag et al. 1980* (6-8 yr olds, rural Java)	**AFRICA** *Botswana*: Mueller 1984* (rural) **ASIA** *Bangladesh*: Cain 1980* (rural) **OCEANIA** *Indonesia*: Hart 1980 (rural Java); Nag et al. 1980* (rural Java); *Philippines*: Evenson et al. 1980* (rural)	**AFRICA** *Ethiopia*: Kinsella & Velkoff 2001:100-101*; *South Africa*: Mwabu & Schultz 2000:311; *Tunisia*: Kinsella & Velkoff 2001:100-101* **ASIA** *Bangladesh*: Ofstedal et al. 2004:175* (elderly); *India*: S Gleason 2001:115; *China*: Fan & Lui 2003:615* (in 1981, Hong Kong); *Japan*: Shimada & Higuchi 1985; Kinsella & Velkoff 2001:94-97*; *Malaysia*: Ofstedal et al. 2004:175* (elderly); *Singapore*: Kinsella & Velkoff 2001:100*; Ofstedal et al. 2004:175* (elderly); Teoh et al. 2009; *South Korea*: H Cho 1986; National Statistics Office 1993; HJ Lee & Cho 1976; KE Rowe & Byong-Suh 1997:75; Kinsella & Velkoff 2001:100*; *Soviet Union*: Eason 1963:84 (46%m in 1926); Lapidus 1976:126* (1940); *Taiwan*: Ofstedal et al. 2004:175* (elderly); *Thailand*: Sobieszczyk et al. 2003:710 (elderly, worked in the past years); Ofstedal et al. 2004:175* (elderly); *Vietnam*: J Friedman et al. 2002:600 (elderly, economically active): Ofstedal et al. 2004:175* (elderly); *Multiple Asian Countries*: Seguino 2000:24 **EUROPE** *Austria*: Kinsella & Velkoff 2001:94-97*; *Belgium*: Kinsella & Velkoff 2001:94-97*; *Britain*: Joshi et al. 1985; Rojas et al. 2005:1697*; *Bulgaria*: Kinsella & Velkoff 2001:94-97*; *Czech Republic*: Kinsella & Velkoff 2001:94-97*; *Finland*: Pfau-Effinger 1994*; *France*: Riboud 1985; Kinsella & Velkoff 2001:94-97*; *Germany*: Granz 1985; Pfau-Effinger 1994*; Kinsella & Velkoff 2001:94-97*; *Hungary*: Kinsella & Velkoff 2001:94-97*; *Italy*: Colombino & De Stavola 1985; Kinsella & Velkoff 2001:94-97*; *Luxembourg*: Kinsella & Velkoff 2001:94-97*; *Netherlands*: Hartog & Theeuweis 1985; *Poland*: Kinsella & Velkoff 2001:94-97*; *Spain*: Iglesias & Ribound 1985; Regidor et al. 2003:397; *Switzerland*: M Charles 2000:35 (full and part-time); *Sweden*: Gustofsson & Jacobsson 1985; Kinsella & Velkoff 2001:94-97*; *Multiple European Countries*: David & Starzec 1992 (2/2 countries); Haavio-Mannila & Kauppinen 1992 (5/5 countries); Wolchik 1992 (post-communist); Meulders et al. 1993; Pott-Buter 1993 **LATIN/CARIBBEAN AMERICA** *Argentina*: Kinsella & Velkoff 2001:100*; *Chile*: H Beyer 1995; Kinsella & Velkoff 2001:100-101*; Rojas et al. 2005:1697*; *Costa Rica*: Tardanico 1996:90 (urban, 70%M); *Cuba*: Nunez Sarmiento 2003:11; *Mexico*: Kinsella & Velkoff 2001:100-101*; *Peru*: Kinsella & Velkoff 2001:100-101*; *Uruguay*: Kinsella & Velkoff 2001:100-101*; *Multiple Latin American Countries*: KE Browne 2001:329 (3/3 countries); Abramo & Valenzuela 2005 **MIDDLE EAST** *Israel*: Ben-Porath & Gronau 1985; Lewin-Epstein & Semyonov 1992; *Turkey*: Kinsella & Velkoff 2001:100-101*	**MIDDLE EAST** *Turkey*: M Khan 2020:Figure 2 **NORTH AMERICA** *Canada*: Statistics Canada 2003; *United States*: United States Department of Labor 1983; Kregel & Wehman 1989 (persons with mental retardation); Blackorby & Wagner 1996 (persons with mental retardation) **INTERNATIONAL** *Multiple Countries*: Dixon 1975 (all ages); UN Development Programme 2003 (ages 15-24)

				NORTH AMERICA *Canada*: Kinsella & Velkoff 2001:94-97*; M Denton et al. 2004:2591; *United States*: Weitzman et al. 1962:596; Ferris 1971; Edholm 1973:274; Bartol & Bartol 1975:525* (in 1925, 79%M); Baxandall et al. 1976:405; US Department of Labor 1979; Matthaei 1982 (since 1900); JW Hill et al. 1985 (persons with mental retardation); O'Neill 1985; Reimers 1985; JP Smith & Ward 1985; Fuchs 1988; Bielby & Bielby 1989; Verbrugge 1989:287 (self-report); Juster & Stafford 1991:Table 4; LA Leslie et al. 1991; BA Shelton 1992; US Women's Bureau 1993; Spain & Bianchi 1996; D Olson et al. 2000 (persons with mental retardation); Simoni-Wastila 2000:291; Teachman et al. 2000:1242; L White & Rogers 2000:1036 (94%M vs. 74%F in 1990; 92%M vs. 77%F in 1998; Kinsella & Velkoff 2001:94-97*; Herek 2002:59 **OCEANIA** *Australia*: Gregory et al. 1985; Kinsella & Velkoff 2001:94-97*; *Indonesia*: Deolalikar 1993:907; Ofstedal et al. 2004:175* (elderly); *New Zealand*: Kinsella & Velkoff 2001:94-97*; *Philippines*: Ofstedal et al. 2004:175* (elderly) **INTERNATIONAL** *Multiple Countries*: Sorrentino 1983; Dex & Shaw 1986 (2/2 countries); Antecol 2000 (80/80 countries); Blackburn et al. 2000:122 (32/32 countries); Manning et al. 2014:762; *Multiple Industrial/Developed Countries*: Steinberg & Cook 1988; Charles 1992:492 (25/25 countries); Gottschalk & Smeeding 1997:643; Gornick & Jacobs 1998:699; Nordenmark 2004:237; M Charles 2011:Figure 1E (1970-2007)	
Not significant		**OCEANIA** *Philippines*: Evenson et al. 1980* (rural)	**ASIA** *Nepal*: Nag et al. 1980* (age 15-19, rural)	**ASIA** *China*: Fan & Lui 2003:615* (in 1991, Hong Kong); *Soviet Union*: Bartol & Bartol 1975:525* (in 1970); Lapidus 1976:126* (1974); JS Schwartz 1979:83	
More among females		**ASIA** *India*: Saraswathi & Dutta 1988* (rural) **OCEANIA** *Indonesia*: Nag et al. 1980* (ages 9-11, rural Java)	**ASIA** *India*: Saraswathi & Dutta 1988* (rural) **OCEANIA** *Indonesia*: Nag et al. 1980* (ages 12-24, rural Java); *Nepal*: Nag et al. 1980* (ages 12-14, rural)		

female involvement in the paid workforce has increased substantially, at least throughout the latter half of the 20th century, and at least in developed countries.

Table 20.2.1.2 Trends in sex differences in paid workforce participation

Nature of difference	*Post-pubertal*		
		Adult	
Sex differenes increasing			
Not significant			
Sex differences diminishing		**ASIA** *Japan*: Shimada & Higuchi 1985 (1960s & 1970s) **EUROPE** *Britain*: Joshi et al. 1985 (1970s); *Germany*: Franz 1985 (1970s); *Italy*: Columbino & De Stavola 1985 (1970s); *Netherlands*: Hartog & Theeuwes 1985 (1960s & 1970s); *Spain*: Iglesias & Riboud 1985 (1960s & 1970s); *Sweden*: Gustafsson & Jacobsson 1985 (1970s) **MIDDLE EAST** *Israel*: Ben-Porath & Gronau 1985 (1960s & 1970s) **NORTH AMERICA** *United States*: J O'Neill 1985 **OCEANIA** *Australia*: RG Gregory, McMahon & Whittingham 1985 (1960s & 1970s); *New Zealand*: Gwartney-Gibbs 1988 **INTERNATIONAL** *Multiple Industrial/Developed Countries*: M Charles 2011:Figure 1E (~37%F in 1970 vs. ~45%F in 2007)	

20.2.1.3 Engaging in Business Activities

A few studies were located regarding sex differences in the tendency to engage in business activities, broadly speaking. Table 20.2.1.3 shows that males appear to be more involved in business activities than are females.

Table 20.2.1.3 Engaging in business activities

Nature of difference					*Wide age range*
More among males					**NORTH AMERICA** *United States*: DL Hoffman et al. 1996 (e-commerce); BM Barber & Odean 2001 **INTERNATIONAL** *Multiple Countries*: Kwak et al. 2002 (e-commerce)
Not significant					
More among females					

20.2.1.4 Job Absences/Missing Work

Work absences are usually for reasons of illness, but also can be due to family obligations or various personal issues. By viewing Table 20.2.1.4, one can see that the vast majority of studies have found that work absences are more frequent for female workers than for male workers.

Table 20.2.1.4 Job absenteeism/missing work

Nature of difference			*Post-pubertal*		
				Adult	
More among males					
Not significant				**NORTH AMERICA** *United States*: Giele 1978:105 (full-time workers)	
More among females				**AFRICA** *South Africa*: Prozesky 2008 (for family reasons) **EUROPE** *Britain*: F North et al. 1993 (sick-leave); Feeney et al. 1998 (sick-leave); *Sweden*: Akerlind et al. 1996 (sick-leave); Hemingway et al. 1997 (sick-leave); Leijon et al. 1998 (sick-leave); Vahtera et al. 1998 (sick-leave); Björnberg 2002 (to care for offspring); Sundström & Duvander 2002 (parental leave); Krantz & Lundberg 2006:239 (sick-leave, average, males: 11 days/year vs. females: 18 days/yea) **NORTH AMERICA** *United States*: JP Leigh 1983; Kivimaki et al. 1997 (sick-leave); Vistnes 1997; Mastekaasa & Olsen 1998; Maume 2006 (take more vacation time); Lundquist et al. 2012 (among university faculty in STEM fields, 26%M vs. 72%F); Rhoades & Rhoades 2012 (among married university faculty, 12%M vs. 69%F)	

20.2.1.5 Work Interruptions

Work (or career) interruptions occur when an individual not only leaves a particular job, but the work-force entirely, for an extended amount of time (such as several months or even years). As shown in Table 20.2.1.5, the available research indicates that work interruptions are more common among females.

Table 20.2.1.5 Work interruptions

Nature of difference	*Post-pubertal*		
		Adult	
More among males			
Not significant			
More among females		**NORTH AMERICA** *United States*: WM Williams & Ceci 2012 (among scientists); Ceci et al. 2014:124 (permanently leaving workforce, PhD recipients, 3.8%M vs. 7.8%F)	

20.2.2 Extent of Employment

At least at some point in life, almost everyone is employed, especially those living in industrial societies. The following tables examine sex differences in various aspects of employment.

20.2.2.1 Full-Time Paid Employment

Findings from studies pertaining to sex differences in being employed full time (usually at least 35 hours per week) are summarized in Table 20.2.2.1. One can see that the overwhelming majority of studies have concluded that males are more likely than females to be employed full time.

Table 20.2.2.1 Full-time paid employment

Nature of difference	*Post-pubertal*		*Wide age range*
		Adult	
More among males		**AFRICA** *South Africa*: Mwabu & Schultz 2000:311; *Zambia*: Floro & Schaefer 1998:88 **ASIA** *Bangladesh*: Ofstedal et al. 2004:175* (elderly); *China*: Shu 2004:332; *Japan*: Brinton 1989:551* (except among 20-24 year-olds); Inoue & Ebara 1995; Gottfried & Hayashi-Kato 1998; Takahashi, Jang et al. 2020:Table 1*; *India*: Duraisamy 2002:611; *Malaysia*: Ofstedal et al. 2004:175* (elderly); *Singapore*: Ofstedal et al. 2004:175* (elderly); *South Korea*: Jeong, Choi et al. 2008:Table 1 (N = 1,417); Joo & Lee 2009; Takahashi, Jang et al. 2020:Table 1*; *Taiwan*: Ofstedal et al. 2004:175* (elderly); *Thailand*: Sobieszczyk et al. 2003:710 (elderly); Ofstedal et al. 2004:175* (elderly); *Vietnam*: Ofstedal et al. 2004:175* (elderly) **EUROPE** *Britain*: C Fagan 1996; L Blackwell 2001; S Weich et al. 2001:1059; Office of National Statistics 2006 (79%M vs 70%F); Opeach 2006 (especially among Muslims) *Germany*: Statistisches Amt der DDR 1990; *Hungary*: Bereczkei & Csanaky 1996:Table 1 (N = 774M + 1,057F, 86%M vs. 66%F, among married couples); *Ireland*: Friel, Newell & Kelleher 2005:Table 3; *Spain*: Regidor et al. 2003:397; *Sweden*: Nykvist et al. 2002:288; *Switzerland*: M Charles 2000:33; *Multiple European Countries*: European Commission 1996; Bielenski & Koehler 1999; Delsen 1999; Meulders & Plasman 1999; Rubery et al. 1999; Dolando et al. 2001* **LATIN/CARIBBEAN AMERICA** *Brazil*: Giatti & Barreto 2002 (over 60) **MIDDLE EAST** *Israel*: G Kaplan et al. 2010:933 (among Jews: 80%M vs. 68%F, among Arabs: 62%M vs. 13%F) **NORTH AMERICA** *Canada*: CL Jones et al. 1990; Chaykowski & Powell 1999; Zeytinoglu 1999; Beiser & Hou 2000:322 (Asian immigrants); Drolet 2002:5 (continually employed full-time); V Walters et al. 2002:683 (except elderly); M Denton, Prus & Walters 2004:2591 (61%M vs. 25%F); D Walters et al. 2004:291; *United States*: DE Hailman 1941:4; Terman & Oden 1959 (high IQ persons); Schulz 1976:40 (elderly); Atchely 1977:235; US Department of Labor 1983 (continuous); Pleck & Staines 1985; SL Blair & Lichter 1991; BA Shelton 1992; MA Adler 1993:455; CE Ross & Bird 1994 (N = 2,031); Rosenfeld & Birkelund 1995; Nollen 1996; Kalleberg et al. 1997;	**INTERNATIONAL** *Multiple Countries*: Hosseinpoor et al. 2012:7

(*Continued*)

Table 20.2.2.1 (Continued)

Nature of difference	*Post-pubertal*		*Wide age range*
		Adult	
		DG Gallagher 1999; Nollen 1999; Olweria, Christos et al. 1999; Kwan 2000; L White & Rogers 2000:1036 (94%M vs. 74%F); PE Becker & Hofmeister 2001:711; Dolando et al. 2001*; M Elliott 2001:169 **OCEANIA** *Australia*: de Vaus & McAllister 1987:475; Quinlan & Mayhew 1999; Gutierrez Lobos et al. 2000:204 (among depressed persons); PK Jonason, Koehn et al. 2018:171 (N = 533); *Indonesia*: Ofstedal et al. 2004:175* (elderly); *New Zealand*: Gwartney-Gibbs 1988; *Philippines*: Lim 2000; Ofstedal et al. 2004:175* (elderly) **INTERNATIONAL** *Multiple Countries*: Sorrentino 1983; E Draper 1985; Gornick & Jacobs 1998 (7/7 countries); Ngo & Pun 2009; *Multiple Industrialized Countries*: Baude & Holmberg 1967:105; Steinberg & Cook 1988	
Not significant		**ASIA** *Japan*: Brinton 1989:551* (among 20 to 24-year-olds)	
More among females		**NORTH AMERICA** *United States*: Edelman 1987 (among blacks in 1986)	

20.2.2.2 Employed Part Time

Substantial research has sought to determine if there are sex differences in being employed part time, which typically means paid for working fewer than 40 hours per week. In Table 20.2.2.2, one can see that all studies agree that females are more likely than males to be employed on a part-time basis.

Table 20.2.2.2 Employed part time

Nature of difference	*Post-pubertal*		*Wide age range*
		Adult	
More among males			
Not significant			
More among females		**EUROPE** *Britain*: V Beechey & Perkins 1987; J Jenson et al. 1988; S Weich et al. 2001:1059; *Multiple European Countries*: Bettio et al. 2000 **NORTH AMERICA** *United States*: Rosenfeld & Birkelund 1995; Olweria, Christos et al. 1999; Lubinski et al. 2001 (PhD holders, prefer part-time work) **OCEANIA** *Australia*: Australian Bureau of Statistics 1993; PK Jonason, Koehn et al. 2018:171 (N = 533) **INTERNATIONAL** *Multiple Industrial Countries*: Kinsella & Velkoff 2001:105 (elderly)	**EUROPE** *Britain*: Paci et al. 1995; Arber & Gilbert 1992; *Sweden*: Jallinoja 1985

20.2.2.3 Employment in High-Paying Businesses or Occupations

Substantial research has compared males and females regarding their being employed in high paying jobs. As one would expect, given that male salaries tend to be higher on average than female salaries (documented elsewhere in this chapter), Table 20.2.2.3 indicates that all the available research indicates that greater proportions of males are employed in high-paying establishments and businesses than is the case for females.

Table 20.2.2.3 Employment in high-paying businesses or occupations

Nature of difference	*Post-pubertal*		
		Adult	
More among males		**ASIA** *Brunei*: Teo 2003; *Pakistan*: Ashraf & Ashraf 1996; Siddiqui & Hamid 2003; Nazli 2004; *South Korea*: Zveglich & Rodgers 2004 **EUROPE** *Multiple European Countries*: M Charles 1998 **NORTH AMERICA** *United States*: JN Baron & Bielby 1980; Dreher et al. 1989 (large organizations); J Dixon & Seron 1995 (legal profession); Blau & Kahn 1996; D Guthrie & Roth 1999; Song & Glick 2004 (major in lucrative occupations, undergrad) **INTERNATIONAL** *Multiple Countries*: M Charles 1992	
Not significant			
More among females			

20.2.2.4 Unemployed or Seeking Work

A few studies have compared the sexes regarding whether they are unemployed and/or searching for a job. As shown in Table 20.2.2.4, the findings have been mixed.

Table 20.2.2.4 Unemployed or seeking work

Nature of difference	*Post-pubertal*		*Wide age range*
		Adult	
More among males		**NORTH AMERICA** *United States*: Maxwell & D'Amico 1986 (among full-time workers who have been laid off); CR Leana & Feldman 1991; CR Wanberg et al. 1996	
Not significant			
More among females		**EUROPE** *Spain*: Dominguez-Berjon et al. 2005:55 **NORTH AMERICA** *Canada*: D Walters et al. 2004:291 (unemployed); *United States*: CJ Wong et al. 2002 (among cocaine addicts)	**AFRICA** *South Africa*: Mwabu & Schultz 2000:311; *Zambia*: Floro & Schaefer 1998:81

20.2.2.5 Seeking New Career/Changing Jobs

Studies of sex differences in seeking new careers or wanting to change jobs are summarized in Table 20.2.2.5. The table indicates that the findings have not been consistent.

Table 20.2.2.5 Seeking new career/changing jobs

Nature of difference	*Post-pubertal*		
		Adult	
More among males		**MIDDLE EAST** *Israel*: Mano-Negrin & Kirschenbaum 2000 **NORTH AMERICA** *United States*: Mincer 1978; Viscusi 1980 (voluntarily); R Rosenfeld & Jones 1986 (in academia); Addams et al. 1997 (in academia)	
Not significant			
More among females		**EUROPE** *Denmark*: Thomsen et al. 2005:537 (58%F) **NORTH AMERICA** *United States*: Light & Ureta 1992 (changing jobs more often); Valcour & Tolbert 2003	

20.2.2.6 Unpaid/Volunteer Work

In some cases, individuals volunteer to work without being paid, most often for a non-profit organization. According to the few available studies, cited in Table 20.2.2.6, females are more likely than males to be engaged in volunteer work.

Table 20.2.2.6 Unpaid/volunteer work

Nature of difference	*Post-pubertal*		
		Adult	
More among males			
Not significant			
More among females		**NORTH AMERICA** *United States*: R Stone et al. 1987 (care to elderly); Marini & Shelton 1993; Austin et al. 1995 (undergrad); Wymer 1996; Wymer et al. 1996; Ory et al. 1999 (care to elderly); Wymer 2011	

20.2.2.7 Receiving On-the-Job Training

A few studies have compared the sexes in terms of the amount of on-the-job training they receive after being hired. One can see in Table 20.2.2.7 that all the studies indicate that males receive more of this kind of training than do females.

Table 20.2.2.7 Receiving on-the-job training

Nature of difference	*Post-pubertal*		
		Adult	
More among males		**ASIA** *Japan*: Aiba & Wharton 2001 (among workers); Kumlin 2007:208* (among workers) **EUROPE** *Sweden*: Evertsson 2004 (among full-time workers); Kumlin 2007:208* (among workers) **NORTH AMERICA** *United States*: Knoke & Ishio 1998 (among employed persons)	
Not significant			
More among females			

20.2.2.8 Fertility Inversely Related to Employment

Fertility (i.e., the number of offspring one has) has been studies in relationship to employment. Table 20.2.2.8 shows that a couple of studies concluded that females who were employed full time tended to have lower fertility than did males employed full time.

Table 20.2.2.8 Fertility inversely related to employment

Nature of difference	*Post-pubertal*		
		Adult	
More inversely correlated among males			
Not significant			
More inversely correlated among females		**NORTH AMERICA** *United States*: Ecklund & Lincoln (among scientists); MF Fox et al. 2011 (among college professors)	

20.2.3 Work Habits

Substantial research has compared males and females regarding their work habits. Findings in this regard are reviewed below.

20.2.3.1 Work Ethic/Work Motivation

What is known as an individual's *work ethic* refers to the degree of commitment that one has toward engaging in productive labor. This phenomenon has sometimes been referred to as the *Protestant Work Ethic*, although the implication that it is stronger among Protestants than among members of other religions has been seriously questioned (Arrunada 2010; Cantoni 2015). Several studies have sought to determine

if there is a sex difference in attitudes toward work. As shown in Table 20.2.3.1, the findings have been mixed.

Table 20.2.3.1 Work ethic/work motivation

Nature of difference			*Post-pubertal*		
				Adult	
More among males				**NORTH AMERICA** *United States*: Lokiec 1973 (managers with less than 5 years of experience, work motivation); Wherry & South 1977 (paid workers, work motivation); Forgionne & Peeters 1982:110 (managers, work motivation)	
Not significant				**ASIA** *Japan*: Yamauchi et al. 1994:197* **EUROPE** *Britain*: Furnham 1984; *Ireland*: Yamauchi et al. 1994:197* **NORTH AMERICA** *United States*: Mirels & Garrett 1971; Beit-Hallahmi 1979 **OCEANIA** *Australia*: Feather 1982; Ho 1984	
More among females				**ASIA** *India*: Furnham & Rajamanickam 1992:410* **EUROPE** *Britain*: Furnham & Rajamanickam 1992:410*; Mellanby et al. 2000:384 (undergrad)	

20.2.3.2 Workaholism/Careerism

Although the definition of the concepts of *careerism* and *workaholism* are not formally standardized, they refer to the tendency to focus one's life around work outside the home (Spencer & Robbins 1992). As shown in Table 20.2.3.2, studies have either found males to be more prone towards being workaholics or careerists or that there are no significant sex differences in these tendencies.

Table 20.2.3.2 Workaholism/careerism

Nature of difference			*Post-pubertal*		*Wide age range*
				Adult	
More among males				**EUROPE** *Finland*: Haavio-Mannila 1971a **MIDDLE EAST** *Israel*: Leviatan 1976; Palgi 1976	**NORTH AMERICA** *United States*: Saleh & Lalljee 1969* (without controlling for years of education); Bryson et al. 1978 (married couples); FM Andrews & Whitey 1979; JE Parsons & Goff 1980
Not significant				**NORTH AMERICA** *United States*: Doerfler & Kammer 1986; JT Spence & Robbins 1992; RJ Burke 1999 (among MBA graduates, using a composite measure, but males work more hours per week)	**NORTH AMERICA** *United States*: Saleh & Lalljee 1969* (years of education controlled)
More among females					

20.2.3.3 Centrality of One's Job or Career (Outside the Home) to One's Life as a Whole

Closely related to the concept of workaholism is the issue of how central one's job is to one's life. As shown in Table 20.2.3.3, research has consistently revealed that males consider either their existing or prospective jobs to be a more important aspect of their lives than do females.

20.2.3.4 Choosing Family Responsibilities Over Career When the Two Conflict

Closely related to the centrality of one's job to one's life (see above table) is an individual's willingness to choose family over career when the two are in conflict. As shown in Table 20.2.3.4, all available evidence indicates that females are more willing than males to forego a career if it conflicts with family responsibilities.

20.2.4 Time Spent Working

Research on sex differences in the amount of time individuals spend working is substantial. Findings pertaining to this research are summarized in the following tables.

20.2.4.1 Duration of Lifetime Spent in Paid Labor Market

Numerous studies have sought to determine if males or females spent more time in the labor market. As shown in Table 20.2.4.1, all the research indicates that, at least among adults, males spend more time in the paid labor force than do females.

20.2.4.2 Job-Quitting Frequency

Several studies have compared male and female employees regarding their likelihood of quitting their jobs. Table 20.2.4.2 indicates that females have a greater tendency to quit their jobs than is true for males, although a few studies found no significant sex difference.

20.2.4.3 Being Terminated/Fired/Laid Off from One's Job

A few studies were located having to do with being terminated, fired, or laid off from one's job. As shown in Table 20.2.4.3, this appears to occur in greater proportions of females than males.

Table 20.2.3.3 Centrality of one's job or career (outside the home) to one's life as a whole

Nature of difference	*Pre-pubertal*		*Post-pubertal*		*Wide age range*
		Child	*Adolescent*	*Adult*	
More among males		**NORTH AMERICA** *United States*: Goff-Timmer et al. 1984	**NORTH AMERICA** *United States*: Douvan & Adelson 1966	**EUROPE** *Sweden*: Isaksson & Johansson 2000 **MIDDLE EAST** *Israel*: Leviatan 1985 **NORTH AMERICA** *United States*: Lowenthal & Chiriboga 1972; Neugarten & Haestad 1976; Chusmir & Parker 1992 (N = 756); Major 1993; Marsden et a1993; Golombok & Fivush 1994 (personal identity); A Cohen & Kirchmeyer 1995; Dodd-Mccue & Wright 1996; Honeycut & Rosen 1997	**MIDDLE EAST** *Israel*: Izraeli 1994 **NORTH AMERICA** *United States*: Lowenthal et al. 1975; Bryson et al. 1978 (married couples); JE Parsons & Goff 1980; CA Thompson & Blau 1993 **OVERVIEW** *Meta-Analysis*: A Cohen 1992
Not significant					
More among females					

Table 20.2.3.4 Choosing family responsibilities over career when the two conflict

Nature of difference			*Post-pubertal*		*Wide age range*
				Adult	
More among males					
Not significant					
More among females				**NORTH AMERICA** *United States*: Herzog & Bachman 1982; SL Archer 1985; Chusmir & Parker 1992 (N = 756)	**NORTH AMERICA** *United States*: R Bryson et al. 1978; Corcoran & Duncan 1979 (miss work due to child illness); Tittle 1981; Veroff 1983; E Ginzberg 1984

Table 20.2.4.1 Duration of lifetime spent in paid labor market

Nature of difference	*Post-pubertal*		
		Adult	
More among males		**AFRICA** *South Africa*: Prozesky 2008 **EUROPE** *Germany*: Harhoff 1998; *Greece*: Karamessini 2004 **NORTH AMERICA** *Canada*: Drolet 2002:5 (continually employed full-time); M Denton et al. 2004:2591 (78%M vs. 60%F); *United States*: Epstein 1970:977 (multiple professional occupations); Mincer & Polachek 1974; Polachek 1975; Sandell & Shapiro 1978; Corcoran & Duncan 1979; Goldin 1986; RG Wood et al. 1993 (among attorneys); Blackorby & Wagner 1996 (workers with mental retardation); Blau & Kahn 1997 (more years of job experience); US Bureau of the Census 1998:Table 654; GN Powell 1999:ix; D Olson et al. 2000 (workers with mental retardation); Barkan 2014:Table 1 **INTERNATIONAL** *Multiple Latin American Countries*: Singelmann & Tienda 1979; *Multiple Industrial Countries*: KB Ward & Pampel 1985	
Not significant			
More among females			

20.2.4.4 Variability in the Time Spent in the Labor Market

Persons who are in and out of the labor market multiple times are said to exhibit relatively high employment variability in their time spent in the labor market. Several studies, summarized in Table 20.2.4.4, have indicated that females exhibit greater employment variability than do males.

Table 20.2.4.2 Job-quitting frequency

Nature of difference	*Post-pubertal*	
	Adult	
More among males		
Not significant	**NORTH AMERICA** *United States*: Viscusi 1980 (pay & qualifications controlled); Blau & Kahn (pay & qualifications controlled); Ransom & Oaxaca 2005 (pay controlled)	
More among females	**ASIA** *Japan*: Bando 1986; Creighton 1996 **EUROPE** *Britain*: Royalty 1996 (in and out of employment) **NORTH AMERICA** *United States*: Barnes & Jones 1974 (due to pregnancy and childcare); Kimmel 1974 (due to external, spouse-related factors); Markham et al. 1983 (dissatisfied with wages); O'Neill & Polachek 1993:219 (leave the workforce for significant periods); Sicherman 1996 (voluntarily quit); Balkin & Gomez-Mejia 2002 (university professors, dissatisfied with wages)	

Table 20.2.4.3 Being terminated/fired from one's job

Nature of difference	*Post-pubertal*	
	Adult	
More among males		
Not significant		
More among females	**NORTH AMERICA** *United States*: Loprest 1992 (7-times more); K Keith & McWilliams 1997; VK Gupta et al. 2018:11 (among CEOs, N = 21,772)	

Table 20.2.4.4 Variability in the time spent in the labor market

Nature of difference	*Post-pubertal*	
	Adult	
More among males		
Not significant		
More among females	**EUROPE** *Britain*: Hakim 1996; Royalty 1998; Rubery et al. 1998; *Italy*: Chelli & Rosti 2002 **NORTH AMERICA** *United States*: Corcoran & Duncan 1979; FD Blau & Kahn 1981; US Department of Labor 1983 (move in & out of the workforce); O'Niell & Polachek 1993 (leave the workforce more)	

20.2.4.5 Hours Worked per Day or Week Outside the Home

Many studies have sought to determine if there are sex differences in the number of hours worked outside the home. As shown in Table 20.2.4.5, the overwhelming majority of studies have concluded that males work more hours outside the home than do females.

Table 20.2.4.5 Hours worked per day or week outside the home

Nature of difference	*Post-pubertal*		
		Adult	
More among males		**EUROPE** *Britain*: C Marsh 1991; Harkness 1999; C Fagan 2001:1203; *Germany*: L Bell & Freeman 1995*; *Netherlands*: Fortuijn & Karsten 1989; Fetchenhauer & Buunk 2005:102 (among persons with any outside employment M = 42 hours/week vs. F = 17 hours/week **NORTH AMERICA** *United States*: Bobula 1980 (physicians); Pleck 1985 (dual-career couples, per week); R Hertz 1986 (dual-career couples, per week); Fuchs 1988; DL Chambers 1989 (lawyers, per week); Uhlenberg & Cooney 1990 (physicians, per week); AM Richardsen & Burke 1991 (physicians, per week); US Women's Bureau 1993; RG Wood et al. 1993 (lawyers); L Bell & Freeman 1995*; Dedobbeleer et al. 1995 (physicians, per week); Kaldenberg et al. 1995 (dentists); Nordstrom et al. 1995 (farm work); SH Kaplan et al. 1996 (medical faculty); RJ Burke 1999 (among MBA graduates); Maume 1999; Milkie & Peltola 1999; Sobecks et al. 1999 (physicians, per week); JE Wallace 1999:811 (lawyers); Altonji & Dunn 2000; Kaufman & Uhlerberg 2000; JE McMurray et al. 2000 (physicians, per week); RB Ness et al. 2000 (physicians); TJ Hoff 2004:306 (physicians, per week); Lubinski 2004 (high aptitude professionals); JA Jacobs & Winslow 2004:117 (faculty); MA Mason & Goulder 2004 (married couples); Shirley & Wallace 2004:675 (among married persons, N = 269M + 168F); Hoffer & Grigorian 2005 (PhD postdocs); Noonan et al. 2005:859 (among lawyers); Lubinski & Benbow 2006 (among high achieving college graduates); AE Loncoln 2008:810 (N = 972); Ferrimen et al. 2009 (among STEM college graduates); Omori & Smith 2009:Table 1 (duel earning couples); Cha & Weeden 2011 **INTERNATIONAL** *Multiple Countries*: Sousa-Poza & Sousa-Poza 2000:142; Ruppanner 2010 (25/25 countries, especially among married couples); *Multiple Industrial Countries*: Gershuny & Sullivan 2003:215	
Not significant		**NORTH AMERICA** *United States*: Ecklund & Lincoln 2011 (among scientists); Ceci et al. 2014:108 (among college faculty)	
More among females			

20.2.4.6 Hours Worked per Day or Week Both Inside and Outside the Home Combined

In a few studies, researchers asked individuals of both sexes to report the number of hours worked both outside the home as well as inside the home. As one can see in Table 20.2.4.6, most of these studies reported that females work more hours in a typical day or week than do males.

Table 20.2.4.6 Hours worked per day or week both inside and outside the home combined

Nature of difference	*Post-pubertal*		
		Adult	
More among males			
Not significant		**NORTH AMERICA** *United States*: Milkie & Peltola 1999 (work/family balance)	
More among females		**EUROPE** *Greece*: Safilios-Rothschild 1970; *Sweden*: U Lundberg et al. 1994 **NORTH AMERICA** *United States*: Myrdal & Klein 1956; Blood & Hamblin 1958; Blood & Wolfe 1960; Nye & Hoffman 1963	

20.2.4.7 Experience Conflict between Family and Work Responsibilities

In a few studies, both sexes were asked to report the extent to which they experience conflicts between family and work responsibilities. Table 20.2.4.7 shows that all these studies have found females reporting more conflict than males.

Table 20.2.4.7 Experience conflict between family and work responsibilities

Nature of difference	*Post-pubertal*		
		Adult	
More among males			
Not significant			
More among females		**NORTH AMERICA** *United States*: Gutek et al. 1991; CA Thompson & Blau 1993; Greenhaus et al. 1997; Milkie & Peltola 1999; Keene & Quadagno 2004	

20.2.4.8 Leisure Time

While *leisure time* is not easily defined, it has to do with time spent doing things that an individual finds interesting and for which he or she has little or no responsibility to others. Table 20.2.4.8 shows that the findings have been mixed regarding male-female differences in leisure time. Some studies indicate that males have more leisure time and other studies indicate there are no significant sex differences.

Table 20.2.4.8 Leisure time

Nature of difference			*Post-pubertal*		
				Adult	
More among males				**EUROPE** *Multiple Scandinavian Countries*: Thrane 2000 **NORTH AMERICA** *Canada*: Zuzanek & Smale 1997; *United States*: SM Shaw 1985; Coverman & Sheley 1986; Firestone & Shelton 1994; Mattingly & Bianchi 2003	
Not significant				**EUROPE** *Spain*: Artacoz et al. 2001:641 **NORTH AMERICA** *United States*: Nock & Kingston 1989; CE Bird et al. 1991; BA Shelton 1992; JP Robinson & Godbey 1997 **OCEANIA** *Australia*: Bittman 1998	
More among females					

20.2.5 Basic Characteristics of Jobs and Occupations

Studies of sex differences in occupations are numerous. Research findings concerning the basic types of jobs that men and women are most likely to gravitate toward are presented below.

20.2.5.1 Clerical Occupations

In one study, a researcher compared the sexes with regard to their being involved in clerical occupations, i.e., occupations that are primarily involved in maintaining receipts, expenditures and other business records. Table 20.2.5.1 shows that females were more likely to be in this line of work than were males.

Table 20.2.5.1 Clerical occupations

Nature of difference	*Post-pubertal*	
		Adult
More among males		
Not significant		
More among females		**OCEANIA** *Australia*: M Kidd 1993:49

20.2.5.2 Hazardous Occupations (Dangerous Work)

A few studies of sex differences in holding highly dangerous jobs have been investigated. The nature of the risks associated with these occupations usually involve being subjected to high rates of accidental injuries (such as mining, firefighting, deep-sea crab fishing, policing, and military work)

(Ecuyer-Dab & Robert 2004:229). As shown in Table 20.2.5.2, the evidence indicates that, among adult workers, greater proportions of males are in hazardous occupations than is the case for females. However, according to one study of employed adolescents, more females than males were involved in hazardous occupations. This included a high proportion of so-called "street workers" and farm laborers.

Table 20.2.5.2 Hazardous occupations (dangerous work)

Nature of difference	*Post-pubertal*		
	Adolescent	*Adult*	
More among males		**NORTH AMERICA** *United States*: Viscusi 1983; Filer 1985; Seccombe 1993:564; England & Kilbourne 1996; Breslau et al. 1999:816	
Not significant			
More among females	**LATIN/CARIBBEAN AMERICA** *Brazil*: DeGraff, Ferro & Levison 2014:Table 2 (19%M vs. 36%F, among workers who are ages 10-17)		

20.2.5.3 Manual/Blue-Collar Occupations

Considerable research has compared males and females regarding being involved in occupations involving a large amount of manual labor. One can see in Table 20.2.5.3 that all the evidence shows that males are more involved in such jobs than are females.

Table 20.2.5.3 Manual/blue-collar occupations

Nature of difference			*Post-pubertal*	
				Adult
More among males				**ASIA** *Japan*: Kawakami et al. 2004:209 (full time workers) **EUROPE** *Britain*: Studlar et al. 1998:794*; O'Farrell 1999; *Finland*: Pulkkinen et al. 2006:182; *Italy*: Vescio et al. 2003:1053 (57%M vs. 32%F among all employed persons) **NORTH AMERICA** *United States*: C Russell & Russell 1971:68; GB Lewis & Nice 1994 (government workers); Studlar et al. 1998:794*; W Miller et al. 1999:222 (government workers); MG Jones et al. 2000 (mechanical jobs); Elesh 2002:323 (manual laborers); B Kerr et al. 2002 **OCEANIA** *Australia*: M Kidd 1993:49; Studlar et al. 1998:794*; *Philippines*: Estudillo et al. 2001b:31 (rural)
Not significant				
More among females				

20.2.5.4 Low-Status Jobs

Over the years, various writers have asserted that women work in lower-status occupations on average than is the case for men (Bielby & Baron 1986; Sandberg et al. 1991:372; Eagly et al. 2000:141). The empirical evidence on this matter is scarce, but generally suggests that once low skilled manual occupations are included in making the comparisons, the average status of occupations held by men and women are quite similar. In other words, as shown in Table 20.2.5.4, female-typical occupations tend to cluster in the middle of the prestige range, while male-typical occupations are more varied, and tend to be both higher and lower than the occupations most often filled by females (Harvey & Blakely 1985:53; Studlar et al. 1998:794).

Table 20.2.5.4 Low-status jobs

Nature of difference	*Post-pubertal*		
		Adult	
More among males		**EUROPE** *Netherlands*: Fetchenhauer & Buunk 2005:102 **OCEANIA** *Australia*: M Kidd 1993:49 (manual labor)	
Not significant		**NORTH AMERICA** *Canada*: B Boyd 1982:10; EB Harvey & Blakely 1985:53	
More among females		**NORTH AMERICA** *United States*: Valian 1998 **OVERVIEW** *Generalization*: Bielby & Baron 1986; Sandberg et al. 1991:372; Eagly et al. 2000:141	

20.2.5.5 Size of Organization in Which One Is Employed

One study compared employed people of both sexes regarding the size of the organization for which they worked. As shown in Table 20.2.5.5, it indicated that males work for larger organization (be they business or governmental entities) than do females.

Table 20.2.5.5 Size of organization in which one works

Nature of difference	*Post-pubertal*		
		Adult	
Larger among males		**NORTH AMERICA** *United States*: Dreher et al. 1989	
Not significant			
Larger among females			

20.2.5.6 Work Autonomy

Several studies have compared the jobs held by men and by women with regard to the degree of work autonomy. As one can see in Table 20.2.5.6, all of these studies have concluded that, on average, men have more latitude and control over exactly how they perform their jobs than is the case for women.

Table 20.2.5.6 Work autonomy

Nature of difference	*Post-pubertal*		*Wide age range*
		Adult	
More among males		**EUROPE** *France*: Brisson et al. 1998; *Sweden*: J Johnson & Hall 1988; Lundberg et al. 1994; *Multiple European Countries*: Smet et al. 2005 (N = 34,972) **NORTH AMERICA** *United States*: Loscocco 1990 (among blue-collar workers); Lindstrom 1991 (among banking and insurance employees); Guppy & Rick 1996; Emslie et al. 1999 (among bank employees)	**EUROPE** *Netherlands*: Nyhus & Pons 2005:381
Not significant			
More among females			

20.2.6 Basic Types of Occupations

Many studies have compared the prevalence of males and females in various types of occupations. The results of these studies are summarized below.

20.2.6.1 Masculine Occupations (Male-Typical Occupations)

Central to describing masculine occupations is that they usually involve manipulating things or dealing with organizational hierarchies rather than with interpersonal relationships (the latter being more of the focus of occupations in which females tend to be concentrated). As shown in Table 20.2.6.1, all available studies indicate that males are more involved in masculine occupations than are females.

20.2.6.2 Feminine Occupations (Feminine-Typical Occupations)

Feminine occupations are primarily those focused on social interactions and helping others. The available research findings are summarized in Table 20.2.6.2, all which indicate that females are more likely to males to work in these female occupations.

Table 20.2.6.1 Masculine occupations (male-typical occupations)

Nature of difference	*Post-pubertal*	
	Adolescent	*Adult*
More among males	**EUROPE** *Finland*: Stenstrom 1995	**ASIA** *China*: Meng & Miller 1995; *Pakistan*: Nasir 2005; *South Korea*: Jin & Stevens 1987 **EUROPE** *Britain*: PW Miller 1987 (substantial occupational segregation by sex); Govier & Feldman 1999; L Blackwell 2001; L Blackwell 2003; J Elliot 2005*; Browne 2006; *Germany*: Blossfeld 1987; Trappe & Rosenfeld 2004:170; *Norway*: Melkas & Anker 1998; *Sweden*: Gonas & Spant 1997; Jonung 1997; *Switzerland*: M Charles 1987; Charles & Buchmann 1994; JH Li et al. 1998; *Multiple European Countries*: Rubery & Fagan 1993; Siltanen et al. 1995; Bettio 2002 **NORTH AMERICA** *Canada*: H Armstrong & Armstrong 1975; Reskin & Roos 1990; Tomaskovic-Devey 1993; JP Jacobsen 1994; *United States*: Oaxaca 1973; Polachek 1978 (undergrad); Ransom 1980; England 1981; Polachek 1981; P England 1982; JW Scott 1982; Bielby & Baron 1984; Blakemore & Low 1984; Daymont & Andrisani 1984 (college graduates); Eccles & Hoffman 1984; Marini & Brinton 1984; Roos & Reskin 1984; Doeninger & Piore 1985; Albelda 1986; Baron et al. 1986; Bianchi & Rytina 1986 (to a lesser degree than in past); Bielby & Baron 1986; Lyson 1986*; Hollenbeck et al. 1987; Polacheck 1987; Tienda et al. 1987; L Zimmer 1988; JA Jacobs 1989; E Sorensen 1989; JA Jacobs 1989; Reskin & Roos 1990; DiPrete & Krecker 1991; MC King 1992; CL Williams 1993; Bellas 1994 (among academics); Krecker 1994; GB Lewis & Nice 1994 (federal government); Bianchi 1995 (lesser degree than in past); DA Cotter et al. 1995 (lesser degree than in past); MM Marini et al. 1996; Reskin & Cassirer 1996; M Andersen 1997; E Seymour et al. 1997; Tam 1997; Blau et al. 1998; Lippa 1998; McGlen & O'Connor 1998; RL Nelson & Bridges 1999; Okamoto & England 1999; Bae et al. 2000; Lubinski et al. 2000 (among gifted students); R Wright & Ellis 2000; Baunach 2002; Bayard et al. 2003 (Duncan dissimilarity index = .33); Song & Glick 2004 (undergrad); U.S. Department of Labor 2004 (Duncan dissimilarity index = .41); J Elliot 2005*; Ransom & Oaxaca 2005; Tomaskovic-Devey et al. 2006; Eccles 2007 (especially in STEM fields) **OCEANIA** *Australia*: FL Jones 1983 (substantial occupational segregation by sex with very little change 1911 to 1976); Karmel & MacLachlam 1988 (occupational segregation by sex); O'Donnell & Hall 1988; Rimmer 1991; Australian Bureau of Statistics 1993; *New Zealand*: Lyson 1986*; Gwartney-Gibbs 1988 **INTERNATIONAL** *Multiple Countries*: NJ Davis & Robinson 1991 (4/4 countries); JA Jacobs & Lim 1992:465; JA Jacobs 1995a; M Charles & Bradley 2009; *Multiple Industrial Societies*: PA Roos 1985; RA Rosenfeld & Kalleberg 1991:216 (9/9 countries); Jarman et al. 2012
Not significant		
More among females		

Table 20.2.6.2 Feminine occupations (feminine-typical occupations)

Nature of difference	*Post-pubertal*		*Wide age range*
		Adult	
More among males			
Not significant			
More among females		**EUROPE** *Britain*: Hakim 1992; Nordli-Hansen 1995*; Govier & Feldman 1999; L Blackwell 2003; *Norway*: Nordli-Hansen 1995*; Melkas & Anker 1998; *Sweden*: Jonung 1984; Aberg 1987; Jonung 1993; Nermo 1994; Gonas & Spant 1997; *Switzerland*: M Charles 1987; *Multiple European Countries*: Rubery & Fagan 1993; Siltanen et al. 1995; Bettio 2002 **MIDDLE EAST** *Israel*: Wittig & Berman 1992 **NORTH AMERICA** *United States*: V Oppenheimer 1970; Bergmann & Adelman 1973; D Snyder et al. 1978; P England 1981; Polachek 1981; Bielby & Baron 1984; Eccles & Hoffman 1984; Baron et al. 1986; Bielby & Baron 1986 (women work in more feminine occupations); Hollenbeck et al. 1987; Polacheck 1987; JA Jacobs 1989; Reskin & Roos 1990; D Moore 1992; CL Williams 1993; GB Lewis & Nice 1994 (federal government); M Andersen 1997; Cotter et al. 1997 (women work in more feminine occupations); McGlen & O'Connor 1998; O'Neil 2003:311 (survey data) **OCEANIA** *Australia*: M Kidd 1993; *New Zealand*: Gwartney-Gibbs 1988 **INTERNATIONAL** *Multiple Countries*: JA Jacobs & Lim 1992; M Charles & Grusky 1995; *Multiple Industrial Societies*: Roos 1985; RA Rosenfeld & Kalleberg 1991:216 (9/9 countries)	**LATIN/CARIBBEAN AMERICA** *Guatemala*: Chinchilla 1977; *Mexico*: Arizpe 1977 **NORTH AMERICA** *United States*: Marini & Brinton 1984

20.2.6.3 Trends in Sex Differences in Masculine/Feminine Occupations

One study tracked the proportion of males and females in things-oriented occupations (i.e., ones such as engineering and astronomy that have relatively little to do with socially interacting with people). As one can see in Table 20.2.6.3, the study indicated that the proportion of males in things-oriented occupations have actually increased over this period of time.

20.2.6.4 Outdoor Occupations

In one study, employed people were compared regarding whether or not their jobs primarily involved working indoors or outdoors. Table 20.2.6.4 reveals that males were more likely than females to have outdoor jobs.

Table 20.2.6.3 Trends in sex differences in masculine/feminine occupations

Nature of difference	*Post-pubertal*		
		Adult	
Increasing differences		**NORTH AMERICA** *United States*: Lippa, Preston & Penner 2014 (1972-2010, things-oriented jobs)	
Not significant			
Diminishing differences			

Table 20.2.6.4 Outdoor occupations

Nature of difference	*Post-pubertal*		
		Adult	
More males in outdoor occupations		**NORTH AMERICA** *United States*: Queneau 2006:685 (farming, commercial fishing, forestry)	
Not significant			
More females in outdoor occupations			

20.2.6.5 Sex Segregated Occupations

Table 20.2.6.5 provides a summary of studies that have assessed occupations in terms of the degree to which they are segregated by sex. As one can see, occupational sex segregation appears to be more common for the occupations chosen by females than by those chosen by males.

Table 20.2.6.5 Sex segregated occupations

Nature of difference	*Post-pubertal*		
		Adult	
More among male-dominated occupations			
Not significant			
More among female-dominated occupations		**NORTH AMERICA** *United States*: WP Bridges 1982; JN Baron & Bielby 1985; KB Ward & Mueller 1985; PA Taylor et al. 1986; Seccombe 1993:564 **OVERVIEW** *Generalization*: Reskin 1993	

20.2.6.6 Trends in Sex Segregation of Occupations

Quite a few studies have sought to determine if there have been changes in the extent to which males and females gravitate toward different occupations. Much of this research has been driven by evidence that sex-based occupational segregation is responsible for much of the sex differences in salaries. To underscore the extent to which males and females gravitate toward different lines of work, various studies have indicated that over half of all women would have to change jobs in order for occupational sex segregation to disappear (Blau & Hendricks 1979, FL Jones 1983; Jacobs 1989; Padavic & Reskin 2002:67).

Table 20.2.6.6 summarizes findings regarding trends in sex-based occupational segregation, most of which has been derived from studying industrial societies. The conclusions from nearly all these studies has been that a slight-to-modest decrease in the extent to which males and females fill different occupations has occurred at least since the 1970s, although the rate of decline appears to have diminished in recent years (Blau, Liu & Brummund 2013:Table 3).

Table 20.2.6.6 Trends in sex segregation of occupations

Nature of difference	*Citation*
Increase in the difference	
Not significant	**NORTH AMERICA** *United States*: JP Jacobsen 1994* (during the 1960s) **OCEANIA** *Australia*: FL Jones 1983 (1911–1976)
Decrease in the difference	**NORTH AMERICA** *United States*: Lyson 1981 (1970s); Reskin 1993 (1970–1990); Beller 1984 (throughout 1970s); JA Jacobs 1985 (1970–1982); Bianchi & Rytina 1986 (1970–1983); JA Jacobs 1989 (1970–1985); JP Jacobsen 1994* (1970–1990); Bianchi 1995 (1970s and 1980s); DA Cotter et al. 1995 (1970–1990); Queneau 2006:685 (1972–2002, but decrease has slowed since the mid-1990s); Blau, Liu & Brummund 2013:Table 3 (1970–2009, albeit at a declining rate, 6.1% in the 1970s, 4.3% in the 1980s, 2.1% in the 1990s, and 1.1% in the 2000s) **OCEANIA** *Australia*: Karmel & MacLachlan 1988 (1970–1985); Rimmer 1991 (1970–1988) **INTERNATIONAL** *Multiple Countries*: Anker 1998 (1970–1995); *Multiple Industrial Countries*: M Charles 2000:37

20.2.6.7 Self-Employment and Entrepreneurial Activities

A handful of studies have compared males and females with regard to being self-employed or involved in entrepreneurial activities. Table 20.2.6.7 shows that males appear to be more likely to exhibit all these business-related activities.

Table 20.2.6.7 Self-employment and entrepreneurial activities

Nature of difference	*Post-pubertal*		*Wide age range*
		Adult	
More among males		**ASIA** *Japan*: Ishigook et al. 1999 (among hospital outpatients, N = 6,277) **EUROPE** *Denmark*: Thomsen et al. 2005:537 (with and without employees); *Switzerland*: M Charles 2000:33 **NORTH AMERICA** *Canada*: M Denton, Prus & Walters 2004:2591	**ASIA** *China*: Fan & Lui 2003:615 (Hong Kong) **NORTH AMERICA** *United States*: Reskin & Ross 1992:350; BM Barber & Odean 2001:275 (investing in stock market)
Not significant			
More among females			

20.2.6.8 Private Sector (versus Government Sector) Jobs

Two studies compared the sexes who held jobs regarding whether they worked for private (usually profit making) or government organizations. Table 20.2.6.8 shows that males were more likely than females to work in the private sector.

Table 20.2.6.8 Private sector (versus government sector) jobs

Nature of difference	*Post-pubertal*		
		Adult	
More among males		**EUROPE** *Britain*: Belfield 2005:887; *Sweden*: Hultin & Szukin 1999:463	
Not significant			
More among females			

20.2.6.9 Occupational Level/Prestige

On average, people throughout the world have been shown to agree upon which types of occupations are most associated with high prestige (e.g., lawyers, physicians, scientists) and which ones are associated with low prestige (e.g., janitors, day laborers). Generally, occupations requiring the highest levels of education or other forms of specialized training and/or call upon individuals who possess rare talents are the most prestigious (Ellis, Hoskin & Ratnasingam 2018:8).

Table 20.2.6.9 provides a summary of studies that have attempted to determine if the occupations of males or females are most prestigious. As one can see, the evidence is rather mixed, although more studies suggest that the occupations typically held by men are more prestigious than those held by women.

Table 20.2.6.9 Occupational level/prestige

Nature of difference				*Post-pubertal*	
				Adult	
Higher among males				**AFRICA** *Cameroon*: Fezeu et al. 2006:108 **ASIA** *Former Soviet Union*: Lapidus 1976; *Taiwan*: Hsu 2005:11 (N = 2,311M + 1,738F) **EUROPE** *Britain*: Savage 1992; *Spain*: Borrell et al. 2001:118 **LATIN/CARIBBEAN AMERICA** *Multiple Latin American Countries*: Escobar-Lemmon & Taylor-Robinson 2005:838 (government ministers) **NORTH AMERICA** *Canada*: Chaykowski 1994 (manufacturing); *United States*: US Civil Service Commission 1968:3; Francesco & Hakel 1981; Rytina & Bianchi 1984:11; Rhode 1988; Dardaine-Ragguet et al. 1994; Medwechuk & Crossman 1994:163; Mertz & McNeely 1994; Sharpe 1994; Maher 1997; Kirchmeyer 1998; Valian 1998; Emslie et al. 1999 (bank employees); O'Farrell 1999 (among blue-collar job holders); Sacker et al. 2000:1305 (high-status occupations); US Department of Labor 2001; Espino & Franz 2002:618 (among Hispanics) **OCEANIA** *Fiji*: Brison 1999 **INTERNATIONAL** *Multiple Countries*: Passow et al. 1976 **OVERVIEW** *Generalization*: Bielby & Baron 1986; Eagly et al. 2000:141; Mattingly & Bianchi 2003	
Not significant				**NORTH AMERICA** *Canada*: Guppy & Siltanen 1977 (little difference); J Fox & Suschnigg 1989; *United States*: H Sanborn 1964; D Treiman & Terrell 1975; Featherman & Hauser 1976; McClendon 1976; Nilson 1976; Spaeth 1977 (college graduates); Brown et al. 1980a; Marini 1980 (at entering the labor market); Bose & Rossi 1983; Powell & Jacobs 1984; Luster et al. 1989:142 (among married working couples); Seccombe 1993:564	
Higher among females				**MIDDLE EAST** *Israel*: Semyonov & Lewin-Epstein 1994:57 (full-time workers) **NORTH AMERICA** *Canada*: Juster, Raymond et al. 2016:Table 1 (N = 60M + 144F); *United States*: Valian 1998 (among blue collar job holders); Wu & Porell 2000:550 (more females than males in white collar jobs)	

One reason for the mixed findings is that men and women tend to gravitate toward substantially different *types* of occupations, making comparisons of occupational prestige difficult. In particular, women tend to specialize in people-oriented jobs (e.g., teachers, social workers, healthcare providers) while males are more likely to choose jobs that deal with things (e.g., engineers, architects, computer programmers) (Lippa 1998). For whatever reason, people-oriented jobs are more likely to be in the middle range as far as occupational prestige is concerned, while things-oriented jobs are much more varied in terms of their prestige (e.g., high for engineers and architects, low for unskilled construction workers and garbage collectors). More generally, men work at a much wider range of occupations than do women (Blau & Hendricks 1979; Dunn 1996) and this wider range means

that male-dominated occupations vary more in terms of their prestige ratings. Overall, males appear to be more highly concentrated in the most prestigious occupations *and* in the very lowest, while females are more prevalent in occupations that are in the mid-range regarding their prestige.

In all complex societies, occupations are recognized as having varying levels of prestige. Occupations that require a great deal of skill, decision-making responsibility, and/or control over others usually receive the highest prestige rankings.

Studies undertaken to determine if employed males or females hold more prestigious occupations have come to inconsistent conclusions, although, as shown in this table, most research indicated that the jobs held by men are more prestigious than those held by women. Part of the reason for the inconsistency is that males typically hold more manual labor (blue-collar) occupations than do females. Such occupations are usually considered lower in prestige and are less skilled than clerical (white-collar) occupations (which females are more likely to hold).

20.2.6.10 Trends in Sex Differences in Occupational Status

One study compared sex differences in occupational status from 1972 through 2010. The study presented in Table 20.2.6.10 concluded that, while males held substantially higher-status jobs than females did in 1972, by 2010, the differences were substantially diminished.

Table 20.2.6.10 Trends in sex differences in occupational status

Nature of difference			*Post-pubertal*		
				Adult	
Increased differences					
Not significant					
Decreased differences				**NORTH AMERICA** *United States*: Lippa, Preston & Penner 2014 (1972-2010)	

20.2.6.11 Occupational Prestige Relative to the Proportion of Each Sex in an Occupation

Some studies have sought to determine if the proportion of women in an occupation might be related to the prestige of that particular occupation. Some of the studies have been correlational in nature while others have involved experimentally manipulating information given to research participants regarding the sex ratio in various occupations. As shown in Table 20.2.6.11, the evidence has been mixed.

Table 20.2.6.11 Occupational prestige relative to the proportion of each sex in an occupation

Nature of difference	*Pre-pubertal*		*Post-pubertal*		
		Child		*Adult*	
More males associated with higher prestige		**NORTH AMERICA** *United States*: Liben et al. 2001 (experimental study)		**NORTH AMERICA** *United States*: Touhey 1974	
Not significant				**NORTH AMERICA** *United States*: Hawkins & Pingree 1978 (ratings given by undergrad students according to experimentally altered information about the prevalence of women in various professions)	
More females associated with higher prestige				**NORTH AMERICA** *United States*: Prather 1971; Touhey 1974 (ratings given by undergrad students according to experimentally altered information about the prevalence of women in various professions); Bose & Rossi 1983	
Inverted U-shape				**EUROPE** *Sweden*: Magnusson 2009 (highest prestige jobs were ones with near equal sex representation)	

20.2.6.12 Autonomous Control Over Work Responsibilities

In one study, researchers sought to determine if there were sex differences in the degree to which workers had autonomous control of their work. As shown in Table 20.2.6.12, it concluded that makes had greater autonomy on average than did females.

Table 20.2.6.12 Autonomous control over work responsibilities

Nature of difference	*Wide Age Range*
More among males	**EUROPE** *Britain*: Marmot & Davey Smith 1997
Not significant	
More among females	

20.2.6.13 Managerial/Administrative/Supervisory Jobs

Numerous studies have been undertaken to assess sex differences in holding jobs of a managerial, administrative, and supervisory nature. As shown in Table 20.2.6.13 nearly all of these studies have concluded that males are more likely to hold these types of jobs than are females. Differences appear to be especially pronounced in the case of top management positions such as administrators of large institutions or corporate executives (Barron 1975; DT Miller et al. 1991; Oakley 2000).

Table 20.2.6.13 Jobs involving managerial/administrative/supervisory responsibilities

Nature of difference	*Post-Pubertal*	
	Adult	
More among males	**AFRICA** *Nigeria*: KE Payne & Cangemi 1997 (governmental leaders); *South Africa*: Chisholm & Unterhalter 1999 (educational fields) **ASIA** *Japan*: Brinton 1993; Ishigook et al. 1999 (among hospital outpatients, N = 6,277); Aiba & Wharton 2001; Kumlin 2007:208*; *Kazakhstan*: Semykina & Linz 2010:Table 1*; *Pakistan*: Nasir 2005:62; *Former Soviet Union*: Bartol & Bartol 1975:530*; Lapidus 1976:129 (85%M); JS Schwartz 1979; Yanowitch 1987:352; *Russia*: Semykina & Linz 2010:Table 1* **EUROPE** *Britain*: V Hall 1993 (in secondary education); Millward et al. 2000 (92% in 1984 & 68% in 1998); *Denmark*: Thomsen et al. 2005:537 (top management, 85.8%M); *Germany*: Bischoff 1990 (top management); Merkel 1992 (top management); Dienel 1996; *Netherlands*: van Engen et al. 2001 (department store managers); Fetchenhauer & Buunk 2005:102 (leadership occupations); *Sweden*: Thorsell 1967; Karasek et al. 1981; Hultin & Szulkin 1999:463 (managers & supervisors); Hultin & Szulkin 2003; Kumlin 2007:208*; *Portugal*: Poeschl 2008:76 (business executives 83%M) **MIDDLE EAST** *Israel*: Zak & Horowitz 1985 (education); Rosner & Shur 1987; Izraeli 1997; Addi-Raccah & Ayalon 2002 (education); Addi-Raccah 2006:306 (school principals) **NORTH AMERICA** *Canada*: M Boyd et al. 1991; S Acker 1994 (education); Roxburgh 1996; Fortin & Huberman 2002 (administration); M Denton, Prus & Walters 2004:2591 (managers & supervisors); *United States*: National Education Association 1973 (elementary school principals); Bartol & Bartol 1975:530*; Lortie 1975 (education); MM Woods 1975; Baron 1977 (especially high-level management); Kanter 1977; Renwick & Tosi 1978; LK Brown 1979; WC Wolf & Fligstein 1979a; WC Wolf & Fligstein 1979b; Wilensky & Lawrence 1979; Hittman 1980; Semyonov 1980; Nieva & Gutek 1981 (manager); P England et al. 1982 (in their jobs); Semyonov & Scott 1983; Rytina & Bianchi 1984:15; JN Baron et al. 1986; BR Bergman 1986 (manager); GB Lewis & Emmert 1986 (government); US Bureau of the Census 1986:Table 677; Vetter & Babco 1986:75; RK Berlin 1988 (senior management); Blau & Smith 1988; DiPrete & Soule 1988; Ortiz & Marshall 1988 (education); GN Powell 1988 (manager); BF Reskin 1988; Calabrese & Ellsworth 1989 (secondary education); C Raymond 1989; Jaffee 1989; Fierman 1990; AM Morrison & Von Glinow 1990; GN Powell 1990 (manager); BF Reskin & Roos 1990; DJ Schuster & Foote 1990 (secondary education); ME Guy 1992 (civil service); Reskin & Ross 1992; US Bureau of the Census 1992a (marketing and advertising manager); JA Jacobs 1992; BF Reskin & Ross 1992:343; Winkleby et al. 1992:817 (administrators, managers, executive officers); MA Adler 1993:455; C Bell & Chase 1993 (in education); Ibarra 1993; Montenegro 1993 (in public schools); Phelan et al. 1993; GN Powell 1993; Seccombe 1993:564; US Bureau of the Census 1993; AM Adler 1994; GB Lewis & Nice 1994 (in government); Naff & Thomas 1994 (government); National Center for Education Statistics 1994 (school principals); A Newman 1994 (in government); Federal Glass Ceiling Commission 1995; Huffman 1995 (education and work experience controlled); Kouzes & Posner 1995; BF Reskin & Ross 1995; Rosenblatt 1995; US Bureau of the Census 1995:Table 649; Bickley 1996; Catalyst 1996; Dobrsynski 1996; W Fisher 1997 (among librarians); Ibarra 1997; Leithwood & Jantzi 1997 (school principals); Mani 1997 (government); Riehl & Byrd 1997 (public schools); Tallerico 1997 (in education); BH Wootten 1997; Yamagata et al. 1997 (in federal government); Deal & Stevenson 1998; L Joy 1998 (in primary education); Valian 1998; Zweigenhaft & Domhoff 1998; Crampton & Mishra 1999 (civil service); DR Hollis 1999 (among librarians); Hutlin & Szulkin 1999 (government); Maume 1999; Sosik & Megerian 1999 (information technology managers); Toutkoushian 2000:419 (in universities); Alimo-Metcalfe & Alban-Metcalfe 2001 (local government); Elesh 2002:323; Kinsella & Velkoff 2001:104; Queneau 2006:683; Guy & Newman 2004:291 (senior management, government employees); Huffman & Cohen 2004; Ransom & Oaxaca 2005:226 (managers); Eagly 2007 (managers); Eagly & Carli 2007 (managers); Barreto et al. 2009 (managers) **OCEANIA** *Australia*: M Kidd 1993:49 **INTERNATIONAL** *Multiple Countries*: D'Amico 1986; Charles 1992:490* (24/25 countries); Gutek 1993 (top management); AH Church & Waclawski 1998; AH Church & Waclawski 1999; EO Wright & Baxter 2000; Charles 2003; *Multiple Industrialized Countries*: NJ Adler 1993; International Labour Office 1996; *Multiple Western Countries*: Schmuck 1987	
Not significant	**MIDDLE EAST** *Armenia*: Semykina & Linz 2010:Table 1* **INTERNATIONAL** *Multiple Countries*: Charles 1992:490* (1/25 countries)	
More among females	**MIDDLE EAST** *Egypt*: Arabsheibani 1990 (in elementary education) **NORTH AMERICA** *United States*: PN Cohen 2004:247 (in elementary education)	

20.2.6.14 Political Involvement in General

Several social scientists have maintained that in all societies, men hold greater political power than do women (Rosaldo 1974:21; Whyte 1978; Low 1990; Goldberg 1993). This generalization is consistent with studies cited in Table 20.2.6.14, indicating that males are more involved in political affairs (variously measured) than are females.

Table 20.2.6.14 Political involvement in general

Nature of difference	*Wide Age Range*
More among males	**ASIA** *China*: MK Jennings 1998:959 (grassroots); *India*: Tenhunen 2003 **EUROPE** *Hungary*: Fodor 2002 (communist era) **NORTH AMERICA** *United States*: K Andersen 1975:442 (support work for political campaigns); Rosenstone & Hansen 1993 (contact public officials, work in campaigns); Schlozman et al. 1994; Huckfeldt & Sprague 1995 (discuss politics); Verba et al. 1995* (contact elected officials)
Not significant	**NORTH AMERICA** *United States*: Verba et al. 1995* (protest activity)
More among females	

20.2.6.15 Occupations Involving Physical Manipulations

Occupations involving physical manipulations primarily consist of construction and craft work. Table 20.2.6.15 shows that males appear to be more involved in occupations with these characteristics than females.

Table 20.2.6.15 Occupations involving physical manipulations

Nature of difference	*Post-Pubertal*		
	Adolescent	*Adult*	
More among males	**EUROPE** *Britain*: J Pratt et al. 1984*; *Scotland*: Ryrie et al. 1979*	**EUROPE** *Britain*: J Pratt et al. 1984*; Govier 2003 (blue collar workers); *Scotland*: Ryrie et al. 1979*; *Spain*: Artacoz et al. 2001:641 (51%M vs. 46%F)	
Not significant			
More among females			

20.2.6.16 Organizational/Company Size in Which One Is Employed

Do the companies people work for have more employees in the case of males or females? According to two studies, as shown in Table 20.2.6.16, males were employed in larger firms than were employed females.

Table 20.2.6.16 Organizational/company size in which one is employed

Nature of difference	*Wide Age Range*
Males in larger companies	**EUROPE** *Britain*: Bertrand & Hallock 2001 **NORTH AMERICA** *United States*: Seccombe 1993:564
Not significant	
Females in larger companies	

20.2.6.17 Helping/Caregiving Occupations

As shown in Table 20.2.6.17, a few studies were located that indicated that females were more prevalent in so-called helping or caregiving occupations than were males. These occupations typically are not-for-profit and encompass such fields as education, health care, social work, and counseling.

Table 20.2.6.17 Helping/caregiving occupations

Nature of difference				*Post-pubertal*	
				Adult	
More among males					
Not significant					
More among females				**EUROPE** *Britain*: Hakim 1979; Hakim 1996; Govier 2003 (e.g., nursing); *Netherlands*: de Ruijter et al. 2003:353 (geriatric helpers) **NORTH AMERICA** *United States*: Queneau 2006:686	

20.2.6.18 Homemaker

Two studies sought to document sex differences in the tendency to be homemakers. Probably, to no one's surprise, Table 20.2.6.18 shows that females are more likely than males to be homemakers.

20.2.6.19 Professional Occupations

Studies of sex differences in proportional involvement in professional occupations are summarized in Table 20.2.6.19. One can see that the findings were somewhat inconsistent. While most individual studies indicate that males are more likely to be involved in professional occupations, one analysis of data from 25 different countries actually found the opposite for all but one of these countries.

Table 20.2.6.18 Homemaker

Nature of difference				*Post-pubertal*	
				Adult	
More among males					
Not significant					
More among females				**ASIA** *Japan*: Ishigook et al. 1999 (among hospital outpatients, N = 6,277) **NORTH AMERICA** *United States*: Winkleby et al. 1992:817	

Table 20.2.6.19 Professional occupations

Nature of difference				*Post-pubertal*	
				Adult	
More among males				**EUROPE** *Finland*: Pulkkinen et al. 2006:182 **NORTH AMERICA** *Canada*: Fortin & Huberman 2002; *United States*: Bartol & Bartol 1975:527 **INTERNATIONAL** *Multiple Industrial Countries*: Charles 1992:490* (1/25 countries)	
Not significant					
More among females				**INTERNATIONAL** *Multiple Industrial Countries*: Charles 1992:490* (24/25 countries)	

20.2.6.20 Service Occupations

Service occupations are those that focus on providing assistance to others, usually while working for profit-making enterprises. Examples include helping customers seeking to obtain healthcare, insurance, and real estate, and travel-related services. As indicated in Table 20.2.6.20, the available evidence suggests that females are more likely than males to be involved in such occupations.

Table 20.2.6.20 Service occupations

Nature of difference	*Post-pubertal*		*Wide age range*
		Adult	
More among males			
Not significant			
More among females		**EUROPE** *Switzerland*: M Charles 2000:33 **NORTH AMERICA** *United States*: Leicht & Marx 1997; Witkowski & Leicht 1995 **OCEANIA** *Philippines*: Lim 2000 (from 1987 through 1998)	**EUROPE** *Spain*: Romero Lopez 1990; Lazaro & Sanchez 1993; Molto Carbonell 1993

20.2.6.21 Hunting

Hunting for food (and sometimes just for sport) is a widespread human activity. It was especially common prior to the advent of agriculture. Nearly all hunting involves stalking or lying-in-wait for an animal (usually a bird or a mammal) to come within shooting range, and then attempting to kill it with a projectile weapon such as a spear, arrow, or gun. As one can see by inspecting Table 20.2.6.21a, hunting appears to be more common among males than among females, especially regarding the hunting of large game (such as various species of deer and other ungulates). Female involvement in hunting comes mainly in the form of providing assistance to males, such as helping to drive prey into nets, although females sometimes independently capture small prey (such as birds, rodents, and rabbits) (BM Wood & Gilby 2019:349).

Table 20.2.6.21a Hunting

Nature of difference				*Post-pubertal*	
				Adult	
More among males				**AFRICA** *Congo*: Kitanishi 1995 (Aka foragers, 40-70%M hunted per day compared to 0-20%F); *Tanzania*: Hawkes et al. 1995 (Hadza foragers); Wood & Marlowe 2013 (Hadza foragers, especially large game) **LATIN/CARIBBEAN AMERICA** *Paraguay*: K Hill, Kaplan 1985 (Ache tribe); Hurtado, Hawkins et al. 1985 (Ache tribe); Codding, Bird & Bird 2011 (Ache tribe); *Venezuela*: Hurtado & Hill 1990 (among foragers) **NORTH AMERICA** *Canada*: Brumbach & Jarvenpa 1997:415 (Dene tribe); A Cooper et al. 1999 (hunting); *United States*: J Spector 1983 (Hidatsa); Hildebrant & Jones 1992 (archeological data); J Burger et al. 1998; Lauber & Brown 2000 (deer, 93%M); CP Flynn 2002:141 (undergrad, self-report) **OCEANIA** *Australia*: RB Bird & Bird 2008:Figure 7* (among Aborigines, large game such as kangaroo) **INTERNATIONAL** *Multiple Countries*: Marlowe 2007; *Multiple Societies*: C Russell & Russell 1971:68 (166/166 human societies); *Multiple Preliterate Societies*: Murdock & Provost 1973:207* (hunting large aquatic animals, 48/48 societies); Murdock & Provost 1973:207* (hunting large land animals,144/144 societies); Murdock & Provost 1973:207* (hunting fowl, 136/139 societies) **OVERVIEW** *Literature Review*: Gilby, Machanda et al. 2017 (humans)	
Not significant				**INTERNATIONAL** *Multiple Preliterate Societies*: Murdock & Provost 1973:207* (hunting fowl, 3/139 societies)	
More among females				**AFRICA** *Congo*: Noss & Hewlett 2001 (among foragers, helping drive prey in nets) **OCEANIA** *Australia*: RB Bird & Bird 2008:Figure 7* (among Aborigines, grabbing small game such as lizards and shell fish)	

Table 20.2.6.21b shows that, since the 1970s, several researchers have discovered that among non-human species of primates, particularly chimpanzees, males seem to dominate in hunting behavior as well. The typical prey of chimpanzee hunters are young monkeys and bush pigs. Once caught, these animals are typically killed by grabbing their hind legs and flailing their bodies and heads against a tree limb or on the ground. The carcass is then usually dismembered and eaten by several members of the hunting party.

Table 20.2.6.21b Hunting behavior among non-humans.

Nature of difference				*Post-pubertal*	
				Adult	
More among males				**PRIMATE** *Chimpanzee*: Teleki 1973; Kawanaka 1982; Takahata et al. 1984; Goodall 1986; Boesch & Boesch 1989; Wrangham & Bergmann Riss 1990; Uehara et al. 1992; Stanford et al. 1994; Mitani & Watts 1999:449; CB Stanford 1999; Gilby, Eberly et al. 2006; Fahy, Richards et al. 2013; Pruetz et al. 2015; Gilby, Machanda et al. 2017; Pruetz, Bertolani et al. 2015 (70% of prey animal kills); *White-Faced Capuchin*: LM Fedigan 1990 **OVERVIEW** *Literature Review*: Gilby, Machanda et al. 2017 (chimpanzees)	
Not significant					
More among females					

Some research has been undertaken to assess sex differences in predatory behavior by various species of non-humans that would not normally be classified as hunting behavior per se (primarily because the predator would not consume the prey after killing it). As shown in Table 20.2.6.21c, findings regarding sex differences in such behavior are mixed.

Table 20.2.6.21c Predatory behavior other than hunting among non-humans.

Nature of difference			*Post-pubertal*	*Wide age range*
			Adult	
More among males				**PRIMATE** *Olive Baboon*: Harding 1973; Harding & Strum 1976
Not significant			**RODENT** *Rat*: Karli 1956 (mouse-killing); Karli et al. 1969 (young)	**PRIMATE** *Marmoset*: Bugnyar & Huber 1997
More among females			**ARACHNID** *Wolf Spider*: SE Walker & Rypstra 2001 (attacks & consumes more prey)	**PRIMATE** *Chimpanzee*: Hiraiwa-Hasegawa 1989 (ant fishing); Lonsdorf 2005 (termite fishing); *Stumptail Macaque*: Estrada et al. 1978

20.2.6.22 Fishing

Fishing is a special type of hunting which involves capturing fish and other animals usually submerged in water, usually for eventual consumption. As shown in Table 20.2.6.22, most of the findings have indicated that males are more involved in fishing than are females.

Table 20.2.6.22 Predation other than hunting

Nature of difference	*Post-Pubertal*		
		Adult	
More among males	**NORTH AMERICA** *US & Canada*: L Ellis, Robb & Burke 2005 (fishing)	**NORTH AMERICA** *Canada*: A Cooper et al. 1999 (fishing); *United States*: J Burger et al. 1998 **OCEANIA** *Australia*: RB Bird et al. 2001:11 (among Aborigines, spearing fishing)	
Not significant			
More among females		**AFRICA** *Congo*: Noss & Hewlett 2001 (among foragers, help drive fish in nets usually controlled by males)	

20.2.6.23 Foraging and Gathering

Sex differences in foraging for and gathering material (as opposed to active hunting) have been widely investigated. As shown in Table 20.2.6.23, the evidence that such behavior is more common in one sex than the other is quite mixed, albeit with a leaning toward studies indicating that females forage more than males do in most societies.

Table 20.2.6.23 Foraging and gathering

Nature of difference	*Wide Age Range*
More among males	**AFRICA** *Tanzania*: Marlowe 2001; Marlowe 2003:219 **INTERNATIONAL** *Multiple Preliterate Societies*: Murdock & Provost 1973:207* (collection of wild honey, 44/48 societies); Murdock & Provost 1973:207* (small land fauna, 30/67 societies); Murdock & Provost 1973:207* (small aquatic fauna, 15/55 societies); Murdock & Provost 1973:207* (wild vegetal foods 10/135 societies)
Not significant	**INTERNATIONAL** *Multiple Preliterate Societies*: Murdock & Provost 1973:207* (collection of wild honey, 2/48 societies); Murdock & Provost 1973:207* (small land fauna, 9/67 societies); Murdock & Provost 1973:207* (small aquatic fauna, 1/55 societies); Murdock & Provost 1973:207* (wild vegetal foods 18/135 societies)
More among females	**AFRICA** *South Africa*: Silberbauer 1981 (Kalahari Desert tribe); *Tanzania*: Hawkes et al. 1995 (Hadza foragers) **LATIN/CARIBBEAN AMERICA** *Colombia*: AC Roosevelt 1998

(*Continued*)

Table 20.2.6.23 (Continued)

Nature of difference	*Wide Age Range*
	(hunter-gatherers); *Venezuela*: Hurtado & Hill 1990 (among foragers) **NORTH AMERICA** *Canada*: Brumbach & Jarvenpa 1997:415 (Dene tribe); *United States*: TL Jackson 1991 (archeological data); H McCarthy 1993 (archeological data) **OCEANIA** *Australia*: RA Gould 1981 (tribal people); RB Bird et al. 2001 (among Aborigines, for shellfish) **INTERNATIONAL** *Multiple Preliterate Societies*: Murdock & Provost 1973:207* (collection of wild honey, 2/48 societies); Murdock & Provost 1973:207* (small land fauna, 28/67 societies); Murdock & Provost 1973:207* (small aquatic fauna, 39/55 societies); Murdock & Provost 1973:207* (wild vegetables, 107/135 societies)

20.2.6.24 Crop Cultivation

One study of sex differences in being most involved in crop cultivation was found. Table 20.2.6.24 shows that this study indicated that women engaged in this activity to a greater extent than did men.

Table 20.2.6.24 Crop cultivation

Nature of difference			*Post-pubertal*		
				Adult	
More among males					
Not significant					
More among females				**LATIN/CARIBBEAN AMERICA** *Colombia*: Hames & Vickers 1983 (Amazonian horticulturalists)	

20.2.6.25 Metallurgy

Metallurgy refers to the working of metals. This usually involves melting the metal and separating it from the ore in which it was embedded. As shown in Table 20.2.6.25, all available studies have concluded that most metallurgists are males.

20.2.7 Work in Specific Occupations or Occupational Areas

Research has indicated that there are striking sex differences in the occupations that people hold. Specifically, over half of all women would have to change jobs in order for sex differences in occupations to disappear (Blau & Hendricks 1979; FL Jones 1983; Jacobs 1989; Padavic & Reskin 2002:67). Many studies have been conducted to assess these differences. This section summarizes what these studies have indicated (with most of the occupations listed in alphabetical order).

Table 20.2.6.25 Metallurgy

Nature of difference			*Post-pubertal*		*Wide age range*
				Adult	
More among males				**EUROPE** *Netherlands*: de Ruijters et al. 2003:353 (welders) **NORTH AMERICA** *United States*: Rytina & Bianchi 1984:15 (welding) **INTERNATIONAL** *Multiple Preliterate Societies*: Murdock & Provost 1973:207* (smelting of ores, 37/37); Murdock & Provost 1973:207* (metalworking, 86/86 societies)	**INTERNATIONAL** *Multiple Societies*: C Russell & Russell 1971:68 (78/78 societies)
Not significant					
More among females					

20.2.7.1 Diversity (Variability) in Occupations

Several studies have investigated the possibility that the range of occupations engaged in my one sex surpasses that of the other sex. According to the findings, summarized in Table 20.2.7.1, males are engaged in a greater range of occupations than is true for females.

Table 20.2.7.1 Diversity (variability) in occupations

Nature of difference			*Post-pubertal*		
				Adult	
More among males				**AFRICA** *Multiple African Countries*: Canagarajah et al. 2001:413 **EUROPE** *Sweden*: Hanson & Pratt 1990 **NORTH AMERICA** *United States*: Kreps 1976; Blau & Hendricks 1979; P England 1979; US Bureau of the Census 1980; Gottfredson 1981; Farrell 1993; JA Jacobs 1989; Dunn 1996 **OVERVIEW** *Generalization*: Hollingworth 1922; KR Browne 1998:435 (more males in high and in low status jobs)	
Not significant					
More among females					

20.2.7.2 Accounting

Studies of sex differences in fulfilling the occupation of accountant (broadly defined) is shown in Table 20.2.7.2. It indicates that the evidence is inconsistent regarding any sex difference in people who become accountants.

Table 20.2.7.2 Accounting

Nature of difference			*Post-pubertal*		
				Adult	
More among males				**EUROPE** *Britain*: Crompton & Sanderson 1990 **NORTH AMERICA** *United States*: BH Wotton 1997:17* (financial planners, 76%m in 1975)	
Not significant				**MIDDLE EAST** *Israel*: Israel Central Bureau of Statistics 1997 **NORTH AMERICA** *United States*: BH Wootton 1997:17* (financial planners, in 1995)	
More among females				**NORTH AMERICA** *United States*: PN Cohen 2004:247 (bookkeeper)	

20.2.7.3 Agricultural Occupations

Agricultural occupations primarily involve farming and ranching. As shown in Table 20.2.7.3, a couple of studies have concluded that males are more involved in agriculture than are females.

Table 20.2.7.3 Agricultural occupations

Nature of difference	*Post-pubertal*		*Wide age range*
		Adult	
More among males		**NORTH AMERICA** *Canada*: P Smith 1992; *United States*: Kinsella & Velkoff 2001:104 **OCEANIA** *Philippines*: Lim 2000 (from 1987 through 1998)	**NORTH AMERICA** *United* States: Vetter & Babco 1986:75
Not significant			
More among females			

20.2.7.4 Architecture

Three studies regarding proportional sex differences among architects were located. One can see in Table 20.2.7.4 that all these studies concluded that greater proportions of males than females were architects.

Table 20.2.7.4 Architecture

Nature of difference	*Post-pubertal*	
	Adult	
More among males	**NORTH AMERICA** *United States*: Rytina & Bianchi 1984:15; US Bureau of the Census 1992; Swim, Aikin et al. 1995:204 (85%M in 1990)	
Not significant		
More among females		

20.2.7.5 Artisan/Skilled Craftmaker

Studies that have compared the sex ratios of people who are classified as artisan or skilled craftsmen are summarized in Table 20.2.7.5. All these studies agree that greater proportions of people in these occupations are males.

Table 20.2.7.5 Artisan/skilled craftmaker

Nature of difference			*Post-pubertal*	
				Adult
More among males				**ASIA** *Japan*: Kawakami et al. 2004:209 (full time workers) **NORTH AMERICA** *Canada*: M Denton et al. 2004:2591; *United States*: Vetter & Babco 1986:76 (manufacture & repairs)
Not significant				
More among females				

20.2.7.6 Basic Manual Labor

Basic (unskilled) manual labor typically has to do with tasks such as digging trenches, mowing lawn, and performing other general physical maintenance tasks. Table 20.2.7.6 shows that one study indicated that males are more likely to be involved in this type of work than are females.

Table 20.2.7.6 Basic manual labor

Nature of difference			*Post-pubertal*	
				Adult
More among males				**NORTH AMERICA** *United States*: Queneau 2006:685
Not significant				
More among females				

20.2.7.7 Banking

The one study of sex differences in banking is cited in Table 20.2.7.7. It indicates that more males than females are in this occupation.

Table 20.2.7.7 Banking

Nature of difference			*Post-pubertal*		
				Adult	
More among males				**MIDDLE EAST** *Kuwait*: Metle 2001:318	
Not significant					
More among females					

20.2.7.8 Biologist

Four studies of sex differences in people classified as biologists have been reported. As shown in Table 20.2.7.8, three concluded that more males are so classified, although one study reported the opposite.

Table 20.2.7.8 Biologist

Nature of difference	*Post-pubertal*		
		Adult	
More among males		**NORTH AMERICA** *United States*: AS Rossi 1965; RH Hall 1969:334; Epstein 1970:967 (over 70%M)	
Not significant			
More among females		**MIDDLE EAST** *Israel*: Israel Bureau of Statistics 1997	

20.2.7.9 Butchers

Butchers are people who process the meat of slaughtered animals. As shown in Table 20.2.7.9, findings have not been consistent regarding which sex is more likely to be butchers, especially in preliterate societies.

20.2.7.10 Cashiers

A few studies were located on sex differences in being cashiers in restaurants and in other retail establishments. As shown in Table 20.2.7.10. All studies have indicated that more females than males served in this type of work.

Table 20.2.7.9 Butchers

Nature of difference				*Post-pubertal*	
				Adult	
More among males				**EUROPE** *Sweden*: Sundin 2001:101 (87%M) **INTERNATIONAL** *Multiple Preliterate Societies*: Murdock & Provost 1973:207* (131/143 societies)	
Not significant				**INTERNATIONAL** *Multiple Preliterate Societies*: Murdock & Provost 1973:207* (4/143 societies)	
More among females				**INTERNATIONAL** *Multiple Preliterate Societies*: Murdock & Provost 1973:207* (8/143 societies)	

Table 20.2.7.10 Cashiers

Nature of difference				*Post-pubertal*	
				Adult	
More among males					
Not significant					
More among females				**ASIA** *China*: L Ellis & Awang 2011*; *Malaysia*: L Ellis & Awang 2011* **EUROPE** *Sweden*: Sundin 2001:101 (95%F) **NORTH AMERICA** *United States*: BH Wootton 1997:17 (87%F in 1975, 79%F in 1995); L Ellis & Awang 2011*	

20.2.7.11 Childcare/Daycare Providers

Especially in countries where both parents work, children are often taken care of by individuals known as *childcare* (or *daycare*) *workers*. As one can see in Table 20.2.7.11, all the available research has found that most childcare workers are female.

Table 20.2.7.11 Childcare/daycare providers

Nature of difference				*Post-pubertal*	
				Adult	
More among males					
Not significant					
More among females				**ASIA** *Former Soviet Union*: Lapidus 1976:126 (nursery school personnel, 98%M) **EUROPE** *Britain*: S Weich et al. 2001:1061 **MIDDLE EAST** *Israel*: Israel Central Bureau of Statistics 1997 **NORTH AMERICA** *United States*: Rytina & Bianchi 1984:16; Kandel et al. 1986 drug-dependent adults); Vetter & Babco 1986; Bianchi 2000; US Department of Commerce 2005 (95%F)	

20.2.7.12 Clergy/Ministry

Some research on sex differences in the field of religious ministry and related capacities (priests, rabbis, etc.) has been reported. Table 20.2.7.12 shows that all the available research indicates that more males than females are members of the clergy or religious ministry. These data need to be considered within the context that in several religions, only males are *allowed* to be in the clergy.

Table 20.2.7.12 Clergy/minister

Nature of difference	*Post-pubertal*		
		Adult	
More among males		**NORTH AMERICA** *United States*: RH Hall 1969:334; Epstein 1970:967 (1900-1960, over 90%M); Proctor & Proctor 1976; RL Phillips et al. 1980 (among Seventh Day Adventists); Lawless 1988; House 1990; BH Wootton 1997:21 (94%M in 1985, 89%M in 1995); McDuff 2001:10 (Protestant ministers, 1,540M vs. 447F); D Jupe 2014:503 (various Protestant denominations, ~80%M)	
Not significant			
More among females			

20.2.7.13 Clerical/Service Occupations

Clerical and service occupations include those who function as personal secretaries and receptionists as well as those who perform basic recordkeeping and budgeting for a business or organization. According to Table 20.2.7.13, all the available research has found that females are more often involved in these types of occupations than are males.

Table 20.2.7.13 Clerical/service occupations

Nature of difference	*Post-pubertal*		*Wide age range*
		Adult	
More among males			
Not significant			
More among females		**ASIA** *Japan*: Kawakami et al. 2004:209 (full time workers); *Soviet Union*: Lapidus 1976:126 (stenographers, 99%F) **EUROPE** *Britain*: CM Cassel & Walsh 1993; Emslie et al. 1999a:468 (among employed persons, 93%f); *Germany*: Fitzenberger & Kunze 2005:10 (service) **LATIN/CARIBBEAN AMERICA** *Brazil*: Htun 1999:137 (secretary/receptionist)	**MIDDLE EAST** *Israel*: Israel Central Bureau of Statistics 1997 (office workers) **NORTH AMERICA** *United States*: Vetter & Babco 1986:75 (secretary/receptionist)

(*Continued*)

Table 20.2.7.13 (Continued)

Nature of difference	*Post-pubertal*		*Wide age range*
		Adult	
		NORTH AMERICA *Canada*: M Denton et al. 2004:2591; *United States*: Baxandall et al. 1976:406 (secretary); MW Davies 1982:182; Rytina & Bianchi 1984:16; Sicherman 1996; Kinsella & Velkoff 2001:104; KR Brown 2002 (bank teller, over 90%F); PN Cohen 2004:247 (cashier); Huffman & Cohen 2004:144 (typists, 94%F); Queneau 2006:686	

20.2.7.14 Computer-Related Occupations

Computer-related occupations primarily include programmers and hardware technicians. As indicated in Table 20.2.7.14, substantial evidence suggests that males are more involved in these occupations than are females.

Table 20.2.7.14 Computer-related occupations

Nature of difference			*Post-pubertal*		
				Adult	
More among males				**NORTH AMERICA** *United States*: J Castro 1990 (computer system analysts); R Wright & Jacobs 1994:529; Baroudi & Igbaria 1995; Klawe & Leveson 1995; Reinen & Plomp 1997; BH Wootton 1997:17 (computer system analysts, 85%M in 1975 and 70%M in 1995); Friedman 2000; Panteli et al. 2001; US Department of Labor 2004 (computer programming, 74%M); US Department of Commerce 2005 (computer programmer, 88%M); DE Halpern, Benbow et al. 2007:Table 2 (faculty at elite universities)	
Not significant					
More among females					

20.2.7.15 Construction/Carpentry Occupations

Numerous studies of sex differences in construction and carpentry related occupations have been reported. As shown in Table 20.2.7.15, except for studies of preliterate societies, all studies indicate that males are more involved in these types of occupations than females. For, preliterate societies, the evidence is mixed.

Table 20.2.7.15 Construction/carpentry occupations

Nature of difference				*Post-pubertal*	
				Adult	
More among males				**ASIA** *Soviet Union*: Bartol & Bartol 1975:532*; Lapidus 1976:133 **EUROPE** *Germany*: Fitzenberger & Kunze 2005:10 (woodworkers); *Netherlands*: de Ruijters et al. 2003:353 **NORTH AMERICA** *United States*: Bartol & Bartol 1975:532*; BH Wootton 1997:16-17 (carpenters, 99%M in 1975 and 99%M in 1995); Huffman & Cohen 2004:144 (brick and stone masons, 99%M) **OCEANIA** *Philippines*: Lim 2000 (from 1987 through 1998) **INTERNATIONAL** *Multiple Preliterate Societies*: Murdock & Provost 1973:207* (work in wood, 162/164 societies); Murdock & Provost 1973:207* (lumbering, 139/139); Murdock & Provost 1973:207* (boat building, 87/91); Murdock & Provost 1973:207* (house building, 135/178)	
Not significant				**INTERNATIONAL** *Multiple Preliterate Societies*: Murdock & Provost 1973:207* (work in wood, 1/164 societies); Murdock & Provost 1973:207* (boat building 3/91 societies); Murdock & Provost 1973:207* (house building, 14/178 societies)	
More among females				**INTERNATIONAL** *Multiple Preliterate Societies*: Murdock & Provost 1973:207* (work in wood, 1/164 societies); Murdock & Provost 1973:207* (house building, 29/178 societies)	

20.2.7.16 Cooks/Chefs

Just one study of cooks and chefs regarding sex differences was located. Table 20.2.7.16 shows that the study reported equal proportions of males and females in this type of occupation.

Table 20.2.7.16 Cooks/chefs

Nature of difference				*Post-pubertal*	
				Adult	
More among males					
Not significant				**NORTH AMERICA** *United States*: PN Cohen 2004:247	
More among females					

20.2.7.17 Corporate Executive Officer (CEO)/Managers

As shown in Table 20.2.7.17, many studies of sex differences in being a corporate executive officer or general manager of some business have been published. One can see that all studies agree that men are more likely than women to be in these positions.

Table 20.2.7.17 Corporate executive officer (CEO)/managers

Nature of difference				*Post-pubertal*	
				Adult	
More among males				**EUROPE** *Britain*: Tancred-Sheriff & Campbell 1992 (manager); CM Cassel 1993; JG Oakley 2000 (managerial); *Norway*: Kvande & Rasmussen 1991 **NORTH AMERICA** *Canada*: M Denton et al. 2004:2591 (supervisor); Creese 1995 (white collar union executives); *United States*: Kanter 1977 (manager); Hambrick & Mason 1984; Fierman 1990 (manager); TH Cox & Harquail 1991 (among MBAs, manager); Federal Glass Ceiling Commission 1995 (manager); Schneer & Reitman 1995 (manager); Ragins et al. 1998; Daily et al. 1999 (executive officers); Bertrand & Hallock 2001 (97%m of top executives); US Department of Labor 2001 (manager, 55%M with liberal definition) **INTERNATIONAL** *Multiple Countries*: Daily & Near 2000; Bertrand & Hallock 2001	
Not significant					
More among females					

20.2.7.18 Trends in Sex Differences in Corporate Executive Officers

One study sought to determine if there might be a trend regarding the proportional representation of females in being corporate executive officers. One can see in Table 20.2.7.18 that at least in the 1990s, there was a significant increase in the proportion of female who were CEOs.

Table 20.2.7.18 Trends in sex differences among corporate executive officers

Nature of difference				*Post-pubertal*	
				Adult	
Decrease in female proportions					
No significant difference					
Increase in female proportions				**NORTH AMERICA** *United States*: Bertrand & Hallock 2001 (1992-1997)	

20.2.7.19 Cosmetologists

A cosmetologist helps people to beautify their physical appearance. As shown in Table 20.2.7.19, the one study located on sex differences in this line of work concluded that it was primarily females.

Table 20.2.7.19 Cosmetologists

Nature of difference			*Post-pubertal*	
				Adult
More among males				
Not significant				
More among females				**EUROPE** *Netherlands*: de Ruijters et al. 2003:353 (beauticians)

20.2.7.20 Counselors/Psychotherapists

Three studies of sex differences in counseling occupations were located. Table 20.2.7.20 shows that they reached different conclusions, with one indicating that more males were involved in the profession, while the remaining two studies concluded that more females were involved.

Table 20.2.7.20 Counselors/psychotherapists

Nature of difference			*Post-pubertal*	
				Adult
More among males				**NORTH AMERICA** *United States*: Chesler 1971
Not significant				
More among females				**MIDDLE EAST** *Israel*: Israel Central Bureau of Statistics 1997 **NORTH AMERICA** *United States*: US Department of Labor 2004 (counseling psychologist, 66%F)

20.2.7.21 Creative Writing and Producing

Several studies have assessed sex differences in the writing and producing of plays, television programs, and the like. Table 20.2.7.21 shows that these studies have all concluded that males are more directly involved in these endeavors than are females.

Table 20.2.7.21 Creative writing and producing

Nature of difference			*Post-pubertal*	
				Adult
More among males				**EUROPE** *Britain*: JR Taylor 1962:212 (playwrights); Shubik 1975 (playwrights); MacMurraugh-Kavanagh 1999 (playwrights) **NORTH AMERICA** *United States*: Lauzen & Dozier 1999 (television directors/writers/producers/executives); Glascock 2001:661 (television directors/writers/producers/executives)
Not significant				
More among females				

20.2.7.22 Dentistry

As shown in Table 20.2.7.22, three studies have indicated that more dentists are males than females. However, dental hygienists who assist dentists in the routine cleaning of teeth along with related tasks are more often female according to one additional study.

Table 20.2.7.22 Dentistry

Nature of difference			*Post-pubertal*		*Wide age range*
				Adult	
More among males				**NORTH AMERICA** *United States*: RH Hall 1969:334 (dentist); Epstein 1970:967 (over 95%M, 1910-1960); US Bureau of the Census 1992 (dentist)	
Not significant					
More among females					**NORTH AMERICA** *United States*: Vetter & Babco 1986 (dental hygienist)

20.2.7.23 Economists

One study assessed sex differences in the proportion of economists who were of each sex in two different countries. Table 20.2.7.23 shows that both studies concluded that more males than females were in this profession.

Table 20.2.7.23 Economists

Nature of difference			*Post-pubertal*		
				Adult	
More among males				**ASIA** *Soviet Union*: Bartol & Bartol 1975:528* (over 60%M) **NORTH AMERICA** *United States*: Bartol & Bartol 1975:528* (over 80%M)	
Not significant					
More among females					

20.2.7.24 Editors

In one study, sex differences in editors of medical journals were assessed. In Table 20.2.7.24, one can see that it indicated that more males than females functioned in this capacity.

Table 20.2.7.24 Editors

Nature of difference				*Post-pubertal*	
				Adult	
More among males				**NORTH AMERICA** *United States*: J Keiser et al. 2003 (editors of medical journals)	
Not significant					
More among females					

20.2.7.25 Electricians

Two studies of sex differences among people classified as electricians were located. Table 20.2.7.25 shows that both studies concluded that more makes than females were in this occupational field.

Table 20.2.7.25 Electricians

Nature of difference				*Post-pubertal*	
				Adult	
More among males				**EUROPE** *Germany*: Fitzenberger & Kunze 2005:10; *Netherlands*: de Ruijters et al. 2003:353	
Not significant					
More among females					

20.2.7.26 Engineers

Numerous studies have investigated sex differences in people's tendencies to work in the field of engineering. Table 20.2.7.26 shows that all the studies that were located have concluded that more males than females work in STEM occupations, especially in engineering and physical science.

20.2.7.27 Fire Fighters

Several studies of sex differences in being a professional fire fighter have been published. One can see in Table 20.2.7.27 that all of these studies agree that firefighting tends to be primarily a male occupation.

Table 20.2.7.26 Engineers

Nature of difference			*Post-pubertal*		*Wide age range*
				Adult	
More among males				**ASIA** *Russia*: Gerber & Schaefer 2004 (engineer); Former *Soviet Union*: Epstein 1970:968* (engineer, about 70%M); Bartol & Bartol 1975:528* (engineer, over 70%M, 1941-1966); Lapidus 1976:126 (mechanical engineers) **MIDDLE EAST** *Israel*: Israel Central Bureau of Statistics 1997 (aeronautics); *Turkey*: Dayioglu & Turut-Asik 2007:264 **EUROPE** *Britain*: Devine 1992; Evetts 1994; Smeaton et al. 1997; C Manson & Winterbottom 2012 **NORTH AMERICA** *United States*: AS Rossi 1965; Epstein 1970:967 (over 80% M); Bartol & Bartol 1975:528* (engineer, about 85%M, 1950-1970); FD Blau 1979:277 (engineer); Dearman & Plisko 1979 (engineer); Meece et al. 1982 (scientists); Rossiter 1982; Vetter & Babco 1986 (aerospace); JR Cole 1987; Jagacinski 1987 (engineer); Vetter 1994 (engineer); Swim, Aikin et al. 1995:204 (engineer, 92%M in 1990); Seymour et al. 1997; Wickware 1997 (engineer); BH Wootton 1997:16 (engineer, 90%M); R Bruner 1998; HS Farmer et al. 1998; Meinholdt & Murray 1999 (engineer); National Science Foundation 2000; Sax 2001; Lawler 2002 (engineer professor); Huffman & Cohen 2004:144 (mechanical, civil, aerospace, electrical, over 90%M); US Department of Labor 2004 (engineer, 96%M); US Department of Commerce 2005 (engineer, 90%M); Ceci & Williams 2007 (STEM fields); Eccles 2007 (engineer); DE Halpern, Benbow et al. 2007:Table 2 (engineering faculty at elite universities) **OVERVIEW** *Literature Review*: HM Watt & Eccles 2008 (STEM fields); Ceci et al. 2009 (STEM fields)	**NORTH AMERICA** *United States*: RH Hall 1969:334; SA Menninger & Rose 1980; Wickware 1997; Mervis 1999
Not significant					
More among females					

20.2.7.28 Fortune Tellers

One study reported on sex differences among people who served as fortune tellers. Table 20.2.7.28 shows that it concluded that more females than males were in this occupation.

Table 20.2.7.27 Fire fighters

Nature of difference			*Post-pubertal*	
				Adult
More among males				**EUROPE** *Britain*: Govier 2003 **NORTH AMERICA** *United States*: Cayer & Sigelman 1980; Ruccucci 1986; RL Warner et al. 1989; GB Lewis & Nice 1994; W Miller et al. 1999:222; KR Brown 2002 (over 90%); B Kerr et al. 2002; US Department of Labor 2004 (96%M)
Not significant				
More among females				

Table 20.2.7.28 Fortune tellers

Nature of difference					*Wide age range*
More among males					
Not significant					
More among females					**INTERNATIONAL** *Multiple Countries*: W Cohn 1973:38 (among Gypsies)

20.2.7.29 Geographers or Mapping Scientists

Substantial research has assessed sex differences amongst geographers. One can see in Table 20.2.7.29 that all the research agrees that a greater proportion of geographers are males than females.

Table 20.2.7.29 Geographers or mapping scientists

Nature of difference			*Post-pubertal*	
				Adult
More among males				**ASIA** *Japan*: Murata 2005 (professional membership, 92%M) **EUROPE** *Britain*: McDowell 1979; McDowell & Peake 1990 (college faculty) **NORTH AMERICA** *Canada*: Momsen 1980; Mackenzie 1989; JH Hall et al. 2002; *United States*: Zelinsky 1973 (professional membership); M Berman 1974; Zelinsky 1975; B Rubin 1979; Golledge & William 1983; Vetter & Babco 1986; D Lee 1990; F Al-Hindi 2000; Luzzadder Beach & Macfarlane 2000 (physical geography); Winkler 2000 (academics); Monk 2004
Not significant				
More among females				

20.2.7.30 Herding

Herding entails following, watching, and directing the movement of various ungulate species (i.e., hoofed animals) such as cattle, sheep, goats, pigs, and deer. The ethnographic research on sex differences, which is summarized in Table 20.2.7.30, has concluded that in most societies, males are more likely to engage in herding activities than are females. Nevertheless, there are several exceptions. It is also worth noting that this is one type of work in which one finds child labor, and, in this case, boys are more often involved than are girls.

Table 20.2.7.30 Herding

Nature of difference	*Pre-pubertal*				*Wide age range*
		Child			
More among males		**AFRICA** *Kenya*: Kayongo-Male & Walji 1984:91; *Tanzania*: Sellen 2000:361 (Datoga pastoralists); *Zambezi*: P Reynolds 1991:120			**INTERNATIONAL** *Multiple Societies*: C Russell & Russell 1971:68 (38/38 human societies); *Multiple Preliterate Societies*: Murdock & Provost 1973:207* (78/98)
Not significant					**INTERNATIONAL** *Multiple Preliterate Societies*: Murdock & Provost 1973:207* (14/98)
More among females					**OCEANIA** *New Guinea*: Sillitoe 2001:177 (herding pigs) **INTERNATIONAL** *Multiple Preliterate Societies*: Murdock & Provost 1973:207* (6/98)

20.2.7.31 Human Services

Human service occupations are usually found in large businesses and other organization. The individuals who fill these occupations help to maintain records having to do with employee pay, benefits, sick leave, and vacation time. Table 20.2.7.31 shows that more females than males are classified as human services employees.

Table 20.2.7.31 Human services

Nature of difference			*Post-pubertal*		
				Adult	
More among males					
Not significant					
More among females				**EUROPE** *Germany*: Fitzenberger & Kunze 2005:10 (general health care) **NORTH AMERICA** *United States*: Brackman & Erie 1986	

20.2.7.32 Janitors and Housekeepers

Numerous studies of people who maintain the cleanliness and tidiness of buildings and homes for pay have been conducted. Table 20.2.7.32 shows that findings of sex differences are inconsistent.

Table 20.2.7.32 Janitor and housekeepers

Nature of difference				*Post-pubertal*	
				Adult	
More among males				**MIDDLE EAST** *Israel*: Israel Central Bureau of Statistics 1997 (hotel cleaners) **NORTH AMERICA** *United States*: Rytina & Bianchi 1984:15 (janitor); Cotter et al. 1995 (housekeeper); Blau et al. 1998 (housekeeper); T Wells 1999 (housekeeper); Bianchi et al. 2000 (janitors); S Coltrane 2000 (housekeeper); PN Cohen 2004 (housekeeper) **INTERNATIONAL** *Multiple Countries*: Batalova & Cohen 2002 (housekeeper)	
Not significant					
More among females				**NORTH AMERICA** *Canada*: Greenstein 1996 (domestic service); *United States*: JM Golding 1990 (domestic housekeeping, whites); MC Lennon & Rosenfeld 1994 (domestic service)	

20.2.7.33 Journalists

One study of sex differences in the field of journalism was located. As shown in Table 20.2.7.33, it reported that more males than females were journalists.

Table 20.2.7.33 Journalists

Nature of difference				*Post-pubertal*	
				Adult	
More among males				**NORTH AMERICA** *United States*: Weaver & Wilhoit 1996	
Not significant					
More among females					

20.2.7.34 Law Enforcement/Police Officers

Many studies have been undertaken to assess sex differences in performing police work as well as similar forms of law enforcement (e.g., correctional officers). Findings are summarized in Table 20.2.7.34a. One can see that all studies indicate that more males than females are involved in police work, even in informal ways (e.g., vigilantism).

Table 20.2.7.34a Law enforcement/police officers

Nature of difference			*Post-pubertal*		
				Adult	
More among males				**EUROPE** *Britain*: Govier 2003 (police) **MIDDLE EAST** *Egypt*: Arabsheibani 1990; *Israel*: Israel Bureau of Statistics 1997 (prison guards) **NORTH AMERICA** *United States*: Tenny 1953 (police officers); Melchionne 1967 (police officers); C Milton 1972; National Advisory Commission on Criminal Justice 1973:343 (police officers); N Cayer & Sigelman 1980; J Morton 1980 (corrections officers); Skogan & Maxfield 1981 (citizen-based neighborhood patrolling); JQ Wilson & Kelling 1982 (vigilantism); S Walker 1985; Pennell et al. 1986 (citizen-based neighborhood patrolling); Ruccucci 1986; Vetter & Babco 1986 (police and detective); RL Warner et al. 1989; GB Lewis & Nice 1994; Swim, Aikin et al. 1995:204 (police, 89%M in 1990); BH Wootton 1997:16 (84%M); W Miller et al. 1999:222; Sass & Troyer 1999; Harrington & Lonsway 2001 (police officers); B Kerr et al. 2002; US Bureau of Justice Statistics 2003 (correctional officers); McCall 2004; Raganella & White 2004:505 (79%M); US Department of Labor 2004 (82% M); Queneau 2006:685 (protective services); Tewksbury & Collins 2006 (correctional officers)	
Not significant					
More among females					

Among primates, a phenomenon known either as the *control role* or *policing* has been observed. The behavior involves certain individuals (usually leaders of a troop) taking responsibility for maintaining social order in the troop. For example, if a scuffle breaks out between a couple of juveniles, the individual performing the control role will usually approach those involved in the scuffle, and, by grunting or even actively intervening, will bring the ruckus to an end.

As shown in Table 20.2.7.34b, all these studies have concluded that males engage in control behavior almost exclusively. It has been proposed that evolutionary forces are responsible for control behavior in primates, and that it may be an early form of human police work (Willhoite 1976; Ellis 1990; Ellis & Walsh 2000:26).

20.2.7.35 Lawyers

Table 20.2.7.35 summarizes findings regarding sex differences in the profession of lawyers (or attorneys). One can see that all studies that were located indicate that greater proportions of males than females are lawyers.

Table 20.2.7.34b "Policing" behavior

Nature of difference			*Post-pubertal*		
				Adult	
More among males				**PRIMATE** *Gorilla*: JW Foster 1982 (control role); *Rhesus Macaque*: Tokuda & Jensen 1968 (control role); *Multiple Primate Species*: Bramblett 1976:176 (control role); Willhoite 1976:1115 (control role)	
Not significant					
More among females					

Table 20.2.7.35 Lawyers

Nature of difference			*Post-pubertal*		
				Adult	
More among males				**ASIA** *Soviet Union*: Bartol & Bartol 1975:528* (1941-1960, about 75%M) **MIDDLE EAST** *Egypt*: Arabsheibani 1990; *Israel*: Israel Central Bureau of Statistics 1997 (judges) **NORTH AMERICA** *Canada*: FM Kay & Hagan 1998:737; *United States*: Hankin & Krohnke 1965 (1948-1963); RH Hall 1969:334, 1970:967 (1910-1960); Bartol & Bartol 1975:528* (1950-1970); RM Kanter 1978; Cook 1980 (judges); Abramson & Franklin 1986; Curran 1986; Mullins 1987; JS Kaye 1988; RL Able 1989; Briscoe 1989; J Castro 1990; US Department of Labor-Women's Bureau 1991; Allen & Wall 1993:157 (judges); CF Epstein 1993; US Bureau of the Census 1993; RG Wood et al. 1993 (in private practice); Hagan & Kay 1995; Swim, Aikin et al. 1995:204 (79%M in 1990); BH Wootton 1997:17 (93%M in 1975 and 74%M in 1995); ABA Commission 2001; Kay & Sparrow 2001:7 (judges); US Department of Labor 2004 (71%M)	
Not significant					
More among females					

20.2.7.36 Librarians

Several studies of sex differences in being librarians were located. One can see in Table 20.2.7.36 that they all indicated that females are more likely than males to be engaged in this occupation.

Table 20.2.7.36 Librarians

Nature of difference			*Post-pubertal*		*Wide age range*
				Adult	
More among males					
Not significant					
More among females				**ASIA** *Former Soviet Union*: Lapidus 1976:126 (95%f) **MIDDLE EAST** *Egypt*: Arabsheibani 1990 **NORTH AMERICA** *United States*: Epstein 1970:967 (1910-1960, over 80%F); MJ Lynch 1998; DR Hollis 1999; Deyrup 2004	**NORTH AMERICA** *United States*: RH Hall 1969:334; Vetter & Babco 1986

20.2.7.37 Machine/Heavy Equipment Operators

Table 20.2.7.37 summarizes findings having to do with sex differences in occupations involving control over machines and heavy equipment. It shows that males were found to be more involved than females in operating heavy mechanized equipment.

Table 20.2.7.37 Heavy equipment/machine operators

Nature of difference			*Post-pubertal*		
				Adult	
More among males				**EUROPE** *Britain*: Govier 2003 **MIDDLE EAST** *Israel*: Israel Bureau of Statistics 1997 **NORTH AMERICA** *United States*: BH Wootton 1997:17	
Not significant					
More among females					

20.2.7.38 Manufacturing/Production Work

Manufacturing and production occupations involve turning raw products such as lumber and metals into some sort of marketable product such as furniture, gates, and automobiles. As shown in Table 20.2.7.38, studies of manufacturing in general indicated that most workers in these professions are males. A wide-ranging anthropological survey of people who are most involved in manufacturing concluded that in most cultures, males are more involved than females except in the case of basket and mat weaving.

Table 20.2.7.38 Manufacturing/production work

Nature of difference			*Post-pubertal*		
				Adult	
More among males				**NORTH AMERICA** *United States*: Rytina & Bianchi 1984:15; Kinsella & Velkoff 2001:104 **OCEANIA** *Philippines*: Lim 2000 (from 1987 through 1998) **INTERNATIONAL** *Multiple Preliterate Societies*: Murdock & Provost 1973:207* (making musical instruments, 86/88 societies); Murdock & Provost 1973:207* (manufacture of leather, 38/74 societies); Murdock & Provost 1973:207* (basket making, 46/130 societies); Murdock & Provost 1973:207* (pottery making, 19/105 societies); Murdock & Provost 1973:207* (making rope or cord, 69/111 societies); Murdock & Provost 1973:207* (making nets, 44/65 societies); Murdock & Provost 1973:207* (making mats, 34/103 societies)	
Not significant				**INTERNATIONAL** *Multiple Preliterate Societies*: Murdock & Provost 1973:207* (making musical instruments, 1/88 societies); Murdock & Provost 1973:207* (manufacture of leather, 2/74 societies); Murdock & Provost 1973:207* (basket making, 15/130); Murdock & Provost 1973:207* (pottery making, 6/105 societies); Murdock & Provost 1973:207* (making rope or cord, 18/111 societies); Murdock & Provost 1973:207* (making nets, 5/65 societies); Murdock & Provost 1973:207* (making mats, 9/103 societies)	
More among females				**INTERNATIONAL** *Multiple Preliterate Societies*: Murdock & Provost 1973:207* (making musical instruments, 1/88 societies); Murdock & Provost 1973:207* (manufacture of leather, 34/74 societies); Murdock & Provost 1973:207* (basket making, 69/130 societies); Murdock & Provost 1973:207* (pottery making, 80/105 societies); Murdock & Provost 1973:207* (making rope or cord, 24/111 societies); Murdock & Provost 1973:207* (making nets, 16/65 societies); Murdock & Provost 1973:207* (making mats, 60/103)	

20.2.7.39 Mathematicians

Studies of sex differences in being mathematicians (usually as teachers and professors) are summarized in Table 20.2.7.39. One can see that the evidence all agrees that more males than females are in this profession.

Table 20.2.7.39 Mathematicians

Nature of difference			*Post-pubertal*		
				Adult	
More among males				**NORTH AMERICA** *United States*: AS Rossi 1965; RH Hall 1969:334; Epstein 1970:967 (over 60%M); Seymour et al. 1997; Wickware 1997; Sax 2001; DE Halpern, Benbow et al. 2007:Table 2 (faculty at elite universities)	
Not significant					
More among females					

20.2.7.40 Mechanics or Machine Operators

The studies of sex differences in being mechanics or operators of large/heavy machines (such as trucks and trains) are shown in Table 20.2.7.40. All these studies indicate that males are more often involved in this line of work than is the case for females.

Table 20.2.7.40 Mechanics or machine operators

Nature of difference				*Post-pubertal*	
				Adult	
More among males				**EUROPE** *Germany*: Fitzenberger & Kunze 2005:10 **MIDDLE EAST** *Israel*: Israel Central Bureau of Statistics 1997 (auto mechanics) **NORTH AMERICA** *United States*: Rytina & Bianchi 1984:15 (machine operators & truck drivers); Vetter & Babco 1986 (truck drivers); BH Wootton 1997:16; MG Jones et al. 2000; KR Brown 2002 (over 90); Huffman & Cohen 2004:144 (appliance mechanic, 99%M); US Department of Labor 2004 (mechanics, 96%M; motor vehicle operators, 88%M); Queneau 2006:685 (transportation industry)	
Not significant					
More among females					

20.2.7.41 Military Service Personnel

People who serve in the military have been studied with reference to sex differences. Table 20.2.7.41 shows that all studies agree that males are more likely to serve in the military than females.

Table 20.2.7.41 Military service personnel

Nature of difference				*Post-pubertal*	
				Adult	
More among males				**NORTH AMERICA** *United States*: Card & Farrell 1983 (undergrad, officer military training (ROTC); Wittman 1989 (undergrad, officer military training, ROTC, naval academy); Manning & Wright 2000 (84%M); Mani 2001:319; Rohall et al. 2006 (ROTC in undergrad); US Department of Defense 2006 (85%M); Tiesman, Peek-Asa et al. 2007:Table 1; US Department of Defense 2007 (85%M) **INTERNATIONAL** *Multiple Countries*: International Institute for Strategic Studies 2000	
Not significant					
More among females					

20.2.7.42 Morticians

Morticians are individuals who deal with the bodies of deceased people. As shown in Table 20.2.7.42, one study reported that most morticians are males.

Table 20.2.7.42 Morticians

Nature of difference			*Post-pubertal*		
				Adult	
More among males				**NORTH AMERICA** *United States*: Harrawood 2009 (funeral directors & embalmers, 80.2%M)	
Not significant					
More among females					

20.2.7.43 Nursing

The available research on sex differences in the occupation of nursing is summarized in Table 20.2.7.43. One can see that all studies have concluded that substantially more females than males are in this profession.

Table 20.2.7.43 Nursing

Nature of difference			*Post-pubertal*		*Wide age range*
				Adult	
More among males					
Not significant					
More among females				**ASIA** *Soviet Union*: Lapidus 1976:126 (98%f) **EUROPE** *Norway*: Skrede 1986; *Spain*: Gutiérrez, Jiménez et al. 2005:1562 (86%F) **MIDDLE EAST** *Israel*: Israel Central Bureau of Statistics 1997; *Jordan*: Al-Ma'aitah et al. 1996:223 **LATIN/CARIBBEAN AMERICA** *Brazil*: Htun 1999:137 **NORTH AMERICA** *United States*: Epstein 1970:967 (1900-1960, over 90%F); Fuchs 1975; Rytina & Bianchi 1984:16; Floge & Merrill 1986; Lorence 1992 (service-sector); BH Wootton 1997:16 (93%F); KR Brown 2002 (over 90%F); PN Cohen 2004:247; Huffman & Cohen 2004:144 (94%F); US Department of Commerce 2005 (88%F); Landivar 2013 (96%F in 1980 & 91%F in 2010) **OCEANIA** *Australia*: Lodge et al. 1997	**NORTH AMERICA** *United States*: RH Hall 1969:334; Vetter & Babco 1986

20.2.7.44 Pharmacists

One study of sex differences among pharmacists was located. Table 20.2.7.44 shows that it reported more males than females in this occupation.

Table 20.2.7.44 Pharmacists

Nature of difference				*Post-pubertal*	
				Adult	
More among males				**EUROPE** *Britain*: Crompton & Sanderson 1990 (pharmacist) **NORTH AMERICA** *United States*: RH Hall 1969:334 (chemist); Epstein 1970:967 (chemists, over 90%M); DE Halpern, Benbow et al. 2007:Table 2 (chemist faculty at elite universities)	
Not significant					
More among females					

20.2.7.45 Physical Scientists

Physical scientists consist primarily of physicists, astronomers, and geologists and other individuals in STEM occupations. Table 20.2.7.45 indicates that most members of these professions are males.

Table 20.2.7.45 Physical scientists

Nature of difference				*Post-pubertal*	
				Adult	
More among males				**MIDDLE EAST** *Egypt*: Arabsheibani 1990; *Israel*: Israel Central Bureau of Statistics 1997 (physicists) **NORTH AMERICA** *United States*: RH Hall 1969:334; Epstein 1970:967 (over 90%M); MR Walsh 1977; Dearman & Plisko 1979 (92%M in 1976); Berryman 1983; BM Vetter 1988 (physical scientists); Seymour et al. 1997; Wickware 1997; Sax 2001; Elesh 2002:323; Ivie & Ray 2005; E Gates 2006; Eccles 2007; DE Halpern, Benbow et al. 2007:Table 2 (astronomy & physics, faculty at elite universities); SR Hewlett et al. 2008 (STEM fields); E Simard et al. 2008 (STEM fields) **INTERNATIONAL** *Multiple Countries*: Etzkowitz et al. 2000	
Not significant					
More among females					

20.2.7.46 Physicians

Substantial research has sought to determine if sex differences exist in the proportions of individuals who become, or seek to become, physicians. As

shown in Table 20.2.7.46, the answer seems to vary according to the country and possibly the time period being investigated. Specifically, most studies indicate that most physicians (as well as medical researchers) in the United States are males. However, in several other countries, female physicians appear to outnumber male physicians.

Table 20.2.7.46 Physicians

Nature of difference				*Post-pubertal*	
				Adult	
More among males				**EUROPE** *Wales*: WE Waters 1975:50; *Multiple European Countries*: Galenson 1973:24 **NORTH AMERICA** *Canada*: Woodward & Adams 1985 (among specialists); S Evans & Sarani 2002 (specialize in surgery); *United States*: RH Hall 1969:334; Epstein 1970:967 (1910-1960); Bartol & Bartol 1975:528* (over 90%M); FD Blau 1979:277; Crowley 1984 (among specialists); Floge & Merrill 1986; Weisman et al. 1986 (private practice); Fiorentine 1987 (medical school applicants); J Castro 1990; Rodin & Ickovics 1990 (medical research); US Department of Labor Women's Bureau 1991; Shye 1991 (private practice); Lorence 1992 (service-sector); Chesney 1993 (medical research); US Bureau of the Census 1993; Wenger et al. 1993 (medical research); Lillemoe et al. 1994 (specialize in surgery); KG Low et al. 1994 (medical research); Redman et al. 1994 (private practice); Bickel et al. 1995; Swim, Aikin et al. 1995:204 (80%M in 1990); N Baxter et al. 1996 (specialize in surgery); American Medical Association 2000; HC Richardson & Redfern 2000 (specialize in surgery); C Williams & Cantillon 2000 (specialize in surgery); Mayer et al. 2001 (specialize in surgery); Schulman & Karney 2003:623 (graduating physicians, 60%M); Huffman & Cohen 2004:144 (podiatrists, 89%M); US Department of Labor 2004 (69%M)	
Not significant					
More among females				**ASIA** *Russia*: Harden 2001; *Former Soviet Union*: Bartol & Bartol 1975:528* (about 70%F); Lapidus 1976:129; Yanowitch 1987:351 **EUROPE** *Estonia*: Barr & Boyle 2001; *Norway*: Skrede 1986 **MIDDLE EAST** *Israel*: Shye 1991 (in private practice) **NORTH AMERICA** *United States*: Franks & Clancy 1993 (physicians performing pap smears and mammograms)	

20.2.7.47 Pilots

A couple of studies of sex differences in being pilots of aircraft were located. As shown in Table 20.2.7.47, both studies concluded that more males than females are involved in this occupation.

Table 20.2.7.47 Pilots

Nature of difference				*Post-pubertal*	
				Adult	
More among males				**NORTH AMERICA** *United States*: Swim, Aikin et al. 1995:204 (98%M in 1990); US Department of Labor 2004 (96%M)	
Not significant					
More among females					

20.2.7.48 Politicians: Appointed Political Office Holders

Major examples of political office holders in non-elected positions would be cabinet ministers and governmental department secretaries. Table 20.2.7.48 indicates that males are more likely to fill these positions than are females, especially at the higher levels of political power.

Table 20.2.7.48 Politicians: Appointed political office holders

Nature of difference				*Post-pubertal*	
				Adult	
More among males				**EUROPE** *Sweden*: H Holter 1973 **LATIN/CARIBBEAN AMERICA** *Multiple Latin Countries*: Escobar-Lemmon & Taylor-Robinson 2005:838 (appointed government cabinet members) **MIDDLE EAST** *Israel*: Rabin 1970 **NORTH AMERICA** *United States*: MK Jennings & Thomas 1968:472 (delegates to political conventions); Babchuk & Booth 1969; Orum 1974 **OCEANIA** *Australia*: Moon & Fountain 1997 (appointed government cabinet members) **INTERNATIONAL** *Multiple Industrial Countries*: Duverger 1955; Almond & Verba 1963; Aldrich & Kage 2003:35 (cabinet members)	
Not significant					
More among females					

20.2.7.49 Politicians: Candidates for Elected Office

Studies of people seeking elected political office have often sought to determine the proportion of each sex who does so. As shown in Table 20.2.7.49, all available studies have indicated that candidates for political office are predominantly men. However, comparisons over decades seem to indicate that the degree to which this has occurred has diminished somewhat. For example, the percentage of candidates running

for national offices in Ireland who were female increased from 3% in 1948 to 19% in 1997 (O'Kelly 2000:252).

Table 20.2.7.49 Politicians: Candidates for elected office

Nature of difference				*Post-pubertal*	
				Adult	
More among males				**EUROPE** *Ireland*: O'Kelly 2000: 252 (decrease from 97%M in 1948 to 81%M in 1997) **LATIN/CARIBBEAN AMERICA** *Mexico*: Baldez 2004:242 **NORTH AMERICA** *United States*: Karnig & Walter 1976 (candidates); Darcy & Scramm 1977 (candidates); Rule 1981 (candidates, state legislature); S Welch et al. 1991 (candidates); C Chaney & Sinclair 1994 (national); Paolino 1995 (candidates); Matland & Studlar 1996; Lawless & Fox 2010 (running for elected office)	
Not significant					
More among females					

20.2.7.50 Politicians: Holders of Elected Political Office

A large number of studies have been conducted throughout the world to assess the relative proportions of men and women holding elected political office. As shown in Table 20.2.7.50, all of these studies have concluded that the proportion of males substantially outnumbers the proportion of females, typically by at least 3- or 4-to-1. Nevertheless, there are a few examples of virtual equality.

Table 20.2.7.50 Politicians: Holders of elected political office

Nature of difference				*Post-pubertal*	
				Adult	
More among males				**AFRICA** *Angola*: McCullough 1952; *South Africa*: Schapera 1930 (Khoisan tribe) **ASIA** *China*: Andors 1983; Whyte 1984; Bauer et al. 1992; Gilmartin 1993; *India*: Rajalakshmi 1985; Swarup et al. 1994; Hoskyns & Rai 1998:347; *Japan*: O'Reilly 1983:69; *Russia*: Nechemias 1994; W Slater 1994; Pilkina 2019; *Former Soviet Union*: W Mandel 1975; BG Rosenthal 1975 **EUROPE** *Britain*: S Welch & Studlar 1990*; A Phillips 1991 (81%M in 1918); A Phillips 1998; Tesch-Romer 2008:Table 1*; *Finland*: Paasilinna 1987; *Ireland*: M Manning 1978; RL Engstrom 1987; Galligan 1992; Galligan & Wilford 1999; *Norway*: Matland 1994:273; Tesch-Romer 2008:Table 1*; *Portugal*: Poeschl 2008:76 (91.3%M); *Spain*: Tesch-Romer 2008:Table 1*; *Sweden*: Towns 2003:20 (legislators, 80%M in 1970s and 60%M in 1990s); Sainsbury 2004; *Multiple European Countries*: P Norris 1985; Pascall & Manning 2000 (former Soviet Union block countries); *Multiple Scandinavian Countries*: Dahlerup 1989	

(*Continued*)

Table 20.2.7.50 (Continued)

Nature of difference			*Post-pubertal*		
				Adult	
				LATIN/CARIBBEAN AMERICA *Argentina*: MP Jones 1996; *Colombia*: Escobar-Lemmon & Taylor-Robinson 2005; *Mexico*: V Rodriguez 2003; *Multiple Latin American Countries*: Aviel 1981; Htun & Jones 2001 **MIDDLE EAST** *Iran*: Azari 1983; Fathi 1985; *Israel*: Rabin 1970:298; Tesch-Romer 2008:Table 1*; *Multiple Islamic Countries*: Kazemi 2000 **NORTH AMERICA** *Canada*: Matland & Taylor 1997; *United States*: Duverger 1955:145; Werner 1966; MK Jennings & Thomas 1968:472; Lamson 1968:23; Werner 1968:43; R Darcy & Scramm 1977; I Diamond 1977; Gehlen 1977; Merritt 1977; S Welch 1977 (state legislature); Hedlund et al. 1979; M Johnson 1980; DW Stewart 1980:4; I Diamond & Hartsock 1981; DB Hill 1981; Rule 1981; Schramm 1981; SJ Carroll & Strimling 1983; Antonlini 1984; Center for American Women and Politics 1984; Gertzog 1984; Darcy et al.1985 (state legislature); G Schubert 1985; S Welch et al. 1985; Benze & Declercq 1986 (state legislature); R Darcy et al. 1987; Gona 1987; National Women's Political Caucus 1987; Nechemias 1987 (state-level offices); Rule 1987; Burt-Way 1988; R Kelly et al. 1988; Saint-Germain 1989; US Bureau of the Census 1989:253; E Costantini 1990; Rule 1990 (state legislature); S Welch & Studlar 1990*; Whicker 1990; S Thomas & Welch 1991 (state legislature); Basow 1992:299 (national office, 1947-1992); DW Cantor 1992:6 (US senators, 1,715M vs. 11F, 1776-1976); Moncrief & Thompson 1992 (state legislature); Berkman & O'Connor 1993 (state legislature); Burrell 1994; SJ Carroll 1994; R Darcy et al. 1994; S Thomas 1994; Center for American Women and Politics 1995 (state legislature, 79%M); Gertzog 1995; Weisenburger et al. 1995:37 (school board members); Matland & Studlar 1996; MM Conway et al. 1997 (US congress); RL Fox 1997 (congress); R Seltzer et al. 1997; Duerst-Lahti 1998; Norrander & Wilcox 1998 (state legislature); S Thomas 1998; Center for American Women in Politics 2000; Reingold 2000 (state legislature); Arceneaux 2001:150 (state legislature); Center for American Women in Politics 2001; Dolan 2001; Bratton 2002 (state legislatures); Sanbonmatsu 2002 (state level); Swers 2002; Center for American Women in Politics 2003 (senate, house of representatives & governor); L Elder 2004:28; Sanbonmatsu 2006 (state legislature) **INTERNATIONAL** *Multiple Countries*: W Rule 1981 (23/23 countries); W Rule 1987; Oakes & Almquist 1993; Rule 1994; NJ Adler 1996; Moore & Shackman 1996; Paxton 1997; B Nelson & Chowhury 1994; Matland 1998; Kenworthy & Malami 1999:242-243 (146/146 countries); A Reynolds 1999; E McDonagh 2002:536 (9/9 countries); Manning, Fink & Trivers 2014; *Multiple Industrial Countries*: Aldrich & Kage 2003:35; *Multiple Pre-Industrial Societies*: Whyte 1978:217* (72/74 preliterate societies)	
Not significant				**EUROPE** *France*: Squires & Wickham-Jones 2001 (52.5%M in 2001 after passage of a "parity law") **INTERNATIONAL** *Multiple Industrial Societies*: Whyte 1978:217* (2/74 preliterate societies)	
More among females					

20.2.7.51 Trends in Sex Differences in Holding Elected Office

Some studies have specifically sought to determine if countries are becoming more or less equal in terms of sex differences in people holding elected offices. Table 20.2.7.51 reveals that all studies that were located agree that the trend has been toward greater sex equality. It is worth adding that since 1990, at least 21 countries have actually legislated the percentage of females (or the minimum number of females) who are required to serve in elected offices, with quotas ranging from 20% to 50% (Baldez 2004).

Table 20.2.7.51 Trends in the sex differences in holding elected office

Nature of difference				*Post-pubertal*	
				Adult	
Greater differences					
No significant change					
Fewer differences				**LATIN/CARIBBEAN AMERICA** *Argentina*: MP Jones 1996 (1983-1993); *Mexico*: Baldez 2004:242 (in 1950: 99.4%M; in 2003: 76.8%M); *Multiple Latin Countries*: Escobar-Lemmon & Taylor-Robinson 2005:838 (government cabinet members, 1980-2000) **OCEANIA** *Australia*: Moon & Fountain 1997 (government cabinet members, 1980-1990) **INTERNATIONAL** *Multiple Countries*: Skjeie 1991 (1970-1990)	

20.2.7.52 Psychologists

Some studies have assessed sex differences in people comprising the profession of psychology (most of whom are either teachers or counselors). As one can see in Table 20.2.7.52, the findings have been quite mixed, depending on the country and time period involved.

Table 20.2.7.52 Psychologists

Nature of difference				*Post-pubertal*	
				Adult	
More among males				**ASIA** *Japan*: Murata 2005:262 (psychologists, members of professional association); *Multiple Asian Countries*: Ribarich & Sexton 1988* (75%M) **NORTH AMERICA** *Canada*: Denmark 1979*; *United States*: Denmark 1979*	
Not significant					
More among females				**INTERNATIONAL** *Multiple Countries*: Denmark 1979* (multiple Latin American countries, 70%F); Ribarich & Sexton 1988* (multiple Latin American countries, 70%F, and multiple European countries, 53%F); Sexton & Hogan 1992:469	

20.2.7.53 Sales-Related Occupations

Research undertaken to assess sex differences in various forms of sales occupations appears in Table 20.2.7.53. One can see that most studies indicate that females perform this type of work more than do males. Some of the inconsistencies may be due to the types of things being sold.

Table 20.2.7.53 Sales-related occupations

Nature of difference				*Post-pubertal*	
				Adult	
More among males				**EUROPE** *Germany*: Fitzenberger & Kunze 2005:10	
Not significant				**NORTH AMERICA** *United States*: Kinsella & Velkoff 2001:104	
More among females				**ASIA** *China*: L Ellis & Awang 2011* (cashier); *Malaysia*: L Ellis & Awang 2011* (cashier) **EUROPE** *Sweden*: Sundin 2001:101 (95%, cashier) **NORTH AMERICA** *United States*: Rytina & Bianchi 1984:16; L Ellis & Awang 2011* (cashier) **OCEANIA** *Philippines*: Floro & Schaefer 1998:88	

20.2.7.54 Secretaries or Administrative Support Occupations

Several studies of sex differences in secretarial work have been published. One can see in Table 20.2.7.54 that the findings all indicate that females are more often involved in this type of work than are males.

Table 20.2.7.54 Secretaries or administrative support occupations

Nature of difference				*Post-pubertal*	
				Adult	
More among males					
Not significant					
More among females				**EUROPE** *Netherlands*: de Ruijter et al. 2003:353 **MIDDLE EAST** *Israel*: Israel Central Bureau of Statistics 1997 **NORTH AMERICA** *United States*: Sicherman 1996; BH Wootton 1997:17 (77%, jobs providing administrative support); PN Cohen 2004:247; Huffman & Cohen 2004:144 (98%F for secretaries and 96%F for receptionists); US Department of Labor 2004 (99%F); Queneau 2006:686	

20.2.7.55 Sewing Machine Operators

Just one study was located pertaining to sex differences in operating sewing machines in a textile factory. As shown in Table 20.2.7.55, it found females performing these jobs to a greater degree than males.

Table 20.2.7.55 Sewing machine operators

Nature of difference			*Post-pubertal*	
				Adult
More among males				
Not significant				
More among females				**NORTH AMERICA** *United States*: Vetter & Babco 1986

20.2.7.56 Shamans/Witch Doctors

A large number of anthropological studies have reported the sex of individuals who serve as shaman in traditional pre-agricultural societies. Findings from these studies are summarized based on a review by Whyte (1978). As shown in Table 20.2.7.56, this review indicated that in most societies, only males were shamans, although in many societies shaman of both sexes was reported. In just a few societies were females the only shamans.

Table 20.2.7.56 Shamans/witch doctors

Nature of difference			*Post-pubertal*	
				Adult
More among males				**INTERNATIONAL** *Multiple Preliterate Societies*: Whyte 1978:216* (40/73 societies)
Not significant				**INTERNATIONAL** *Multiple Preliterate Societies*: Whyte 1978:216* (26/73 societies)
More among females				**INTERNATIONAL** *Multiple Preliterate Societies*: Whyte 1978:216* (7/73 societies)

20.2.7.57 Ship Captains

One study was located that assessed sex differences in being the captains of ships. Table 20.2.7.57 shows that it reported males tend to dominate this profession.

Table 20.2.7.57 Ship captains

Nature of difference			*Post-pubertal*	
				Adult
More among males				**MIDDLE EAST** *Israel*: Israel Central Bureau of Statistics 1997
Not significant				
More among females				

20.2.7.58 Sports Commentators

One study of the sex of sports commentators was located. Table 20.2.7.58 shows that more males were in this line of work than females.

Table 20.2.7.58 Sports commentators

Nature of difference			*Post-pubertal*		
				Adult	
More among males				**NORTH AMERICA** *United States*: Coventry 2004:331	
Not significant					
More among females					

20.2.7.59 Social/Welfare Workers

All the studies of sex differences in social workers that were located are presented in Table 20.2.7.59. One can see that they all concluded that more females than males are involved in this occupation.

Table 20.2.7.59 Social/welfare workers

Nature of difference			*Post-pubertal*		*Wide age range*
				Adult	
More among males					
Not significant					
More among females				**EUROPE** *Britain*: Govier 2003; *Norway*: Skrede 1986 **MIDDLE EAST** *Israel*: Israel Central Bureau of Statistics 1997 **NORTH AMERICA** *United States*: Epstein 1970:967 (1910-1960); Kessler-Harris 1981; GB Lewis & Nice 1994 (government workers); BH Wootton 1997:17 (61% in 1975 and 68% in 1995); W Miller et al. 1999:222 (government workers); B Kerr et al. 2002 (government workers)	**NORTH AMERICA** *United States*: RH Hall 1969:334; Vetter & Babco 1986 (welfare)

20.2.7.60 Social Scientists

A few studies of sex differences among people who were social scientists of various kinds (mainly anthropologists and sociologists). One can see in Table 20.2.7.60 that all the studies have concluded that more males than females were in this occupation. (Incidentally, this category overlaps somewhat with a category of *college teacher*, listed below.)

Table 20.2.7.60 Social scientists

Nature of difference	*Post-pubertal*	
	Adult	
More among males	**ASIA** *Japan*: Murata 2005:262 (anthropologists/ethnographers) **NORTH AMERICA** *Canada*: Nakhaie 2001:221 (sociologists & anthropologists, 80%M in 1971 & 55%M in 1995); *United States*: McFalls et al. 1999:97 (sociologists, 69%M vs. 31%F, but those in training nearly equal)	
Not significant		
More among females		

20.2.7.61 Stock Traders

One study assessed the sex of people who were involved in stock trading as an occupation. Table 20.2.7.61 shows that the study concluded that more males than females were in this line of work.

Table 20.2.7.61 Stock traders

Nature of difference	*Post-pubertal*	
	Adult	
More among males	**NORTH AMERICA** *United States*: B Barber & Odean 2001 (among stock investors)	
Not significant		
More among females		

20.2.7.62 Taxi and Bus Drivers

Studies of sex differences in people whose work involves driving taxis or buses are summarized in Table 20.2.7.62. One can see that they all indicate that more males than females are involved in such work.

20.2.7.63 Teachers: College Professors in General

Research in multiple countries has assessed sex differences among college teachers. Table 20.2.7.63 shows that all studies have concluded that more males than females are in this profession. However, as will be noted in the table immediately following this one, there are some subject areas in college teaching where more females than males are found.

Table 20.2.7.62 Taxi and bus drivers

Nature of difference				*Post-pubertal*	
				Adult	
More among males				**ASIA** *China*: L Ellis & Awang 2011* (taxi); *Malaysia*: L Ellis & Awang 2011* (taxi) **MIDDLE EAST** *Israel*: Israel Bureau of Statistics 1997 (bus) **NORTH AMERICA** *United States*: L Ellis & Awang 2011* (taxi)	
Not significant					
More among females					

Table 20.2.7.63 Teachers: College professors in general

Nature of difference				*Post-pubertal*	
				Adult	
More among males				**ASIA** *Japan*: Murata 2005:263 (88%M) **EUROPE** *Britain*: Emslie et al. 1999a:468 (63%M); Halvorsen 2002; *Greece*: Hopf & Hatzichristou 1999:4; *Netherlands*: van Arensbergen et al. 2012:Figure 1; *Spain*: J Fernandez & Mateo 1997:999; *Multiple European Countries*: Osborn, Rees et al. 2000:10 (especially full-professors) **MIDDLE EAST** *Turkey*: Dogramaci 1993; Neusel 1994; Kandiyoti 1997; Ozguc 1998 **NORTH AMERICA** *Canada*: PJ Caplan 1993; *United States*: RH Hall 1969:334; Epstein 1970:967 (1910-1960); Bartol & Bartol 1975:528 (1950-1970, over 70%M); PA Graham 1978; Vetter & Babco 1986:75; Simeone 1987; Aisenberg & Harrington 1988; US Department of Labor-Women's Bureau 1991; BH Wootton 1997:17 (69%M in 1975 and 55%M in 1995); LH Collins et al. 1998; K Bradley 2000; Toutkoushian 2000:419 (both full & part-time); Lawler 2002 (professor); US Department of Labor 2004 (57%M) **INTERNATIONAL** *Multiple Countries*: JA Jacobs 1996:158 (in 67/67 countries); Ozbilgin & Healy 2004:359; Mayer & Tikka 2008	
Not significant					
More among females					

20.2.7.64 Teachers: College Professors in Specific Fields of Study

In some studies of college professors, researchers specified specific fields of study. One can see in Table 20.2.7.64 that this indicated that, while males were usually more prominent among college teachers, there appears to be trends toward greater female involvement, at least in the field of sociology.

Table 20.2.7.64 Teachers: College professors in specific fields of study

Nature of difference				*Post-pubertal*	
				Adult	
More among males				**NORTH AMERICA** *Canada*: Nakhaie 2001:221 (sociologists & anthropologists, 80%M in 1971 & 55%M in 1995); *United States*: A Gibbons 1992 (science & engineering); McFalls et al. 1999:97* (sociologists, 69%M overall); Meiksins, Layne et al. 2017 (engineering)	
Not significant					
More among females				**NORTH AMERICA** *United States*: McFalls et al. 1999:97* (sociologists, 57%F who are under the age of 40)	

20.2.7.65 Teachers: Primary and Secondary Teachers

Many studies have investigated the proportion of primary and secondary teachers who are males or females. Table 20.2.7.65 shows that the vast majority of studies have concluded that more females work in these occupations than is the case for males.

Table 20.2.7.65 Teachers: Primary and secondary teachers

Nature of difference				*Post-Pubertal*	
				Adult	
More among males				**NORTH AMERICA** *United States*: Branan 1971 (primary, principals)	
Not significant				**EUROPE** *Greece*: Hopf & Hatzichristou 1999:5* (primary) **NORTH AMERICA** *United States*: Rytina & Bianchi 1984:16* (secondary)	
More among females				**ASIA** *Malaysia*: A Ahmad 2009:69; *Former Soviet Union*: Lapidus 1976:126 (75%F); Yanowitch 1987:351 (primary & secondary) **EUROPE** Britain: Govier 2003; *Greece*: Hopf & Hatzichristou 1999:5* (secondary); *Netherlands*: de Ruijter et al. 2003:353; *Norway*: Skrede 1986 (primary & secondary) **LATIN/CARIBBEAN AMERICA** *Brazil*: Htun 1999:137 (primary) **MIDDLE EAST** *Israel*: Sprintzak et al. 1995 (primary & secondary); *Turkey*: Dayioglu & Turut-Asik 2007:264 **NORTH AMERICA** *United States*: Branan 1971 (primary); PC Lee 1973:80 (primary); National Education Association 1973 (elementary); Bartol & Bartol 1975:528 (1950-1970, over 70%F); Fuchs 1975 (primary); Kessler-Harris 1981:65 (primary); Rytina & Bianchi 1984:16* (primary); Vetter & Babco 1986 (kindergarten, primary & secondary); National Center for Educational Statistics 1994 (primary & secondary); BH Wootton 1997:16 (84%F); KR Brown 2002 (elementary, over 90%F); PN Cohen 2004 (elementary & secondary); Huffman & Cohen 2004:144 (primary, 76%F); US Department of Labor 2004 (primary: 83%F, secondary: 58%F); US Department of Commerce 2005 (elementary, 81%F)	

20.2.7.66 Therapists (Physical, Occupational, Speech)

The available studies of sex ratios in the field of physical, occupational, and speech therapy are identified in Table 20.2.7.66. It shows that more females than males are involved in these professions.

Table 20.2.7.66 Therapists (physical, occupational, speech)

Nature of difference				*Post-pubertal*	
				Adult	
More among males					
Not significant					
More among females				**EUROPE** *Britain*: Parish et al. 1990 (occupational therapist, ~95%F); J Sheridan 1999 (speech and language therapist); S Boyd & Hewlett 2001 (speech and language therapist) **MIDDLE EAST** *Israel*: Israel Central Bureau of Statistics 1997 (physical therapist) **NORTH AMERICA** *United States*: Huffman & Cohen 2004:144 (physical and occupational therapists, 75%F)	

20.2.7.67 Waiters/Waitresses

Available research on sex differences among people who wait tables in restaurants is summarized in Table 20.2.7.67. It shows that all studies agree that more females than males are in this line of work.

Table 20.2.7.67 Waiters/waitresses

Nature of difference				*Post-pubertal*	
				Adult	
More among males					
Not significant					
More among females				**ASIA** *China*: L Ellis & Awang 2011*; *Malaysia*: L Ellis & Awang 2011* **MIDDLE EAST** *Israel*: Israel Bureau of Statistics 1997 **NORTH AMERICA** *United States*: BH Wootton 1997:17 (91% in 1975, 78% in 1995); L Ellis & Awang 2011*	

20.3 Fruits of Labor

Sex differences in the earning, profits, and promotions that individuals obtain from the work that they perform have been extensively examined. Findings from these studies are summarized in this section.

20.3.1 Wealth, Income, and Promotions

A tremendous amount of research has accumulated on sex differences in wealth, wages, and job promotions. Findings are summarized below.

20.3.1.1 Earnings/Salary for Workers, Excluding North America

Few topics on sex differences have received as much research attention as sex differences in earnings. So numerous are the studies that results will be presented in two tables, one for all countries except Canada and the United States, and the other table exclusively for these two North American countries.

Most studies of sex differences in earnings have been concerned with earnings regardless of occupation, but many occupation-specific studies are also available. Findings from occupation-specific occupations will be given separate consideration after examining studies of earning more generally.

As shown in Table 20.3.1.1a, nearly all studies have found that the average salaries of males exceeded those of females. The exceptions/qualifications are as follows:

First, one study in the former Soviet Union reported higher salaries for females than for males (Yanowitch 1987:353). However, this report contradicts several other studies of the Soviet Union (JS Schwartz 1979; McAuley 1981:206 (1.00M vs. 0.63F); Newell & Reilly 2001; V Koval 1991; Funk 1993; Ogloblin 1999; Brainerd 2000; K Katz 2001).

Second, two studies conducted in Britain indicated that, among blacks (originating from the Caribbean), females had higher earnings on average than did their male counterparts.

Third, it is worth noting that men's and women's salaries are usually quite similar when they first enter the workforce (usually in their late teens or early 20s) (O'Neill & Polachek 1993:210). From then on, however, men's salaries increasingly pull ahead of women's salaries (RA Rosenfeld 1980; Blau & Kahn 2000:78).

Overall, one can say that essentially no society has yet been found in which the average salary for full-time women employees exceeds that for full-time men workers. With the possible exception of entry-level jobs, males are paid significantly more than females in nearly all societies and among nearly all ethnic groups (HM Lips 2013).

Of course, many explanations have been offered for this near-universal sex difference. Among the most significant contributors involves sex differences in the types of occupations men and women gravitate toward (Levanon, England & Allison 2009; Blau, Ferber & Winkler 2010:Chapter 7). We deal with the issue of sex differences in earnings in various fairly specific occupations in a subsequent table.

Table 20.3.1.1a Earnings/salaries for workers, excluding North America

Nature of difference	*Wide Age Range (Predominantly Adults)*
Higher among males	**AFRICA** *Kenya*: Agesa & Agesa 2005; *South Africa*: Hinks et al. 2002; *Zambia*: Floro & Schaefer 1998:81* (in all sectors except clerical work); *Multiple African Countries*: Canagarajah et al. 2001:416–417 (among full-time non-farm workers) **ASIA** *China*: Lim 1990:111 (manufacturing); Meng & Miller 1995; Matthews & Nee 2000 (non-farm workers); Kidd & Meng 2001; Fan & Lui 2003 (Hong Kong); Shu 2004:332; Lee, Li & Zhang 2009 (among professional workers); *Japan*: Kalleberg & Lincoln 1988; Brinton 1989; RA Rosenfeld & Kalleberg 1991:214*; Brinton 1993; Tachibanaki 1996; C Brown et al. 1997*; Aiba & Wharton 2001; Statistics Bureau 2002; Benson et al. 2007:891; Kumlin 2007:208*; *Kazakhstan*: Semykina & Linz 2010:Table 1*; *Pakistan*: Siddiqui & Hamid 2003; Nazli 2004; Nasir 2005:60; *Russia*: Flakierski 1993 (during the Soviet era, females earned ~ 70% of males); Linz 1996; Gerber & Hout 1998 (1991–1995); Arabsheibani & Lau 1999, Ogloblin 1999; Reilly 1999; Brainerd 2000 (during the Soviet era); Gerber & Mayorova 2006 (both before and after the Soviet era); *South Korea*: Kang 1993; Zveglich & Rodgers 2004; Joo & Lee 2009; Semykina & Linz 2010:Table 1*; *Former Soviet Union*: JS Schwartz 1979; McAuley 1981:206 (1.00M vs. 0.63F); Newell & Reilly 2001; V Koval 1991; Funk 1993; Ogloblin 1999; Brainerd 2000; K Katz 2001; *Taiwan*: Gannicott 1986; Hsu 2005:11 (N = 2,311M + 1,738F); *Vietnam*: Liu 2004 (during the 1990s); Mooch et al. 2003:506; *Multiple Asian Countries*: Deyo 1989; Seguino 2002; Berik et al. 2004 **EUROPE** *Austria*: Weichselbaumer & Winter-Ebmer 2007; *Britain*: Oaxaca 1973; Zabalza & Arrufat 1985; PW Miller 1987; R Gregory et al. 1989*; Pugh & Moser 1990; RA Rosenfeld & Kalleberg 1991:214*; R Wright & Ermisch 1991; Coate & Tennyson 1992 (self-employed); B Davies & Ward 1992; Ginn & Arber 1994; Schneer & Reitman 1994 (among MBAs); Broadbridge 1995 (full-time workers); Paci et al. 1995; Ginn & Arber 1996; Harkness 1996; Blackaby et al. 1997; J Church 1997; Joshi & Paci 1998 (full-time workers); Rubery et al. 1998; Waldfogel 1998a; D Grimshaw 2000; Ginn & Arber 2000; JG Oakley 2000 (among managers); Bertrand & Hallock 2001; T Warren et al. 2001:481; T Warren 2003; Belfield 2005:887; A Manning & Swaffied 2008 (especially at the highest income levels); O Sullivan & Gershuny 2016; *Bulgaria*: Brainerd 2000* (post-communist); Jolliffe 2002 (post-communist); *Czech Republic*: Jurajda 2001; *Denmark*: RA Rosenfeld & Kalleberg 1991:214*; *Estonia*: Orazem 1995; Orazem & Vodopivec 2000; *Finland*: Stolte-Heiskanen 1991; *France*: Dufouil, Ducimetiere et al. 1997:407 (among older adults, N = 574M + 815F); Meng & Meurs 2004*; *Germany*: RA Rosenfeld & Kalleberg 1991:214*; Nickel 1992; Szydlik 1994; Krueger & Pischke 1995; J Smith & Baltes 1998; Lissenburgh 2000; Trappe & Rosenfeld 2000:496 (both East & West); Newell & Reilly 2001 (East Germany, full-time workers); J Hunt 2002 (West Germany); Kunze 2003 (young); Bornman & Enders 2004:37 (among PhD holders); Fitzenberger & Kunze 2005:9 (full-time workers); Kunze 2005; *Italy*: Erickson & Ichino 1995; *Luxembourg*: Phipps 1988*; *Netherlands*: Bakker et al. 1999; de Ruijter & Huffman 2003; Nyhus & Pons 2005:381; Nyhus & Pons 2012; Gielen, Holmes & Myers 2016:Table 3; *Norway*: RA Rosenfeld & Kalleberg 1991:214*; *Poland*: Adamchik & Bedi 2000 (full-time workers); Adamchik & Bedi 2003 (full-time workers); Grajek 2003; *Portugal*: Poesche 2008:76 (33% more); *Romania*: Paternostro & Sahn 1999 (post-communist); *Spain*: Beneria 1977; Peinado Lopez 1988; Liceras & Murillo de la Vega 1992; Saez Lara 1994; Garcia de Cortazar & Garcia de Leon 1997 (university professors); Instituto de la Mujer 1997; Castano et al. 1999; Martin Urriza & Zarapuz Puertas 2000; Dema-Moreno & Diaz-Martinez 2010, among married couples); G Vall et al. 2015:Table 1; *Sweden*: Dahlstrom 1967:296; S Gustafsson 1981; Karasek et al. 1987; Phipps 1988*; Lofstrom 1989 (full-time workers); Le Grand 1991 (age and education controlled); RA Rosenfeld & Kalleberg 1991:214*; Le Grand 1992; Palme & Wright 1992; La Grand 1992; Le Grand 1994; J Zetterberg 1994; Eden & Holmlund 1995; Petersen & Morgan 1995; Hibbs & Locking 1996; Arai & Thoursie 1997 (full-time workers); Edin & Richardson 1997 (full-time workers); Granqvist 1997 (full-time workers); Hutlin & Szulkin 1999; Nermo 1999; Le Grand et al. 2001; Edin & Richardson 2002; Albrecht et al. 2003 (age and education controlled, especially at the highest income levels); Hultin & Szulkin 2003; Le Grand & Tsukaguchi-Le Grand 2003; Nekby 2003; Kumlin 2007:208*; *Switzerland*: Bonjour & Gerfin 2001; *Yugoslavia*: Prpic 1989; *Multiple European Countries*: Rubery 1992; Oaxaca & Ransom 1994; Rubery & Fagan

	1995; EO White et al. 1995; Gornick 1998; Brainerd 2000 (full-time workers); Pailhe 2000 (full-time workers); Delado et al. 2001; Meyersson-Milgrom et al. 2001; Bettio 2002:S74 (13/13); Arulampalam et al. 2007) **LATIN/CARIBBEAN AMERICA** *Brazil*: Birdsall & Behrman 1990; Htun 1999:137; Barreto et al. 2004:112 (over 60; personal income); *Jamaica*: Hotchkiss & Moore 1996; *Mexico*: C Brown et al. 1999; *Nicaragua*: Behrman & Wolfe 1990; *Peru*: Khandker 1990; *Puerto Rico*: Ortiz-Ortiz et al. 2010:244; *Multiple Caribbean Countries*: KE Brown 2001:329 (3/3 countries); *Multiple Latin American Countries*: Psacharopoulos & Tzannatos 1992 **MIDDLE EAST** *Armenia*: Semykina & Linz 2010:Table 1*; *Egypt*: Arabsheibani 1990; *Israel*: Semyonov & Kraus 1983; Izraeli & Silman 1992; Semyonov & Lewin-Epstein 1994:57; Haberfeld & Cohen 1998; Hellerstein & Neumark 1999; Kraus 2002; Yaish & Kraus 2003; Haberfeld & Cohen 2007; *Turkey*: Dayioglu & Turut-Asik 2007:274 (among college graduates) **OCEANIA** *Australia*: FL Jones 1983; F Jones 1984; Chapman & Mulvey 1986; Phipps 1988*; R Gregory et al. 1989*; Gunderson 1989; Hawke 1991; PW Miller & Rummery 1991; Gregory & Daly 1991; RA Rosenfeld & Kalleberg 1991:214*; M Western 1991; Australian Bureau of Statistics 1993:179; M Kidd 1993; PW Miller 1994; Langford 1995; M Kidd & Shannon 1996*; Kidd & Mengh 1997; Wooden 1997; Borland 1999a; Borland 1999b; Preston & Crockett 1999; Charles 2000 (full-time workers); M Kidd & Shannon 2001; MP Kidd & Shannon 2002; A Preston 2003 (both full- and part-time workers); Eastough & Miller 2004; Meng & Meurs 2004*; Meng 2004:560; Kee 2006 (especially at the highest income levels); PK Jonason, Koehn et al. 2018:171 (N = 533, d = .34); *Indonesia*: Deolalikar 1993:910; *New Zealand*: Gwartney-Gibbs 1988; S Hammond & Harbridge 1995; Harbridge & Thickett 2003; *Philippines*: Lim 2000:1298 (per hour) **INTERNATIONAL** *Multiple Countries*: Roos 1985; Blau & Ferber 1986 (10/10 countries); RG Gregory et al. 1989; Kalleberg & Rosenfeld 1990; Rosenfeld & Kalleberg 1990:84; RA Rosenfeld & Kalleberg 1990; Kalleberg & Colbjornsen 1991; RA Rosenfeld & Kalleberg 1991; FD Blau & Kahn 1992; O'Neill & Polachek 1993; Reskin & Padavic 1994; FD Blau & Kahn 1995; FD Blau & Kahn 1996; Stanley & Jarrell 1998; Altonji & Blank 1999; Antecol 2000; Blau & Kahn 2000; Korpi 2000; Antecol 2001; Reilly 2002; Tomaskovic-Devey & Skaggs 2002; Antecol 2003; Blau & Kahn 2003; Cohen & Huffman 2003; Simon & Russell 2004; Mandel & Semyonov 2005 (20/20 countries); Jurajda 2005; Azmat et al. 2006; Weichselbaumer & Winter-Ebmer 2007; Blau, Ferber, & Winkler 2010; CC Weisfeld, Dillion et al. 2011:1169 (among married couples); Jarman et al 2012 (full-time work); *Multiple Industrial Countries*: Oaxaca 1973; P Chambers 1974 (among managers); Treiman & Roos 1983:613; Blau & Ferber 1985; Boserup 1986; G Goldberg & Kremen 1987; FD Blau & Kahn 1992; LH Clark 1993 (in management); Dijkstra & Hanmer 2000:49 **OVERVIEW** *Meta-Analysis*: TD Stanley & Jarrell 1998; Weichselbaumer & Winter-Ebmer 2005; Joshi, Son & Roh 2014 (d = .56)
Not significant	
Higher among females	**EUROPE** *Britain*: Office for National Statistics 1996 (among blacks); Modood et al. 1997 (among blacks)

Findings from the large number of studies of sex differences in earnings (among full-time workers) in the United States and Canada are presented in Table 20.3.1.1b. One can see that all but a few of these studies have concluded that men earn more than women. The exceptions, in the form of finding no significant differences are as follows: (a) experimental studies (in which people are asked to report how much they would pay men and women workers under various hypothetical circumstances), (b) one study of entry-level positions, (c) one study of low intelligence people, and (d) a study in which sex differences in math ability were statistically controlled.

20.3.1.2 Income/Salaries for Specific Occupational Areas

Findings concerning sex differences in earnings confined to specific (largely professional) occupations are presented in Table 20.3.1.2. Readers can see that, with few exceptions, males earn more than do females, even within most specific occupational areas. Most of the exceptions simply found no significant sex difference after introducing a number of statistical controls (such as number of years individuals have been working).

20.3.1.3 Trends in Income Inequality between the Sexes

Sex differences in earnings are nothing new. In the Old Testament, one finds a decree in Leviticus (27:1–4) that women should be paid 30 shekels of silver for their work while men should receive 50 shekels. This 60% ratio is fairly close to the sex difference that is found in many countries until the 1970s. Since then, the gap has narrowed considerably in most industrialized nations, although, as noted in a preceding table, there is no country in which average salaries of men and women are equal.

Table 20.3.1.3 presents findings from a number of studies that have traced decade-by-decade trends in the inequality between the sexes in terms of average earnings for full-time work. These studies reveal that compared to the 1940s, sex differences in average earnings actually appears to have increased during the 1950s. In the 1960s, sex differences either leveled out or actually began to decrease. During the 1970s and 1980s, nearly all studies reported a downward shift in salary inequality. By the early 1990s, women in the United States were earning about 72 cents for every dollar being earned by men (O'Neill & Polachek 1993:206; Blau & Kahn 2000:76).

20.3.1.4 Intra-Sex Variability in Income or Earnings

The few studies that have examined the degree of variation in the incomes of men and women (among full-time workers) are summarized in

Table 20.3.1.1b Earnings/salaries for North American workers

Nature of difference	*Wide Age Range (Predominantly Adults)*
Higher among males	**NORTH AMERICA** *Canada*: Gunderson 1979 (full-time workers); Ornstein 1983:53; P Miller 1987 (full-time workers); D Shapiro & Stelcner 1987 (full-time workers); Phipps 1988*; Wannell 1989; M Boyd et al. 1991; RA Rosenfeld & Kalleberg 1991:214*; SJ Wilson 1991 (among full-time workers); Christofides & Swidinsky 1994; Doiron & Riddell 1994 (full-time workers); M Kidd & Shannon 1994; M Baker et al. 1995 (full-time workers); Wannell & Caron 1995 (college graduate); M Kidd & Shannon 1996*; Beaudry & Green 1997 (full-time workers); M Kidd & Shannon 1997 (full-time workers); Gunderson 1998 (full-time workers); Chaykowski & Powell 1999; Finnie & Wannell 1999 (among college graduates); Galarneau & Earl 1999; K Marshall 1999; KT Reilly & Wirjanto 1999; Beiser & Hou 2000:322 (Asian immigrants); Donald et al. 2000; Christie & Shannon 2001 (full-time workers); Desmarais & Curtis 2001:160; M Shannon & Kidd 2001 (full-time workers); Drolet 2002; Fortin & Huberman 2002; Prus & Gee 2003:307 (elderly); D Walters et al. 2004:294; *United States*: TW Schultz 1961; Mincer 1962; H Sanborn 1964; Malkiel 1970; MS Cohen 1971; Fuchs 1971 (hourly wages); DA Peterson 1972; Blinder 1973; JR Cole & Cole 1973; Malkiel & Malkiel 1973 (professional workers); Oaxaca 1973; Sawhill 1973 (full-time workers); B Bergmann 1974; Mincer & Polachek 1974; Cutler & Harootyan 1975 (people who are single); Heinen et al. 1975; Polachek 1975 (full-time workers); Treiman & Terrell 1975 (years of education controlled); Featherman & Hauser 1976; Texas Employment Commission 1976; Blau 1977; Mincer & Polachek 1978 (full-time workers); Sandell & Shapiro 1978 (full-time workers); Blau & Hendricks 1979; Callahan-Levy & Messe 1979; Corcoran 1979 (full-time workers); Corcoran & Duncan 1979 (even after controlling for on-the-job training, absenteeism, and years of experience); P England & McLaughlin 1979; Halaby 1979; Lloyd & Niemi 1979 (full-time workers); U.S. Department of Labor 1979; Vanfossen 1979:126; WC Wolf & Fligstein 1979a; R Brown et al. 1980a; Liang et al. 1980; RA Rosenfeld 1980; BM Vetter 1980; Feinberg 1981; Polachek 1981; Roos 1981; Treiman & Hartmann 1981; Weiss & Gronau 1981; Beller 1982; F Crosby 1982; Mincer & Ofek 1982 (full-time workers); EO Wright et al. 1982; Coverman 1983; SJ Lundberg & Startz 1983; RL Moore 1983 (self-employed); Bielby & Baron 1984; Corcoran 1984; Daymont et al. 1984 (undergrad, about 1/2 due to sex differences in majors); Daymont & Andrisani 1984:412 (college graduates, 1/3 to 2/3 attributable to differences in college majors and occupations); Major & Konar 1984; GS Becker 1985; FD Blau & Ferber 1985; Filer 1985; Madden 1985; O'Neill 1985; Megdal & Ransom 1985 (starting salary); Spaeth 1985; KB Ward & Mueller 1985; Bane 1986; Blau & Ferber 1986; Fuchs 1986; Hartman et al. 1986; Hodson & England 1986 (full-time workers); Women's Bureau 1986; JR Cole 1987; Gerhart & Milkovich 1987 (starting salary); Goldin & Polachek 1987; Mellor 1987; Olson, Frieze, & Good 1987 (MBA graduates); Sorenson 1987; Tienda et al. 1987; U.S. Bureau of the Census 1987; FD Blau & Beller 1988; J Cotton 1988; Coverdill 1988; DiPrete & Soule 1988; England et al. 1988; SM Freedman & Phillips 1988 (full-time workers); Gerhart 1988; Heery & Kelly 1988 (more so in non-union jobs); Reskin 1988; U.S. Bureau of Labor Statistics 1988; Acker 1989; JN Baron & Newman 1989; Barringer & Kassebaum 1989; Bridges & Nelson 1989; Dreher et al. 1989; R Gregory et al. 1989*; Gunderson 1989; Jacobs 1989; Jaffee 1989; Marini 1989; McLanahan et al. 1989; BA Shelton & Firestone 1989; JP Smith & Ward 1989; E Sorensen 1989; Verbrugge 1989:287; Even & Macpherson 1990; Gerhart 1990 (occupational level controlled, undergrad graduates' staring salary); Goldin 1990; JA Jacobs & Steinberg 1990 (among full-time workers); Kalleberg & Rosenfeld 1990; Kilborn 1990; Koretz 1990; Lazear & Rosen 1990; O'Neill 1990; Paglin & Rufolo 1990 (undergrad graduates); Pfeffer & Ross 1990; JA Jacobs & Steinberg 1990; Paglin & Rufolo 1990; Reskin & Roos 1990; Weiler 1990 (researchers/professors); K Wilson & Boldizar 1990; Crispell 1991; Fuller & Schoenberger 1991 (undergrad grads starting salary); Gerhart & Rynes 1991 (MBAs); Gregory & Daly 1991; Groshen 1991a; Groshen 1991b; Kane 1991; Loscocco et al. 1991 (self-employed); J Pfeffer & Konrad 1991; VE Richardson & Kilty 1991 (elderly, after redominan); RA Rosenfeld & Kalleberg 1991:214*; FD Blau & Kahn 1992; MJ Davidson & Cooper 1992; England 1992; England & Browne 1992:32; LA Jackson 1992 (full-time employees); JA Jacobs 1992:296; Korenman & Neumark 1992; Loprest 1992; Rummery 1992; Stroh et al. 1992; Winkleby et al. 1992:817; JM Barron et al. 1993; Bullard & Wright 1993; Burkhauser & Salisbury 1993; Greenglass 1993 (managers); WN Grubb 1993:370; VM Keith 1993; O'Neill & Polachek 1993 (full-time workers); PY Martin & Harkreader 1993; G McGuire & Reskin 1993; J O'Neill & Polachek 1993:206 (1890–1990); CK Stevens et al. 1993 (undergrad); Spalter-Roth et al. 1993:18 (self-employed); CK Stevens et al. 1993

(*Continued*)

Table 20.3.1.1b (Continued)

Nature of difference	*Wide Age Range (Predominantly Adults)*
	(undergrad); Tomaskovic-Devey 1993; FD Blau & Kahn 1994; Blanchflower & Oswald 1994; Chauvin & Ash 1994 (full-time); Cornwell & Kellough 1994; Eide 1994 (undergrad graduates); England et al. 1994; J Hersch & Stratton 1994; Kilbourne et al. 1994; Kreft & De Leeuw 1994; WC King & Hinson 1994 (undergrad, experimental conditions); Major 1994; Mendes de Leon et al. 1994; Reskin & Padavic 1994:101; CE Ross & Bird 1994; Reitzes & Mutran 1994; Tharenou et al. 1994; Bernhardt et al. 1995; Folbre 1995; Gittelman & Howell 1995; Joshi et al. 1995; TA Judge et al. 1995; Lustgarten 1995 (self-employed); D Macpherson & Hirsch 1995; Millward & Woodland 1995; T Petersen & Morgan 1995; Polachek 1995 (only a slight difference among unmarried workers); Schneer & Reitman 1995; Solberg & Laughlin 1995; T Petersen & Morgan 1995; Ashraf 1996; Averett & Burton 1996:39; Blackorby & Wagner 1996 (mentally retarded people); FD Blau & Kahn 1996; Borjas 1996:350; Furchgott-Ruth & Stolba 1996; Gerhart et al. 1996; S Harding & McGregor 1996; Huffman et al. 1996; Ranson & Reeves 1996 (high-tech occupations); JA Jacobs 1996:175; Lichtenstein 1996; MH Meyer & Pavalko 1996; Olsen & Sexton 1996; U.S. Bureau of the Census 1996 (full-time employees); FD Blau & Kahn 1997 (in full-time work); C Brown & Corcoran 1997 (undergrad graduates, about 1/3 of a difference due to different fields of study); C Brown et al. 1997*; SM Crampton et al. 1997; Davies & Guppy 1997 (among undergrad graduates); Farkas et al. 1997; Hersch & Stratton 1997 (married couples); Huang 1997; Huffman & Velasco 1997; Jasso & Webster 1997; Loury 1997 (undergrad graduates); Marini & Fan 1997 (among young employees); Mutran et al. 1997:S93 (ages 58–64); Tam 1997; FD Blau et al. 1998:129 (1970–1995); Carrington & Troske 1998 (manufacturing); Fortin & Lemieux 1998; Gasser et al. 1998; Hoff 1998; LL Reid 1998; D Robinson 1998; Toutkoushian 1998 (researchers/professors); Tsui 1998:370 (undergrad graduates); U.S. Council of Economic Advisors 1998; U.S. Department of Labor 1998; Waldfogel 1998a; Waldfogel 1998b; Weinberger 1998 (undergrad graduates); Altonji & Blank 1999; Arber & Cooper 1999; AP Barkley et al. 1999 (undergrad graduates); ME Benedict 1999 (more so in non-union jobs); Bowler 1999; Graham & Welbourne 1999:1033; Hultin & Szulkin 1999; Baker & Fortin 1999; JM Firestone et al. 1999; McDuff & Mueller 1999; RL Nelson & Bridges 1999; Raphael & Riker 1999:42; Tomaskovic-Devey & Skaggs 1999; SE Turner & Bowen 1999; Weinberger 1999 (math majors); Altonji & Dunn 2000; Antecol 2000; FD Blau & Kahn 2000; Bradley 2000 (among undergrad graduates); Fortin & Lemieux 2000; Gill & Leigh 2000; R Hogan et al. 2000 (in the 1970s); Hojat et al. 2000; Keaveny & Inderrieden 2000; M Kim 2000; M Reid et al. 2000; U.S. Department of Labor 2000; F Welch 2000; L White & Rogers 2000:1037 (1980–1998); Baker & Fortin 2001; Bellas et al. 2001; Bertrand & Hallock 2001; RM Blank 2001:29; Danigelis & McIntosh 2001; Eckel & Grossman 2001 (in ultimatum game experiment); Sicilian & Grossberg 2001 (under age 36); Solnick 2001 (in ultimatum game); U.S. Department of Labor 2001; Budig 2002; MH Harris et al. 2002; Heckert et al. 2002 (undergrad students); Herek 2002:59; Kirchmeyer 2002* (MBA graduates, except first job after graduation); KJ Meier & Wilkins 2002; Mitra 2002*; Tomaskovic-Devey & Skaggs 2002; Bayard et al. 2003; Blandford 2003 (independent of sexual orientation); Boraas & Rodgers 2003; Gibelman 2003; Joy 2003 (undergrad graduates); Montgomery & Powell 2003; Reid & Rubin 2003; Valcour & Tolbert 2003:776 (among married subjects); CB Golberg et al. 2004; Huffman 2004; Keene & Quadagno 2004; U.S. Census Bureau 2004; D Weinberg 2004; CS Carpenter 2005:263–264 (independent of sexual orientation); Gesine & Knot 2005; R Hogan et al. 2005 (in the 1990s); Ng et al. 2005; Noonan et al. 2005; Ohler & Folbre 2005:193; Blau & Kahn 2006; Bobbitt-Zeher 2007 (undergrad graduates); Franklin, Schlundt et al. 2007:Table 2 (for whites, less so for blacks); Fortin 2008; Judge & Livingston 2008; AE Lincoln 2008:810 (N = 972, M average 36,000 dollars/year vs. average 24,000 dollars/year, full-time workers); Zhang 2008 (college graduates); PN Cohen et al. 2009; GB Lewis & Oh 2009; Blau et al. 2010; P England 2010; Le & Miller 2010 (especially at the highest income levels); Beaver, Nedelec et al. 2014:402 (personal income among undergrad students); Hopcroft 2021:Table 1 (personal income)
Not significant	**NORTH AMERICA** *United States*: MJ Kimmel et al. 1980 (experimental); DJ Pruitt et al. 1986 (experimental); LA Morgan 1998 (starting salaries for young engineers); D Olson et al. 2000:93 (people with low intelligence); Kirchmeyer 2002* (MBA graduates, first job after college graduation); Mitra 2002* (starting salaries when math ability was statistically controlled)
Higher among females	

Table 20.3.1.2 Earnings/salaries for specific occupational areas

Nature of difference	*Wide Age Range (Predominantly Adults)*
Higher among males	**ASIA** *China*: Ng & Pine 2003 (hotel management); *Singapore*: Tan & Igbaria 1994 **EUROPE** *Britain*: Gregg & Machin 1993 (corporate executives); RG Wood et al. 1993 (lawyers); Ginn & Arber 1994; Lindley et al. 1994 (college professor); FM Kay & Hagan 1995 (lawyers); Baimbridge & Simpson 1996 (college professors); McNabb & Waes 1997 (college professors); Panteli et al. 2001 (computer industry); M Ward 2001 (college professors); McNabb & Wass 2006 (among lawyers); *Norway*: Skalpe 2007 (tourism industry); Thrane 2008:518 (tourism industry, adult, N = 22,032); Thrane 2010:Table 1 (tourism industry, N = 32,166M + 53,523); *Spain*: Campos-Soria, Aguaza & Ropero 2009:Table 5 (tourism industry, N = 2,183M + 1,028F); Munoz-Bullon 2009:Table 1 (tourism industry, ages 16–65, N = 95,767M + 77,379F); AG Pozo et al. 2012 tourism industry, adults) **MIDDLE EAST** *Turkey*: Cage & Kilic 2010 (tourism industry, adult); Pinar et al. 2011:13 (tourism industry, adult, N = 443M + 139F) **LATIN/CARRIBBEAN AMERICA** *Barbados*: DE Levy & Lerch 1991 (tourism industry, adult, N = 53M + 80F); *Brazil*: Guimaraes & Silva 2016 (tourism industry, adult) **NORTH AMERICA** *Canada*: BD Adam & Baer 1984:39 (lawyers); J Hagan 1990 (lawyers); Greenglass 1993 (managers); Chaykowski 1994 (manufacturing workers); Kay & Hagan 1995:288 (lawyers); Soroka 1999 (service & manufacturing workers); J Tanner et al. 1999 (pharmaceutical industry); Robson & Wallace 2001 (lawyers); *United States*: AE Bayer & Astin 1968 (college professors); Glancy 1970 (lawyers); Fuchs 1971 (hourly wage); D Katz 1973; N Gordon et al. 1994 (college faculty); GE Johnson & Stafford 1974 (college professors); N Gordon & Morton 1976 (college faculty); E Hoffman 1976 (university faculty); Kehrer 1976 (physician); Bibb & Form 1977 (blue collar workers); MA Ferber & Kordick 1978 (college professors); Astin & Bayer 1979 (college professors); Bobula 1980 (physicians); Klebanoff 1980:72 (physicians); MF Fox 1981 (college professors); Ferber & Greene 1982 (college faculty); Langwell 1982 (physicians); Bobula 1983 (physicians); Rosner 1984 (dentists); Bartlett & Miller 1985 (executives); MJ Clark & Centra 1985 (college professors); Bowen & Schuster 1986 (undergrad teachers); Chapman & Wagner 1986 (university administrators); Ogle et al. 1986 (physicians); Ohsfeldt & Culler 1986 (physicians); Tolbert 1986 (undergrad teachers); Barbezat 1987 (college professors); Jagacinski 1987 (engineers); Pfeffer & Davis-Blake 1987 (university professors); Avery & Martin 1988 (dentists); Barbezat 1989 (college faculty); Baron & Newman 1989 (civil service); Gerhart & Milkovich 1989 (in a large, private firm); J Hagan 1990 (lawyers); Barbezat & Hughes 1990 (university faculty); Gerhard 1990 (managers, at first hire, N = 4,617); Hanson & Guidugli 1990 (university administrators); Levy 1990 (college administrators); Pfeffer & Ross 1990 (university administrators); Uhlenberg & Cooney 1990 (dentists); Barbezat 1991 (college faculty); Gerhart & Rynes 1991 (among MBA grads); Holden 1991:1112 (research scientists); P Carr 1992 (physicians); McElrath 1992:274 (college professors); Reskin & Ross 1992:359 (managers); Rosen 1992 (lawyers); TL Smith 1992 (more so in non-union jobs, college faculty); Velasco et al. 1992 (college graduates, social science majors); Wadman 1992 (dentists); PL Carr et al. 1993 (physicians); Ransom & Megdal 1993 (faculty); AJ Wellington 1993 (lawyers); RG Wood et al. 1993 (lawyers); Bellas 1994 (researchers/professors); Dial et al. 1994 (psychiatrists); Langton & Pfeffer 1994 (college professors); Lorber 1984 (physicians); Schneer & Reitman 1994 (among middle aged MBAs); Stanley & Adams 1994; Toutkoushian 1994 (college faculty); R Wright & Jacobs 1994 (computer industry, years of education controlled); Baroudi & Igbaria 1995 (computer industry); Chiu & Leicht 1995 (lawyers); Dedabbeleer et al. 1995 (among physicians); Dixon & Seron 1995 (lawyers); MF Fox 1995 (undergrad faculty); Kaldenberg et al. 1995 (dentists); Klawe & Levenson 1995 (computer industry,

(*Continued*)

Table 20.3.1.2 (Continued)

Nature of difference	*Wide Age Range (Predominantly Adults)*
	education controlled); Lentz & Laband 1995 (lawyers); Reskin & Ross 1995 (managers); LC Baker 1996* (among physicians); CE Bird 1996 (dentists & veterinarians); Dresler et al. 1996 (among physicians); Moen 1996 (elderly); Ranson & Reeves 1996 (scientists and engineers); Gander 1997 (college faculty); Huang 1997 (lawyers); F Jordan 1997 (hospitality industry); Biddle & Hamermesh 1998 (lawyers); Catalyst 1998 (corporate executives); Ferree & McQuillan 1998 (college faculty); DE Hecker 1998 (starting salaries for graduate students); GB Lewis 1998 (civil service); Lublin 1998 (top executives); LA Morgan 1998 (engineers); Sosin et al. 1998 (college faculty (more so in non-union jobs, undergrad faculty); Toutkoushian 1998 (university faculty, differences increase with age); Xie & Shauman 1998 (in academia); Chiu & Leicht 1999 (lawyers); Emslie et al. 1999b (bank employees); Goyette & Xie 1999 (scientists); Lasky 1999 (psychotherapists); RT Sparrowe & Iverson 1999 (tourism industry, adults); MC Hampton et al. 2000 (undergrad faculty); Iverson 2000 (hospitality industry); McMurray et al. 2000 (among physicians); RB Ness 2000 (physicians); Nettles et al. 2000 (researchers/professors); Toutkoushian 2000 (college faculty); Yupin et al. 2000 (starting salary for business majors); BM Barber & Odean 2001:276 (stock investors); ML Bellas et al. 2001 (college faculty); Bertrand & Hallock 2001 (CEOs); SR Bird et al. 2001 (small businesses); Mani 2001:323 (federal civil servants); McDuff 2001:10 (Protestant ministers, N = 1540M + 447F); Pantelli et al. 2001 (computer industry); Perna 2001 (among university faculty); Renner et al. 2002 (corporate executives); AE Wallace & Weeks 2002 (primary care physicians); Gray & Benson 2003 (small businesses); Hersch 2003 (lawyers); Ginther 2004 (college faculty); Guy & Newman 2004:291 (government employees); TJ Hoff 2004:306 (among physicians); Roth 2004 (stock investors); D Weinberg 2004 (physicians); HR Bowles et al. 2005 (MBA graduates, at first hire); K Burke et al. 2005 (faculty); Noonan et al. 2005:858 (lawyers); Prokos & Padavic 2005 (scientists and engineers); Ransom & Oaxaca 2005:227* (meat processing workers, after adjusting for seniority); Sasser 2005 (physicians); Toutkoushian & Conley 2005 (undergrad faculty); Kalev et al. 2006 (managers); Cynkar 2007 (PhD psychologists); Toutkoushian et al. 2007 (university faculty); WB Weeks & Wallace 2007 (among ophthalmologists); PN Cohen et al. 2009 (managers); CB Travis et al. 2009 (psychologists); Timmers et al. 2010 (in academia); K Kelly & Grant 2012 (college faculty); Ceci et al. 2014:117 (university faculty of all ranks); AB Jena, Olenski & Blumenthal 2016 (physicians, N = 10,241, multiple statistical controls) **INTERNATIONAL** *Multiple Countries*: EO Wright et al. 1995 (among mangers); Igbaria et al. 1997
Not significant	**AFRICA** *Zambia*: Floro & Schaefer 1998:81* (clerical work) **NORTH AMERICA** *United States*: Gomez-Mejia & Balkin 1992 (university professors in business management, after controlling for rank, publications, and teaching evaluations); Broder 1993 (university professors in economics, new hires after controlling for rank, publications, and teaching evaluations); LC Baker 1996* (among physicians, after imposing multiple statistical controls); LA Morgan 1998 (engineers, years of experience controlled); Bertrand & Hallock 2001 (corporate executives, years of experience controlled); Montgomery & Powell 2003 (MBAs, years of experience controlled); Xie & Shauman 2003 (scientists, years of experience controlled)
Higher among females	**NORTH AMERICA** *United States*: Ransom & Oaxaca 2005:227* (meat processing workers, without adjusting for seniority)

Table 20.3.1.3 Trends in income inequality between the sexes

Nature of Change	*Decades*						
	1950s	*1960s*	*1970s*	*1980s*	*1990s*		
Increase in the difference	**NORTH AMERICA** *United States*: Bobbitt-Zeher 2007*; Blau & Hendricks 1979; O'Neill & Polachak 1993:206*			**EUROPE** *Sweden*: Edin & Richardson 2002*	**ASIA** *Taiwan*: Berik 2000:10 **EUROPE** *Sweden*: Edin & Richardson 2002*		
No significant change		**NORTH AMERICA** *United States*: Jaynes & Williams 1989:295; O'Neill & Polachak 1993:206*; Blau & Kahn 2000:76*; Bobbitt-Zeher 2007*	**NORTH AMERICA** *United States*: Bianchi & Spain 1986:24*; Jacobs 1989; Blau & Kahn 2000:76*		**NORTH AMERICA** *United States*: Cotter et al. 2004* (stalled in the 1990s)		
Decrease in the difference		**EUROPE** *Sweden*: Edin & Richardson 2002* **NORTH AMERICA** *United States*: Kane 1991* (1960s-1989); D Weinberg 2004 (1960s through 2000) **INTERNATIONAL** *Multiple Countries*: Weichselbaumer & Winter-Ebmer 2005*	**EUROPE** *Sweden*: Edin & Richardson 2002* **NORTH AMERICA** *Canada*: Soroka 1987; Grenier & Joseph 1993; M Baker et al. 1995; Statistics Canada 1998*; Soroka 1999:572*; *United States*: Kane 1991* (1960s-1989); O'Neill & Polachak 1993:206*;	**NORTH AMERICA** *Canada*: Grenier & Joseph 1993; M Baker et al. 1995 (1970-1990; Statistics Canada 1998*; Soroka 1999:572*; *United States*: Bianchi & Spain 1986:24*; Kane 1991* (1960s-1989); O'Neill & Polachak 1993:206*; Wellington 1993*; Blau & Kahn 1994; Wellington 1994; Ashraf 1996*; Borjas	**NORTH AMERICA** *Canada*: Statistics Canada 1998*; Soroka 1999:572*; *United States*: Bianchi & Spain 1986:24*; Blau & Kahn 2000:76*; D Weinberg 2004* (mid 1960s through 2000); Blau & Kahn 2006* (1.6% per year 1990-1999); Bobbitt-Zeher 2007* (from 1970-2000) **OCEANIA** *Australia*: M		

(*Continued*)

Table 20.3.1.3 (Continued)

Nature of Change	*Decades*						
	1950s	*1960s*	*1970s*	*1980s*	*1990s*		
		(~1.2% per year, 1963-1969)	Wellington 1993*; Ashraf 1996*; Blau 1998* (1970-1995); Cotter et al. 2004* (stalled in the 1990s); D Weinberg 2004*; Bobbitt-Zeher 2007* (from 1970-2000) **OCEANIA** *Australia*: Borland 1999a* **INTERNATIONAL** *Multiple Countries*: Weichselbaumer & Winter-Ebmer 2005* (~1.2% per year, 1970-1979)E; *Multiple Industrialized Countries*: N Forsythe et al. 2000*	1996:350; Blau & Kahn 1997; Blau 1998* (1970-1995); LA Morgan 1998 (among engineers (1982-1989); Blau & Kahn 2000:76*; Gill & Leigh 2000; Cotter et al. 2004* (stalled in the 1990s); D Weinberg 2004* (mid 1960s through 2000); Blau & Kahn 2006* (1.6% per year 1979-1989); Bobbitt-Zeher 2007* (from 1970-2000) **OCEANIA** *Australia*: Borland 1999a*; M Kidd & Shannon 2001* (1980s through 1990s) **INTERNATIONAL** *Multiple Countries*: Weichselbaumer & Winter-Ebmer 2005* (~1.2% per year, 1980-1989); *Multiple Countries*: N Forsythe et al. 2000*	Kidd & Shannon 2001* (1980s through 1990s) **INTERNATIONAL** *Multiple Countries*: Weichselbaumer & Winter-Ebmer 2005* (~1.2% per year, 1990-1997)		

Table 20.3.1.4. One can see that most studies have indicated that men experience greater variability (such as one year to the next) in their incomes than do women.

Table 20.3.1.4 Intra-sex variability in income or earnings

Nature of difference	*Post-pubertal*		*Wide age range*
		Adult	
More among males		**EUROPE** *Britain*: Koskinen & Martelin 1994 **NORTH AMERICA** *Canada*: Gee & Prus 2000 (earnings); *United States*: Loury 1997*	**NORTH AMERICA** *United States*: GS Becker 1975:178
Not significant		**NORTH AMERICA** *United States*: Loury 1997* (young)	
More among females			

20.3.1.5 Retirement Income

Research on sex differences in retirement income have been scarce when compared to income more generally. As shown in Table 20.3.1.5, with the possible exception of the former Soviet Union, the evidence indicates that males receive higher retirement incomes than do females. This is likely to be partly due to males being more likely to receive pensions after retiring from many years of full-time work.

Table 20.3.1.5 Retirement income

Nature of difference			*Post-pubertal*		
				Adult	
More among males				**ASIA** *China*: Zeng et al. 2003 (receiving higher pensions, elderly persons); *Multiple Asian Countries*: Ofstedal et al. 2003 (8/8 countries) **NORTH AMERICA** *United States*: Haug & Folmar 1986 (elderly, retirement income, non-institutionalized); Harrington Meyer 1990 (elderly); Even & Macpherson 1994 (elderly, retirement income & pension); Harrington Meyer & Pavalko 1996 (elderly); R Johnson et al. 1999 (elderly, retirement income & pension); P Levine et al. 2002 (elderly, retirement income); LS Shaw & Hill 2002 (elderly); Even & Macpherson 2004 (elderly, retirement income)	
Not significant				**ASIA** *Former Soviet Union*: Ogloblin 2002:189 (retirement income)	
More among females					

20.3.1.6 Salary Negotiations

Some research has sought to determine which sex tends to negotiate higher salaries usually for comparable jobs. In Table 20.3.1.6, one can see that all the available research indicates that males do so more (and more successfully) than is the case for females.

Table 20.3.1.6 Salary negotiations

Nature of difference	*Post-pubertal*
	Adult
Males negotiate higher salaries	**NORTH AMERICA** *United States*: B Major et al. 1984; CK Stevens et al. 1993; Babcock & Laschever 2003 **OVERVIEW** *Meta-Analysis*: AE Walters et al. 1988; Stuhlmacher & Walters 1999
Not significant	
Females negotiate higher salaries	

20.3.1.7 Offers Made in Experimental Salary Negotiations

Some researchers have conducted experimental games in which individuals (usually college students) are asked to negotiate salaries (or payments for services) of various types in which offers are made that can be either accepted, re-negotiated, or terminated. Without delving into the details of each study, Table 20.3.1.7 shows that males were offered higher average salaries than were females.

Table 20.3.1.7 Offers made in experimental salary negotiations

Nature of difference	*Post-pubertal*
	Adult
Males offered higher salaries	**NORTH AMERICA** *United States*: Eckel & Grossman 2001 (ultimatum game); Solnick 2009 (ultimatum game); Ben-Ner et al. 2004 (experimental game)
Not significant	
Females offered higher salaries	

20.3.1.8 Offers Accepted in Experimental Salary Negotiations

In a couple of studies cited in the preceding table, researchers sought to determine if there were sex differences in the likelihood of individuals

accepting relatively low offers. One can see in Table 20.3.1.8 that both of these studies concluded that females accepted lower offers than did males.

Table 20.3.1.8 Offers accepted in experimental salary negotiations

Nature of difference			*Post-pubertal*		
				Adult	
Males accept *lower* offers					
Not significant					
Females accept *lower* offers				**NORTH AMERICA** *United States*: Eckel & Grossman 2001 (ultimatum game); Ben-Ner et al. 2004 (experimental game)	

20.3.1.9 Main Factors Responsible for Male-Female Wage Gap

Some studies have sought to identify the factors that are responsible for persistent sex differences in average wages among fulltime employed people (as documented worldwide in an earlier table). As one can see by examining Table 20.3.1.9, four factors have been identified so far as making significant contributions to the sex differences in average salaries.

Table 20.3.1.9 Main factors responsible for male-female wage gap

Nature of difference	*Citations*
Occupational choices	**ASIA** *China*: Meng & Miller 1995 (occupational choices) **NORTH AMERICA** *United States*: Daymont & Andrisani 1984:412 (college graduates, 1/3 to 2/3 attributable to combination of college majors and occupations); Marini & Fan 1997* (occupational choices, 22% of the gap); Padavic & Reskin 2002:67 (occupational choices); Blau & Kahn 2006 (occupational choices)
Undergrad majors (among college graduates)	**NORTH AMERICA** *United States*: Daymont et al. 1984 (undergrad, about 1/2 due to sex differences in majors); Daymont & Andrisani 1984:412* (college graduates, 1/3 to 2/3 attributable to combination of college majors and occupations) Solnick 1995 (undergrad); Grove, Hussey & Jetter 2011* (among MBAs) **OVERVIEW** *Literature Review*: JA Jacobs 1996 (undergrad, 45% attributable to majors in undergrad)
Work interruptions	**NORTH AMERICA** *United States*: Schneer & Reitman 1990 (15% of salary differences, among MBAs); Grove, Hussey & Jetter 2011* (among MBAs)
Age of worker	**NORTH AMERICA** *United States*: Noonan et al. 2005 (sex difference increases with age, among lawyers)

One has to do with sex differences in the types of occupations typically chosen by males and females. According to one study, nearly "half of all women would have to switch occupations to achieve gender equality in occupations" (Padavic & Reskin 2002:67). If such a change were to occur, at least 20% of the wage gap between males and females would be eliminated (Marini & Fan 1997).

Second, among people who graduate from undergrad, a related factor could be even more important: undergrad majors. Research has indicated that people who major in any of the natural sciences, technology, engineering, or mathematics (i.e., the so-called *STEM fields*) earn substantially more on average than do those who major in other fields of study (especially in the humanities, education, and the like). One review estimated that, among undergrad graduates, 45% of the sex differences in wages could be explained by their chosen main fields of study.

Third, at least among people with master's degrees in business administration, sex differences in work interruptions (such as due to maternity leave and infant care) is also important. The one study located on this matter indicated that greater work interruptions by women accounted for 15% of the lower salaries they received compared to men.

Fourth, age appears to have a positive effect on increasing sex differences in average salaries (i.e., since salaries tend to increase with age at least until the age of 60 or so, which in turn is associated with years of employment). This age effect is due to the fact that men are less likely than women to have significant work interruptions throughout their careers, particularly when pregnancy is most likely to occur.

20.3.1.10 Wealth

Three studies of sex differences in wealth or land holdings were located. Table 20.3.1.10 shows that all of these studies concluded that males have greater wealth or land holdings than do females.

Table 20.3.1.10 Wealth

Nature of difference	*Post-pubertal*	
		Adult
More among males		**EUROPE** *Portugal*: Brettell 1986 (land holdings, historic data) **NORTH AMERICA** *United States*: S Crystal 1996 **INTERNATIONAL** *Multiple Countries*: J Wai 2014 (among self-made billionaires)
Not significant		
More among females		

20.3.1.11 Bankruptcy

Are there sex differences in people who have ever declared bankruptcy? Just one study was located; as shown in Table 20.3.1.11, it found no significant difference.

Table 20.3.1.11 Bankruptcy

Nature of difference	*Post-pubertal*		
		Adult	
More among males			
Not significant		**NORTH AMERICA** *United States*: Desai et al. 2006:149 (self-reported, N = 749M + 724F)	
More among females			

20.3.1.12 Wealth Inheritance

In nearly all countries, after parents die, they leave at least a portion of whatever wealth they may have accumulated to their children. Obviously, upper-status parents typically bequeath more to their heirs than do parents of modest or low status. Several studies have sought to determine if parents discriminate according to the sex of their offspring when bequeathing their monetary or property assets.

Working from an evolutionary perspective, Trivers and Willard (1973) predicted that there would be sex differences, but that these differences would depend on the amount of wealth involved. In particular, these individuals suggested that because males have a higher reproductive potential than females, and females are particularly drawn to males with wealth, high-status parents should bequeath greater proportions of their wealth to their sons than to their daughters. Parents of low social status, on the other hand, would be favored in reproductive terms by distributing their wealth more or less equally to both sons and daughters, perhaps even bequeathing more to daughters.

Evidence bearing on this line of reasoning can be obtained by inspecting Table 20.3.1.12. Overall, it does appear that males inherit more among high wealth families, while the opposite pattern is more common among parents with relatively few assets to bequeath.

20.3.1.13 Parental Social Status

Some studies have provided evidence concerning sex difference in parental social status (usually measured in terms of parental years of education, income, or occupational level). As shown in Table 20.3.1.13, all but a couple of these studies have indicated that there are no significant sex differences in parental social status.

Table 20.3.1.12 Wealth inheritance

Nature of difference			*Wide age range*
Males inherit more			**ASIA** *India*: Dickemann 1979 **EUROPE** *Germany*: Rosenbaum 1982:49 (land); Voland 1984* (property owning families); Kosmann 1998; *Portugal*: Boone 1986 **NORTH AMERICA** *Canada*: Smith et al. 1987* (in upper status families) **OCEANIA** *Caroline Islands*: Betzig & Turke 1986* (Ifaluk tribe, property transfer among land owning families); *Philippines*: Estudillo et al. 2001a (rural, amount of land inheritance); Estudillo et al. 2010* (rural, amount of land inheritance)
Not significant			**EUROPE** *Germany*: Szydlik 2004:40 (money plus property) **NORTH AMERICA** *United States*: Menchik 1980:314; Judge & Hrdy 1992 **OCEANIA** *Philippines*: Estudillo & Hossain 2010* (rural, money bequeathal)
Females inherit more			**AFRICA** *Kenya*: Cronk 1989 (Mukogodoare Pastoralists, lower status females) **EUROPE** *Germany*: Voland 1984* (families with few property holdings) **NORTH AMERICA** *Canada*: Smith et al. 1987* (lower status families) **OCEANIA** *Caroline Islands*: Betzig & Turke 1986* (Ifaluk tribe, property transfer among poor families)

Table 20.3.1.13 Parental social status

Nature of difference			*Post-pubertal*		*Wide age range*
			Adolescent	*Adult*	
Higher among males			**NORTH AMERICA** *Canada*: S Kim, Kimber et al. 2019:Table 1	**NORTH AMERICA** *United States*: Sewell, Hauser & Wolf 1980:Table 3* (family income, N = 3,411M + 2,620F)	
Not significant			**ASIA** *South Korea*: WY So 2012:Table 1 (age 15, income & years of education of both parents, N = 75,066) **NORTH AMERICA** *United States*: Koscik, O'Leary et al. 2009 (adult, N = 38M + 38F); Nopoulos, Flaum et al. 2000:Table 1 (N = 42M + 42F, Hollingshead measure); P West et al. 2010:Table 1; Shekarkhar & Gibson 2011:69 (ages 9-15, N = 739, Hispanics); Herting et al. 2012	**NORTH AMERICA** *United States*: Sewell, Hauser & Wolf 1980:Table 3* (both mom's & dad's years of education & dad's occupational level, N = 3,411M + 2,620F); MD de Bellis et al. 2001:Table 1 (N = 61M + 57F); Beaver, Nedelec et al. 2014:402 (undergrad, parental income)	**NORTH AMERICA** *United States*: AM Fish, Cachia et al. 2017:Table 1 (ages 5-25); Maxwell, Fubeberg et al. 2018:Table 1 (mom's years of education, N = 1,711)
Higher among females					

20.3.1.14 Promotion Rates

Many studies have sought to determine if sex differences exist in the rate at which male and female employees are promoted or retained in their employment. Some of these studies have investigated being awarded tenure for college professors and civil servants. Table 20.3.1.14 shows that with just a few exceptions (all involving no significant sex differences), research has determined that males are promoted at higher rates than females.

Table 20.3.1.14 Promotion rates

Nature of difference	*Wide Age Range (Predominantly Adults)*
Higher among males	**AFRICA** *Zambia*: T Turner & O'Connor 1994 (civil services) **ASIA** *Japan*: Brinton 1993; S Buckley 1993; Kawashima 1995; B Molony 1995; Creighton 1996; Ogasawara 1998 **EUROPE** *Britain*: Goldthorpe et al. 1987; G Marshall et al. 1988; Abbott & Payne 1990; Alimo-Metcalfe 1995; Currie & Thiele 2001 (in academics); Ransom & Oazaca 2005; *Finland*: Pekkarinen & Vartianinen 2006; *France*: RV Robinson & Garnier 1985; Portocarero 1983a*; Portocarero 1983b*; Portocarero 1985*; Portocarero 1987*; *Germany*: Li & Singelmann 1998*; Bornmann & Enders 2004:34 (PhD); *Netherlands*: De Weert 2001 (in academia); *Sweden*: Portocarero 1983a*; Portocarero 1983b*; Portocarero 1985*; Portocarero 1987*; Portocarero 1989 **LATIN/CARIBBEAN AMERICA** *Trinidad & Tobago*: Bissessar 1999 (civil services) **NORTH AMERICA** *Canada*: Cannings & Montmarquette 1991 (among mid-level managers); *United States*: J Bernard 1964:120 (college teaching); AE Bayer & Astin 1968 (college teaching); JR Cole & Cole 1973 (college teaching); ND Glenn et al. 1974; Tyree & Treas 1974; Astin & Bayer 1975; AE Bayer & Astin 1975:801 (college teaching); RM Hauser et al. 1977; JR Cole 1979:246 (in academics); National Research Council 1979:60 (college teaching); Reskin & Hargens 1979:117; Ahem & Scott 1981; JR Cole 1981 (college teaching); LA Wallis et al. 1981 (medical faculty); Y Weiss & Lillard 1982 (college teaching); Lorber & Ecker 1983; Cole & Zuckerman 1984 (university professor); Lorber 1984 (physicians); Szafran 1984 (college teaching); DiPrete & Soule 1986 (civil servants); RA Rosenfeld & Jones 1986 (college teaching); PD Allison & Long 1987 (college teaching); AM Morrison et al. 1987; Whitley 1987 (medical faculty); DiPrete & Soule 1988 (civil service); Gerhart & Milkovich 1989 (in a large, private company); Hachen 1988:35; Dial et al. 1989 (medical faculty); PD Allison & Long 1990 (college teaching); Nickerson et al. 1990 (medical faculty); Roscher 1990:72 (among chemists); Spurr 1990 (lawyers); American College of Physicians 1991; Ehrenberg 1991 (college teaching); Carr et al. 1992; Hurlbert & Rosenfeld 1992 (college teaching); Stroh et al. 1992 (among managers); Vetter 1992:37 (in higher education, more rapidly); Fagenson 1993; Kahn 1993 (economics professors); JS Long et al. 1993 (biochemistry professors); S Morgan et al. 1993; MA Newman 1993 (civil service); Vasil 1993 (college professors); Bickel et al. 1995 (medical faculty); Kahn 1995 (economy professors); Schneer & Reitman 1995 (managers); Tesch et al. 1995 (medical faculty); D Jones & Makepeace 1996; Kaplan et al. 1996 (among academic pediatricians); Commission on Professionals 1997 (in academic institutions); Higginbotham & Romero 1997; Li & Singelmann 1998*; Valian 1998 (college professors); Cobb-Clark & Dunlop 1999* (in 1990); C Edwards et al. 1999; Maume 1999 (especially among whites); McDowell et al. 1999a (economy professors); McDowell et al. 1999b (economy professors); Pergamit & Veum 1999; Powell 1999 (management positions); Schiebinger 1999 (college professors); Nettles et al. 2000 (in academia); Nonnemaker 2000 (among medical faculty); Ginther 2001 (in science fields of academia); National Research Council 2001 (among PhD recipients in engineering); Budig 2002; TR Turner 2002 (anthropology professors); Ginther & Hayes 2003 (economy professors); National Science Foundation 2003:1 (in science); Agars 2004; Ginther & Kahn 2004 (tenured in university economics departments);

(*Continued*)

Table 20.3.1.14 (Continued)

Nature of difference	*Wide Age Range (Predominantly Adults)*
	Goldberg et al. 2004 (managers); National Science Foundation 2004 (among academic scientists & engineers); Petersen & Saporta 2004:877; Ginther 2006 (in academia); Hamel et al. 2006 (in medical academic positions); Blau & DeVaro 2007; Ginther & Kahn 2009* (tenured in STEM academic disciplines except engineering); Timmers et al. 2010 (in academia) **OCEANIA** *Australia*: Everett & Entrekin 1994 (in higher education); Mallen & Castleman 1995 (in higher education); C Burton 1997 (in higher education); Lafferty & Fleming 2000 (in higher education) **INTERNATIONAL** *Multiple Industrial Countries*: PA Ross 1985; Li & Singelmann 1998*; R Erikson & Goldthorpe 1992
Not significant	**NORTH AMERICA** *United States*: Hersch & Viscusi 1996; Paulin & Mellor 1996 (private sector); Cobb-Clark & Dunlop 1999* (in 1996); W Barnett et al. 2000 (civil service); A Booth et al. 2003; Ginther & Kahn 2009* (academic tenured in engineering); Kaminski & Geisler 2012 (among academic scientists & engineers)
Higher among females	

20.3.1.15 Entrepreneur (Profit Making/Business Owner)

Studies undertaken to determine if a sex difference exists in making profits from business ventures have reached inconsistent conclusions. Table 20.3.1.15 shows that some studies have concluded that males make more than do females while other studies have found no significant sex difference (especially when controls are introduced for such things as the type of business and the years the business has been operating).

Table 20.3.1.15 Entrepreneur (profit making/business owner)

Nature of difference			*Wide Age Range*
More among males			**ASIA** *China*: Entwisle et al. 1995; DP Moore 1999; Fan & Lui 2003:615 (Hong Kong); *Singapore*: Kim & Ling 2001 (self-employed) **MIDDLE EAST** *Israel*: Lerner et al. 1997 (15%M vs. 5%f, self-employed) **NORTH AMERICA** *United States*: FD Blau 1979:277; Haber et al. 1987; Loscocco & Robinson 1989; Loscocco et al. 1991; Birch 1992; Brush 1992; PD Reynolds 1993; D Carr 1996; Fasci & Valdez 1998; Small Business Administration 2001 (self-employment)
Not significant			**NORTH AMERICA** *Canada*: Collins-Dodd et al. 2004 (several variables controlled); *United States*: Kalleberg & Leicht 1991 **OCEANIA** *Australia*: J Watson 2002 (several variables controlled)
More among females			

20.3.1.16 Effects of Worker Sex Ratio on an Occupation's Average Salary

Several studies have sought to determine if an occupation's sex ratio affects the average income of those employed in that occupation. As shown in Table 20.3.1.16, all of these studies have concluded that as the proportion of females in an occupation increase, the average salaries in that occupation tend to decrease. The only except involved statistically controlling for various potentially confounding factors.

Table 20.3.1.16 Effects of worker sex ratio on an occupation's average salary

Nature of difference				*Post-pubertal*	
				Adult	
Average salary *increases* as % female increases					
No significant difference				**NORTH AMERICA** *United States*: Filer 1989* (after controlling for human capital and compensating differential factors)	
Average salary *decreases* as % female increases				**EUROPE** *Britain*: Belfield 2005:887 (10% increase in the proportion of women associated with a 4.6% reduction in average salary); *Netherlands*: de Ruijter et al. 2003:353; *Norway*: T Petersen et al. 1997; *Sweden*: Johansson et al. 2001; Arai et al. 2004 **NORTH AMERICA** *United States*: B Bergmann 1974; Bluestone 1974; M Stevenson 1975; Ferber & Lowry 1976; England & McLaughlin 1979:205; National Research Council 1981:54; Treiman & Hartmann 1981; P England 1982 (in civil service); Aldrich & Buchele 1986; Pfeffer & Davis-Blake 1987 (college administrators); England et al. 1988; JN Baron & Newman 1989; Filer 1989*; Parcel & Mueller 1989; Baron & Newman 1990; CE Bird 1990 (bank managers); Jacobs & Steinberg 1990; Groshen 1991; P England 1992; P England et al. 1992; England & Herbert 1993; Tomaskovic-Devey 1993; Bellas 1994 (wage rates over time); P England et al. 1994; Kilbourne et al. 1994; Sorensen 1994; Petersen & Morgan 1995; Tomaskovic-Devey 1995; P England et al. 1996; Tomaskovic-Devey et al. 1996; Huffman & Velasco 1997; Le Grand 1997; Carrington & Troske 1998; Maume 1999:1449 (wage rates over time); Barnett et al. 2000 (civil service jobs); Budig 2002; Boraas & Rodgers 2003; PN Cohen & Huffman 2003; Ostroff & Atwater 2003; Hertz et al. 2004; Cynkar 2007 (in psychology); Judge & Livingston 2008; Levanon, England & Allison 2009:Figure 1; CB Travis et al. 2009 (in psychology) **INTERNATIONAL** *Multiple Countries*: Steinberg 2001	

One explanation for this observation is known as the *devaluation hypothesis*. It states that as the proportion of women in an occupation increase, the occupation's prestige is diminished, which in turn, lowers the salary employers will pay workers in that occupation (Macpherson & Hirsch 1995; England et al. 2007).

Another idea is that the phenomenon largely reflects the law of supply and demand. This means that, to the extent women seek to be employed in any line of work that has high proportions of males, employers have more potential workers from which to choose. The result of more workers (of either sex) seeking to fill a particular position lowers the average salary that employers must offer to attract applicants.

20.3.1.17 Property Ownership

One study was located that compared the sexes regarding property ownership. As shown in Table 20.3.1.17, it found that, among Hopi Indians, women owned more property than did men.

Table 20.3.1.17 Property ownership

Nature of difference			*Post-pubertal*		
				Adult	
More among males					
Not significant					
More among females				**NORTH AMERICA** *United States*: CC Weisfeld et al. 1983:697 (Hopi)	

20.3.1.18 Financial Well-Being

A number of studies have been undertaken to assess sex differences in financial well-being among the elderly. As shown in Table 20.3.1.18, all the studies have concluded that males were better off than females.

Table 20.3.1.18 Financial well-being.

Nature of difference			*Post-pubertal*		
				Adult	
Males more financially well off				**ASIA** *China*: Gu & Liang 2000 (elderly); *Singapore*: Hermalin et al. 2002* (elderly); *Taiwan*: Hermalin et al. 2002* (among elderly retirees); *Thailand*: Hermalin et al. 2002* (elderly); Sobieszczyk et al. 2003 (elderly); *Vietnam*: J Friedman et al. 2003:600 (elderly) **NORTH AMERICA** *United States*: Umberson et al. 1992 (elderly retires); Arber & Ginn 1994 (elderly); C Browne 1998 (elderly) **OCEANIA** *Philippines*: Hermalin et al. 2002* (elderly) **OVERVIEW** *Generalization*: Basow 1992:302	
Not significant					
Females more financially well off					

20.3.1.19 Receiving Public Assistance/Welfare

Two studies have reported on sex differences in welfare recipiency. As shown in Table 20.3.1.19, both studies indicated that females are more likely than males to be the recipients of governmental assistance. In all likelihood, this is at least partly due to the fact that females are more likely to be responsible for childcare, which interferes with being able to work on a regular basis.

Table 20.3.1.19 Receiving public assistance/welfare

Nature of difference	*Post-pubertal*
	Adult
More among males	
Not significant	
More among females	**NORTH AMERICA** *United States*: CJ Wong et al. 2002 (among cocaine addicts) **OCEANIA** *New Zealand*: Pacheco & Maloney 2003 (multi-generational welfare dependency)

20.3.1.20 Relative Importance of Husband's and Wife's Jobs

In two studies, dual-earning married couples were asked to rate the relative importance of their jobs. Table 20.3.1.20 shows that both studies concluded that both sexes assigned higher importance to the husband's work than to that of the wife.

Table 20.3.1.20 Relative importance of husband's and wife's jobs

Nature of difference	*Post-pubertal*
	Adult
Husband's more important	**NORTH AMERICA** *United States*: Bielby & Bielby 1992 (married couples); Valcour & Tolbert 2003:776 (among married couples)
Not significant	
Wife's more important	

20.3.2 Variables Related to Income and Social Status

Some studies have sought to determine if there are sex differences in the extent to which social status (including income) is correlated with other variables. Findings are presented in the following tables.

20.3.2.1 Relationship between Social Status and Height

Many studies have indicated that people's heights and their social status are positively correlated, whether assessed in terms of years of education, occupational level, or income (Ellis, Hoskin, & Ratnasingam 2018:255–257). Table 20.3.2.1 shows that one study found this correlation to be stronger in the case of males than for females.

Table 20.3.2.1 Relationship between social status and height

Nature of difference			*Post-pubertal*		
				Adult	
Stronger for males				**OCEANIA** *Papua New Guinea*: Ulijaszek 2003:325 (income)	
Not significant					
Stronger for females					

20.3.2.2 Relationship between Social Status and Being Married

Some studies have investigated sex differences in the relationship between being married and having a being of relatively high social status. As shown in Table 20.3.2.2, in all cases, the correlations have been shown to be positive, especially for males. The cause of this association, of course, cannot be deduced simply from the correlations themselves. However, it is reasonable to believe that it may largely reflect substantial sex differences in the use of both education and especially income as criteria in choosing mates (see Chapter 15), i.e., females have stronger tendencies to use social status as a basis for mate selection.

Table 20.3.2.2 Relationship between social status and being married

Nature of difference	*Post-pubertal*	
	Adult	
Stronger for males	**ASIA** *China*: Hannum et al. 2013 (years of education) **NORTH AMERICA** *United States*: MS Hill 1979 (income, among employees); Pfeffer & Ross 1982 (income, among employed persons); Sweet & Bumpass 1987 (years of education); Korenman & Neumark 1991; Antecol 2003 (income among immigrants); Valcour & Tolbert 2003:776 (income)	
Not significant		
Stronger for females		

20.3.2.3 Relationship between Social Status and Health

Vast research has indicated that, on average, people of high social status are healthier than those of low status, whether status is measured in terms of income, education or occupational status (reviewed by Ellis, Hoskin & Ratnasingam 2008:199–250). Table 20.3.2.3 shows that studies that have looked for possible sex differences in this regard have reached inconsistent conclusions.

Table 20.3.2.3 Relationship between social status and health

Nature of difference				*Post-pubertal*	*Wide age range*
				Adult	
Stronger positive correlation for males				**ASIA** *Russia*: Shkolnikov et al. 1998 **EUROPE** *Britain*: Yuen et al. 1990 (adult); Stronks et al. 1995 (adult)	
Not significant				**NORTH AMERICA** *Canada*: Veenstra 2000	
Stronger positive correlation for females					**EUROPE** *Scotland*: Der et al. 1999:275 (adolescents & adults)

20.3.2.4 Relationship between Social Status and Mortality

As noted above, numerous studies have indicated that people of high social status are healthier than those of low status. This is true for when health is assessed in terms of life expectancy. Table 20.3.2.4 shows that most research has indicated that the relationship between social status and life expectancy is stronger for males than for females, although a couple of studies failed to document significant differences.

Table 20.3.2.4 Relationship between social status and mortality

Nature of difference					*Wide age range*
Stronger among males					**ASIA** *Russia*: Shkolmikov et al. 1998 (years of education) **EUROPE** *Britain*: Koskinen & Martelin 1994; Sacker et al. 2000 (when status defined individually); *Estonia*: Leinsalu et al. 2003 (years of education & longevity); *Finland*: Koskinen & Martelin 1994 (multiple SES measures); *Italy*: Vescio et al. 2003 (years of education); *Netherlands*: Stronks et al. 1995; Perenboom, van Herten et al. 2005:52 (educational level); *Poland*: Welon et al. 1999; *Spain*: Borrell et al. 2003:387 (among civil servants); *Sweden*: Vagero & Lundberg 1995 **NORTH AMERICA** *United States*: Chandola 1998 (occupational status); Chandola 2000

(*Continued*)

Table 20.3.2.4 (Continued)

Nature of difference					*Wide age range*
Not significant					**EUROPE** *Sweden*: R Erikson 2006 (using occupational status of the primary breadwinner as the status measure) **NORTH AMERICA** *United States*: Koskinen & Martelin 1994 (unmarried, years of education used as the status measure)
Stronger among females					

20.3.2.5 Relationship between Income and Years of Education

The association between income and years of education is positive, albeit only modestly, i.e., in the .30 range (reviewed by Ellis, Hoskin & Ratnasingam 2018:6–8). A couple of studies were found that sought to determine if this positive correlation was stronger for males or for females. One can see in Table 20.3.2.5 that the evidence was inconsistent.

Table 20.3.2.5 Relationship between income and years of education

Nature of difference			*Post-pubertal*		
				Adult	
Stronger positive correlation for males				**EUROPE** *Britain*: Averett & Burton 1996 (undergrad degree)	
Not significant					
Stronger positive correlation for females				**NORTH AMERICA** *United States*: Diprete & Buchmann 2006	

20.3.2.6 Correlation between Income and Number of Children

Two studies sought to determine if there was a sex difference in the financial consequences of having children. As shown in Table 20.3.2.6, both studies indicated that women's incomes were more negatively correlated with income than were men's income.

20.3.3 Work at Home

Many surveys have been conducted to determine which gender is most involved in performing routine household chores. Such work typically includes cleaning, child rearing, food preparation, decorating, and yard maintenance. Findings are presented separately for indoor as opposed to

Table 20.3.2.6 Negative correlation between income and number of children

Nature of difference	*Post-pubertal*
	Adult
Stronger for males	
Not significant	
Stronger for females	**NORTH AMERICA** *United States*: Waldfogel 1998; Antecol 2003 (immigrants)

outdoor work. Most of the studies were conducted among married or cohabitating opposite-sex couples.

20.3.3.1 Performing Indoor Household Chores in General

Which gender is most likely to be involved in performing household chores? With the exception of working outside or doing construction chores, the answer appears to be very consistent in favor of females. As shown in Table 20.3.3.1a, this generalization holds for young children with just a few exceptions.

Table 20.3.3.1a Performing household chores in general before puberty

Nature of difference	*Pre-pubertal*
	Child
More among males	
Not significant	**ASIA** *India*: Whiting & Edwards 1988 **NORTH AMERICA** *United States*: Duckett et al 1989; Robinson & Bianchi 1997
More among females	**AFRICA** *Botswana*: Mueller 1984* (rural); *Mahe Island*: M Benedict & Benedict 1982:261; *Nigeria*: Schildkrout 1978; Robson 2004*; *Kenya*: Ember 1973 (Lue community); *Tanzania*: Sellen 2000:361 (Datoga pastoralists) **ASIA** *India*: Saraswathi & Dutta 1988*; Skoufias 1994*; *Nepal*: Nag et al. 1980* (rural) **EUROPE** *Britain*: Gregson & Lowe 1993; Brooke et al. 2013 (age 10, N = 1,600, household chores); *Sweden*: Hanson & Hanson 1980; *Wales*: Pinch & Storey 1992 **LATIN/CARIBBEAN AMERICA** *Cuba*: R Pearson 1997; *Mexico*: Whiting & Edwards 1988* (rural); Estrada 2002 **NORTH AMERICA** *Canada*: Frederick 1995*; *United States*: Duncan et al. 1973; LK White & Brinkerhoff 1981; Hochschild & Machung 1989; Mauldin & Meeks 1990; Brines 1994; Manke et al. 1994; Wharton 1994; Bolak 1997; JR Robinson & Godbey 1997; Larson et al. 2001 (African-American) **OCEANIA** *Indonesia*: Nag et al. 1980* (rural Java); *Philippines*: Evenson et al. 1980* (rural) **INTERNATIONAL** *Multiple Countries*: Baxter 1997; *Multiple Developing Countries*: Nieuwenhuys 1994

For adolescents and adults, the findings regarding sex differences in performing indoor household chores are summarized in Table 20.3.3.1b. One can see that they are unanimous in indicating that females are significantly more involved in performing these types of chores than males. This holds even for couples in which both the husband and wife have full-time employment outside the home. Overall, this table confirms the generalization that "women everywhere do more housework than men" (Treas & Lui 2013:136).

20.3.3.2 Trends in Performing Indoor Household Chores

A few studies have sought to determine if there are any detectable trends regarding sex difference in time spent performing household chores. As one can see in Table 20.3.3.2, all the studies that were located on this matter have indicated that there has been a detectable decline in these sex difference, at least since the 1960s (when the first studies of such differences began to be published). In fact, one of the studies asserted that if a simple linear extrapolation of these trends is performed for the countries that were sampled, the sex difference will essentially disappear by 2030 (Kan, Sullivan & Gershuny 2011:246).

20.3.3.3 Performing Outdoor or Construction Household Chores

Several studies have sought to determine if there are sex differences in the time spent performing domestic chores outdoors (e.g., mowing the yard, fixing the fence) or chores of a construction nature (e.g., fixing a leaky fossette or wobbly banister). Table 20.3.3.3 shows that all these studies concluded that males spend more time performing these types of tasks than do females.

20.3.3.4 Food Preparation

As summarized in Table 20.3.3.4, studies have sought to determine which sex is most involved in cooking and other forms of food preparation. One of these was a cross-cultural comparison involving 163 countries. Overall, in most countries, females have been found to spend more time preparing food for consumption than is the case for males.

20.3.3.5 Flower Preparation and Gardening

One study was located that compared the sexes regarding their involvement in planting and preparing flowers for display. As shown in Table 20.3.3.5, it indicated that, at least among children, this activity is more common among females than among males.

Table 20.3.3.1b Performing indoor household chores in general after puberty

Nature of difference	*Post-pubertal*		*Wide age range*
	Adolescent	*Adult*	
More among males			
Not significant			
More among females	**AFRICA** *Botswana*: Mueller 1984* (rural); *Kenya*: Mugisha et al. 2003:234 (such as cleaning, cooking, and childcare); *Nigeria*: Robson 2004:204* **ASIA** *Bangladesh*: Cain 1980* (rural); *India*: Saraswathi & Dutta 1988*; Skoufias 1994* *Nepal*: Nag et al. 1980* (rural) **EUROPE** *Sweden*: Evertsson 2006:425 **NORTH AMERICA** *Canada*: Frederick 1995*; *United States*: Cogle et al. 1982; Cogle & Tasker 1982; SF Berk 1985*; Sanik & Stafford 1985; Timmer et al. 1985; Sanik & Stafford 1986; Benin & Edwards 1990 (still living with parents); Mauldin & Meeks 1990; Goldscheider & Waite 1991*; Hilton & Haldeman 1991*; N Emler & Hall 1994 (among HS students living with parents); Brannen 1995; Gager et al. 1999;	**ASIA** *China*: Tu & Lam 2009; Yu & Xie 2012*; Oshio et al. 2013*; Z Zhang 2017; *Japan*: Inoue & Ebara 1995; Hachisuka et al. 1998 (elderly, stroke patients); Abe et al. 2003; Yoshizumi & Takahashi 2003*; Tsuya et al. 2012 (married couples, 1994–2009); Oshio et al. 2013*; *Russia*: Cubbine & Vannoy 2004 (married & cohabitating couples); *South Korea*: Joo & Lee 2009; *Soviet Union*: Haavio-Mannila 1971*; Heitlinger 1979*; Yanowitch 1987:358; Du Plessix 1989; *Taiwan*: Hsieh et al. 1995 (elderly); Yu & Xie 2012*; Oshio et al. 2013*; *Multiple East Asian Countries*: Sechiyama 2013; Qian & Sayer 2016 **EUROPE** *Britain*: Pahl 1984; DT Wade et al. 1985 (stroke victims); L Morris 1990; Gershuny et al. 1994; Gervai et al. 1995* (married couples); O Sullivan 1996; Crompton 1997; O Sullivan 1997; O Sullivan 2000; Rojas et al. 2005:1697*; O Sullivan & Gershuny 2016; Kan & Laurie 2018 (all ethnic groups surveyed); *Finland*: Haavio-Mannila 1971*; Miettinen et al. 2015; *France*: Baudelot & Establet 1992; Kellerhals et al. 1995 (married couples); *Former Czechoslovakia*: Heitlinger 1979*; *Germany*: Cooke 2006:455*; S Fauser 2019; *Hungary*: Gervai et al. 1995* (married couples); *Italy*: Carriero 2011; *Netherlands*: de Ruijter et al. 2003:353 (indoor domestic workers); *Northern Ireland*: R Kelly & Shorthall 2002 (rural); *Portugal*: Saraceno 1997; Poeschl 2000; *Spain*: Alvarez & Miles 2003 (duel earning couples); Fernandez et al. 2014 (N = 86M + 98F); *Sweden*: Haavio-Mannila 1971*; L Haas 1981; Calasanti & Bailey 1991*; Lundberg et al. 1994 (married couples, both employed); Nermo 1994; Underlid 1996 (unemployed people); Flood & Grasjo 1997*; Statistics Sweden 2000; Harenstam et al. 2003; Statistics Sweden 2003; Yoshizumi & Takahashi 2003*; Evertsson & Nermo 2004*; Krantz & Lundberg 2006:241 (10.3 hours/week for males vs. 15.8 hours/week for females, among full-time workers, N = 596M + 743F); Evertsson 2014 (even in dual-working families with no children); *Multiple European Countries*: Fong & Paul 1992:17; C Fagan 2002; Apparala, Reifman & Munsch 2003 (13/13 countries); Aliaga 2006; Voicu et al. 2008 (greatest differences in southern countries); Thebaud 2010; O Sullivan, Billari & Altintas 2014; Moreno-Colom 2017:Figure 1 (16/16, even when women work full time) **LATIN/CARIBBEAN AMERICA** *Chile*: Rojas et al. 2005:1697*; *Multiple Latin American Countries*: Abramo & Valenzuela 2005	**ASIA** *Soviet Union*: BG Rosenthal 1975:429 **MIDDLE EAST** *Israel*: Peres & Katz 1990; Izraeli 1992 **NORTH AMERICA** *Canada*: Horne, Johnson et al. 2018; *United States*: KE Walker & Woods 1976; RA Berk & Fenstermaker Berk 1979; JP Robinson 1980; Daniels & Weingarten 1981; Gutek et al. 1981 (cleaning); Sanik 1981; Pleck 1985*; Berardo et al. 1987*; JP Robinson 1988*; Hochschild & Machung 1989*; L Thompson & Walker 1989 (cleaning); Feree 1990 (cleaning); RC Barnett & Marshall 1991; Marini & Shelton 1993:371*; Presser 1993; Tenbrunsel et al. 1995 **OCEANIA** *Australia*: J Harper & Richards 1979; J Baxter 1988 **OVERVIEW** *Literature*

(*Continued*)

Table 20.3.3.1b (Continued)

Nature of difference	*Post-pubertal*		*Wide age range*
	Adolescent	*Adult*	
	Larson et al. 2001* (African-American) **OCEANIA** *Australia*: Gill 1998; *Indonesia*: Nag et al. 1980* (rural Java); *Philippines*: Evenson et al. 1980* (rural)	**MIDDLE EAST** *Israel*: Kulik 2002 (elderly) **NORTH AMERICA** *Canada*: P Armstrong & Armstrong 1984; SM Shaw 1988; Douthitt 1989; Brayfield 1992; Devereaux 1992; Frederick 1993; W. Clement & Myles 1994; Nakhaic 1995; C Jackson 1996; Davies & McAlpine 1998; S McFarlane et al. 2000; Tindall et al. 2003 (13 more hours per week); *United States*: M Kramer 1967; K Walker 1970; Vanek 1974; K Walker & Woods 1976 (among married couples); Gronau 1977; JP Robinson 1977; R Stafford et al. 1977 (undergrad, among cohabitating couples); Pleck & Rustad 1980 (married couples); S Berk 1981 (cleaning); H Hartmann 1981; Sanik 1981 (self-report); Brubaker & Hennon 1982 (full adult and elderly); Coverman 1983; Huber & Spitze 1983 (dual-earning married couples); CE Ross et al. 1983 (married couples); Atkinson & Boles 1984 (employed, married couples); Atkinson & Huston 1984 (married couples); H Hartmann 1984; SF Berk 1985*; Coverman 1985; FL Denmark et al. 1985; Pleck 1985 (among married couples); Nyqvist et al. 1985 (middle-class, married couples); Coverman & Sheley 1986; R Hertz 1986 (dual-career couples); Shamir 1986 (married couples); Barnett & Baruch 1987 (cleaning); Berardo et al. 1987 (among married couples); Piotrokowski et al. 1987 (elderly); Steil & Turetsky 1987; C West & Zimmerman 1987 (among married duel-earning couples); Benin & Agostinelli 1988 (married couples); Dorfman & Heckert 1988 (elderly); Gershuny & Robinson 1988; Kamo 1988; JP Robinson 1988*; DL Chambers 1989 (lawyers & spouses); Hochschild 1989 (dual-earning, married couples); Hochschild & Machung 1989* (dual-earning couples); Shelton & Firestone 1989 (among married couples); Szinovacz 1989 (elderly); Thompson & Walker 1989 (among dual earning couples); JM Golding 1990 (whites); Gunter & Gunter 1990 (dual-earning, married couples); Hoshschild 1990; Kalleberg & Rosenfeld 1990; Kibria et al. 1990; JE Olson et al. 1990; Biernat & Wortman 1991 (among dual earning married couples); SL Blair & Lichter 1991 (dual-earning couples); Calasanti & Bailey 1991*; Ferree 1991 (time spent, two-earner couples); Goldscheider & Waite 1991:189*; Hilton & Haldeman 1991*; Juster & Stafford 1991:Table 4 (married couples); Stafford & Canary 1991 (married couples); Steil & Weltman 1991 (dual-earning, married couples); SL Blair & Johnson 1992 (married couples); Brayfield 1992; Coltrane & Ishii-Kuntz 1992; BA Shelton 1992:2; Brines 1993; GA Hamilton & Seidman 1993 (following a heart attack); Marini & Shelton 1993*; Mederer 1993; BA Shelton & John 1993; RA Ward 1993 (married couples); Brines 1994; J Hersch & Stratton 1994 (among working couples); Lennon & Rosenfield 1994; Manke et al. 1994 (time spent); Perry-Jenkins & Folk 1994 (dual-earning couples); HB Presser 1994 (dual-earning couples); L Sanchez 1994; SJ South & Spizte 1994 (among both cohabitating & married couples); Szinovacz & Harpster 1994	*Review*: J Miller & Garrison 1982; G Spitze 1988; L Thompson & Walker 1989; Gershuny, Godwin & Jones 1994; BA Shelton & John 1996; Coltrane 2000; Treas 2010; Treas & Drobnic 2010; Sullivan 2011; Sullivan 2013 (time-use diaries); Treas & Lui 2013:136

		(elderly, married couples); Wiersma 1994; Orbuch & Custer 1995; Pina & Bengston 1995 (elderly); Stohs 1995 (both spouses work away from home fulltime); De Maris & Longmore 1996; S Coltrane 1996; GL Rose et al. 1996 (6 months after a heart attack); Flood & Grasjo 1997*; Hersch & Stratton 1997 (among married couples); Hochschild 1997; JP Robinson & Godbey 1997 (married couples with children); PL Carr et al. 1998; Nock 1998 (among married people); JR Wilkie et al. 1998; CE Bird 1999; S Gupta 1999 (among married couples); Milkie & Peltola 1999; JP Robinson & Godbey 1999; Tichenor 1999 (among dual earning couples); Twiggs et al. 1999; Bianchi, Milkie et al. 2000; Colletti et al. 2000 (medical school professors); S Coltrane 2000 (married couples); Cujec et al. 2000 (physicians); Greenstein 2000:329 (among married couples); Viers & Prouty 2002; TS Zimmerman et al. 2001; Batalova & Cohen 2002 (cohabitating couples); Dempsey 2002; CE Sheffer et al. 2002; Artis & Pavalko 2003; M Bittman et al. 2003 (married couples); Gershuny & Sullivan 2003; Pleck & Masciadrelli 2003; Evertsson & Nermo 2004* (married couples); Keene & Quadagno 2004; Parkman 2004 (among duel-earning married couples); Shirley & Wallace 2004; RJ Erickson 2005; Kanazawa 2005:283 (even when single); Cooke 2006:455*; Ruijter et al. 2006; Mannino & Deutsch 2007; AE Lincoln 2008:810 (N = 972, averages: M = 20 hours/week vs. F = 33 hours/week); Claffey & Mickelson 2009; Greenstein 2009; Omori & Smith 2009 (duel-earning couples); Pinto & Coltrane 2009; Parker & Wang 2013 (averages: M = 9 hours/week vs. F = 16 hours/week); Parrott 2014 **OCEANIA** *Australia*: Pressland & Antill 1987; B Wearing 1990; Bittman 1992; J Baxter 1993; MJ Bond et al. 1995 (elderly); K Dempsey 1997; Mikula et al. 1997* (undergrad, cohabitating couples, except home repair projects); Collis 1999; Bittman & Wajcman 2000; K Dempsey 2000; Baxter, Hewitt & Haynes 2008; Chesters 2012; Chesters 2013; *New Zealand*: Keating & Little 1994 (elderly); M Court 1997 **INTERNATIONAL** *Multiple Countries*: D'Amico 1986; Gershuny & Robinson 1988; AL Kalleberg & Rosenfeld 1990; Kalleberg & Rosenfeld 1992; Oakes & Almquist 1993:71 (child rearing); van der Lippe & Sieger 1994; Baxter 1997; Strober & Chan 1998 (college graduates); Batalor & Cohen 2002; Fuwa 2004; SN Davis, Greenstein & Marks 2007:1258 (both cohabitating & married couples); Fuiva & Cohen 2007:Table 2 (females do ~70%); Knudsen & Waernes 2007 (34/34 countries); Treas 2008 (16/16 countries); Ruppanner 2010:968 (25/25 countries); Sayer 2010 (9/9 countries); Cooke 2010; JL Hook 2010 (1965–2003); van der Lippe 2010; Geist & Cohen 2011 (13/13 countries, N = 11,065); Kan, Sulwan, & Gershuny 2011:236 (16/16 countries); Tai & Treas 2012 (32/32 countries); Treas & Tsui-o 2012; Treas & Lue 2013; Altintas & Sullivan 2016:462 (19/19 countries, 1960–2010); *Multiple Preliterate Societies*: Murdock & Provost 1973:207 (laundry, 57/66 societies); *Multiple Industrial Countries*: J Baxter 1997; Gershuny & Sullivan 2003:215; Nordenmark 2004:237; LC Sayer 2010 (ages 20–49); CC Weisfeld, Dillion et al. 2011:1167 (among married couples, 5/5 countries)	

Table 20.3.3.2 Trends in performing indoor household chores

Nature of difference	*Wide Age Range (Predominantly Adults)*
Increasing sex difference	
No significant change	
Decreasing sex difference	**NORTH AMERICA** *United States*: Bianchi, Milkie et al. 2000 (from mid-1960s to late 1990s) **INTERNATIONAL** *Multiple Countries*: Gershuny & Sullivan 2003:215; Kan, Sullivan & Gershuny 2011; Altintas & Sullivan 2016:462 (between 1960 & 2010), *Multiple Industrial Countries*: LC Sayer 2010 (ages 20–49)

Table 20.3.3.3 Performing outdoor or construction household chores

Nature of difference	*Pre-pubertal*		*Post-pubertal*		
		Child	*Adolescent*	*Adult*	
More among males		**NORTH AMERICA** *United States*: LK White & Brinkerhoff 1981; McHale et al. 1990	**AFRICA** *Nigeria*: Robson 2004:202* (house construction & repair) **EUROPE** *Sweden*: Evertsson 2006:425 **NORTH AMERICA** *United States*: Duckett et al. 1989; Benin & Edwards 1990; Brannen 1995 **OCEANIA** *Australia*: Gill 1998; Mikula et al. 1997* (undergrad, cohabitating couples, home repair projects)	**NORTH AMERICA** *United States*: Pleck 1985* (outdoor yard maintenance, home & auto repair)	
Not significant					
More among females					

20.3.3.6 Knitting, Sewing, or Making Clothes

Some research has sought to identify the sex that is most involved in knitting and sewing as an occupation (rather than as a hobby). One of these studies summarized findings from 107 different preliterate cultures. Table 20.3.3.6 shows that, in most societies, females appear to be more involved in such activities than males, but there are a number of exceptions.

20.3.4 Work Productivity and Accolades

Research having to do with how productive individuals have been professionally is usually based on what they have achieved in the way of

Table 20.3.3.4 Food preparation

Nature of difference	*Pre-pubertal*		*Post-pubertal*		*Wide age range*
		Child	*Adolescent*	*Adult*	
More among males					**INTERNATIONAL** *Multiple Preliterate Societies*: Murdock & Provost 1973:207* (vegetable foods 4/174); Murdock & Provost 1973:207* (preservation of meat and fish, 20/66); Murdock & Provost 1973:207* (preparation of drinks, 18/91); Murdock & Provost 1973:207* (cooking, 2/184)
Not significant					**INTERNATIONAL** *Multiple Societies*: C Russell & Russell 1971:68* (5/163 societies); *Multiple Preliterate Societies*: Murdock & Provost 1973:207* (vegetable foods 4/174); Murdock & Provost 1973:207* (preservation of meat and fish, 3/66); Murdock & Provost 1973:207* (preparation of drinks, 4/91); Murdock & Provost 1973:207* (cooking, 2/184)
More among females		**EUROPE** *Britain*: S Johnson 1987:27	**EUROPE** *Britain*: Evertsson 2006:422 **NORTH AMERICA** *United States*: MG Jones et al. 2000	**EUROPE** *Britain*: Adams & White 2015 (cooking) **NORTH AMERICA** *United States*: Rytina & Bianchi 1984:16	**INTERNATIONAL** *Multiple Societies*: C Russell & Russell 1971:68* (158/163 societies); *Multiple Preliterate Societies*: Murdock & Provost 1973:207* (vegetable foods 166/174); Murdock & Provost 1973:207* (preservation of meat and fish, 43/66); Murdock & Provost 1973:207* (cooking, 180/184)

Table 20.3.3.5 Flower preparation and gardening

Nature of difference	*Pre-pubertal*				
		Child			
More among males					
Not significant					
More among females		**EUROPE** *Britain*: S Johnson 1987:27			

Table 20.3.3.6 Knitting, sewing, or making clothes

Nature of difference	*Pre-pubertal*		*Post-pubertal*		*Wide age range*
		Child	*Adolescent*		
More among males					**INTERNATIONAL** *Multiple Preliterate Societies*: Murdock & Provost 1973:207* (loom weaving, 24/88); Murdock & Provost 1973:207* (manufacture of clothing, 20/122)
Not significant					**INTERNATIONAL** *Multiple Societies*: C Russell & Russell 1971:68* (12/107 societies); *Multiple Preliterate Societies*: Murdock & Provost 1973:207* (loom weaving, 6/88); Murdock & Provost 1973:207* (manufacture of clothing, 11/122)
More among females		**EUROPE** *Britain*: S Johnson 1987:27	**NORTH AMERICA** *United States*: MG Jones et al. 2000		**OCEANIA** *Philippines*: Floro & Schaefer 1998:88 **INTERNATIONAL** *Multiple Societies*: C Russell & Russell 1971:68* (95/107 societies); *Multiple Preliterate Societies*: Murdock & Provost 1973:207* (loom weaving, 58/88); Murdock & Provost 1973:207* (manufacture of clothing, 91/122)

publications or in terms of praise they obtained from others. Findings are reviewed below.

20.3.4.1 Publication Rates and Scholarly Productivity

The extent to which males and females publish scholarly works, typically among scientists and academics, has been investigated by numerous studies. As one can see in Table 20.3.4.1, a large majority of these studies have concluded that males publish at higher rates than do females.

Table 20.3.4.1 Publication rates and scholarly productivity

Nature of difference	*Post-Pubertal*	
	Adult	
More among males	**ASIA** *Japan*: Murata 2005 (in geography); *India*: Goel 2002; Luoto 2020:Figures 1 & 2* (lead author, things-focused articles, N = 27,701) **EUROPE** *Britain*: Blackstone & Fulton 1974 (among academics); Blackstone & Fulton 1975 (among scientists) *Croatia*: Kyvik & Teigen 1996; Prpic 2002; KS Bird 2011 (among social scientists); *Italy*: Abramo, D'Angelo & Caprasecca 2009 (publishing rate); *Netherlands*: van Arensbergen et al. 2012:Figure 2 (among social scientists); *Norway*: Lie 1990 (college professors); *Spain*: Mauleon, Bordons & Oppenheim 2008 **NORTH AMERICA** *Canada*: Nakhaie 2002 (among university professors); Lariviere et al. 2011 (university professors); *United States*: Thorndike 1914; Anderson & Goodenough 1935; F Clemente 1973; JR Cole & Cole 1973 (university professors & scientists); Blackburm et al. 1978 (academic faculty); JS Long 1978 (scientists); BF Reskin 1978 (scientists); Astin & Bayer 1979 (university professors); JR Cole 1979:242 (scientists, in first 5 years after obtaining PhD); Helmreich et al. 1980 (psychologists); MF Fox 1983 (scientists); JR Cole & Zuckerman 1984 (scientists); CH Persell 1983; JR Cole & Zuckerman 1984 (among PhD holders in STEM disciplines); Creswell 1985; MF Fox & Faver 1985 (academic faculty); Wilkinson & Linde 1986 (medical faculty); Hornig 1987 (scientists); Whitley et al. 1987 (medical faculty); Zuckerman 1987 (scientists); Bickel 1988 (medical faculty); Primack & O'Leary 1989 (ecologists); BA Levey et al. 1990 (physicians); JS Long 1990 (academics); S Cole & Singer 1991:278; H Zuckerman 1991 (review, scientists); Bentley & Blackburn 1992 (academics); JS Long 1992 (among PhD biochemists); McElrath 1992:274; JM McDowell & Smith 1992 (university professors); Leibenluft et al. 1993 (among psychiatrists); JS Long et al. 1993 (academic faculty); JE Long 1995; MF Fox 1995 (scientists); Sonnert & Holton 1995 (in science); Tesch et al. 1995 (among physicians); SH Kaplan et al. 1996 (among academic pediatricians); Primack & Stacy 1997 (among biologists); PL Carr et al. 1998 (medical faculty with children); RC Barnett et al. 1998 (among medical faculty); Levin & Stephan 1998 (in the physical sciences); Xie & Shauman 1998 (college faculty); Sax et al. 2002 (university professors); Zittleman & Sadker 2002 (in teacher education); National Science Foundation 2003:1 (in science); S Stack 2004 (science professors, number of children in family controlled); MF Fox 2005 (professors in STEM disciplines); Leahey 2006 (in social science); Mauleón & Bordons 2006 (in the physical sciences); Peñas & Willett 2006 (in library science); Symonds et al. 2006; SW Taylor et al. 2006 (among economists); Ceci, Ginther et al. 2014:104 & 131 (among STEM university professors); Luoto 2020:Figures 1 & 2* (lead author, things-focused articles, N = 285,619) **OCEANIA** *New Zealand*: Vasil 1993 (university professors); Symonds, Gemmell et al. 2006 (among biological scientists) **INTERNATIONAL** *Multiple Countries*: Endler et al. 1978 (among psychologists); EW Taylor 2001 (scholarly articles in field of education); Prpić 2002; Campion & Shrum 2004:469 (scientists); Naldi et al. 2005; Jagsi et al. 2006 (94%M in 1970; 70% in 2004); Thelwall et al. 2006 (lead authors on scientific articles); Ledin et al. 2007 (among scientists); Thelwall et al. 2019:Table 2* (first authorship, math & physics related publications, N = 508,283) **OVERVIEW** *Literature Review*: H Zuckerman 1991 (scientists); Long & Fox 1995 (scientists); KB Ward & Grant 1995	
Not significant	**ASIA** *China*: Tao, Hong & Ma 2017* (publication rates in science) **EUROPE** *Netherlands*: Noordenbos 1992 (university professors, N = 33M + 33F) **NORTH AMERICA** *United States*: RJ Simon et al. 1967 (among PhDs); Widmayer & Rabe 1990 (criminology/criminal justice); S Stack 2002	

(*Continued*)

Table 20.3.4.1 (Continued)

Nature of difference	*Post-Pubertal*		
		Adult	
More among females		**ASIA** *China*: Tao, Hong & Ma 2017* (publication rates in engineering); Luoto 2020:Figures 1 & 2* (first authorship, people-focused articles, N = 27,701) **NORTH AMERICA** *United States*: Luoto 2020:Figures 1 & 2* (first authorship, people-focused articles, N = 285,619) **INTERNATIONAL** *Multiple Countries*: Thelwall et al. 2019:Table 2* (first authorship, nursing related publications, N = 508,283, M:F ratio 1 to 1.93; also in veterinary science, M:F ratio 1 to 1.49)	

20.3.4.2 Acceptance Rates for Submitted Scientific Articles

Some studies have sought to determine if articles written by (or primarily written by) males are more likely to be accepted than is the case for ones written by females. Table 20.3.4.2 shows that all the located studies concluded that there was no significant sex difference in this regard.

Table 20.3.4.2 Acceptance rates for submitted scientific articles

Nature of difference					*Wide age range*
More among males					
Not significant					**NORTH AMERICA** *United States*: RM Blank 1991 (double-blind submissions to economics journals); JR Gilbert et al. 1994 (to a prominent medical journal) **INTERNATIONAL** *Multiple Countries*: Tregenza 2002 (in a biology journal); Nature Neuroscience 2006 (in a neurology journal); Hammerschmidt et al. 2008 (blind review); J Brooks & Della Sala 2009 (in a neurology journal)
More among females					

20.3.4.3 Having a Published Work Cited by Others

Most scholarly articles and books cite the work of others in order to provide a foundation for their own research. Accordingly, the number of citations to a given publication can be used as a rough gage of the influence that it is having in a particular field of study. Several studies have sought to determine if the articles or book written by male or female academics are more often cited. As one can see by examining Table 20.3.4.3, the evidence is quite mixed.

Table 20.3.4.3 Having a published work cited by others

Nature of difference	*Post-pubertal*	
		Adult
More among males		**EUROPE** *Norway*: Aksnes et al. 2011 (in STEM disciplines); *Spain*: Borrego et al. 2010 (in STEM disciplines) **NORTH AMERICA** *United States*: BF Reskin 1978a (science publications); JR Cole 1979 (science publications); Helmreich et al. 1980 (in psychology journals); CH Persell 1983 (in education journals); JR Cole & Zuckerman 1984 (science publications); JS Long 1989 (in science journals); Hutson 2002 (in archaeology); Duck et al. 2012 (in the sciences)
Not significant		**EUROPE** *Britain*: Symonds et al. 2006 (among biologists) **NORTH AMERICA** *United States*: S Smart & Waldfogel 1996 (among economists); Peñas & Willett 2006 (among librarians) **INTERNATIONAL** *Multiple Countries*: Ledin et al. 2007; Tower et al. 2007
More among females		**EUROPE** *Multiple European Countries*: A Powell et al. 2009 **NORTH AMERICA** *Canada*: Montpetit et al. 2008 (among political scientists); *United States*: JS Long 1992 (among biochemists)

20.3.4.4 Applying for a Research Grant

Two studies reported on sex differences of people applying for grants. Table 20.3.4.4 shows that both studies concluded that males submit more applications than do females.

Table 20.3.4.4 Applying for a research grant

Nature of difference				*Wide age range*
More among males				**EUROPE** *Switzerland*: Bornmann et al. 2008:281 (among scientists) **NORTH AMERICA** *United States*: Marsh et al. 2008 (academics)
Not significant				
More among females				

20.3.4.5 Obtaining Research Grants

Among people who apply for research grants, which sex is more likely to be awarded one? As shown in Table 20.3.4.5, most studies indicated that there are no significant differences. When differences have been found, they favor grant applications from males.

Table 20.3.4.5 Obtaining research grants

Nature of difference	*Post-pubertal*		
		Adult	
More among males		**EUROPE** *Sweden*: Wenneras & Wold 1997 (post-doctorate fellowships) **NORTH AMERICA** *Canada*: Lariviere et al. 2011 (among university professors); *United States*: Sigelman & Scioli 1987 (in social science); Goldsmith 2002; Bornmann & Daniel 2005; Hosek et al. 2005 (NIH grants) **OCEANIA** *Australia*: Bazeley 1998; Jayasinghe et al. 2001 **OVERVIEW** *Meta-Analysis*: Bornmann 2007 (about 7% higher probability)	
Not significant		**EUROPE** *Austria*: Mutz et al. 2012; *Switzerland*: Bornmann et al. 2008:281 (proportion of submissions, among scientists) **NORTH AMERICA** *United States*: Jayasinghe et al. 2003; Hosek et al. 2005 (NSF & USDA grants); Ley & Hamilton 2008:1473 (32%M vs 31%F); Marsh et al. 2008 (among academics, controlling for numbers of applicants); Pohlhaus et al. 2011 (NIH grants) **OCEANIA** *Australia*: Over 1996 **OVERVIEW** *Meta-Analysis*: HW Marsh et al. 2009	
More among females			

20.3.4.6 Relationship between Work Productivity and Marriage

A couple of studies investigated sex differences in how marriage was related to work productivity, both studies based on assessing academic publications among college professors. Readers can see in Table 20.3.4.6 that one study found males seem to "benefit more" from being married, while the other study reported no significant sex difference.

Table 20.3.4.6 Relationship between work productivity and marriage

Nature of difference			*Wide age range*
Males benefit more			**NORTH AMERICA** *United States*: Centra 1974 (academic publications)
Not significant			**NORTH AMERICA** *United States*: RA Wanner et al. 1981 (academic publications)
Females benefit more			

20.4 Forming and Maintaining Social Hierarchies

Like nearly all other social animals, humans tend to form hierarchical relationships with one another. These relationships often take the form of individuals having different degrees of control over resources. The following section presents a summary of research findings regarding sex

differences in the formation of these hierarchies and its consequences in terms of differential access to resources.

20.4.1 Hierarchy-Related Behavior

The forming of hierarchical relationships seems to be a universal phenomenon among social animals, including humans. Among non-humans, this phenomenon is usually termed *dominance*, although the term is also frequently used in human studies as well.

Dominance relationships are difficult to precisely study, partly because they are often subtle and unstable over time. Especially among non-humans, dominance rank has consequences in terms of access to resources as well as mating opportunities (Ellis 1995). The research on sex differences in dominance-related behavior is reviewed below.

20.4.1.1 Dominance or Dominance Striving in General

Numerous studies have sought to determine if dominance or dominance-striving behaviors are more prevalent among males than among females. The results are summarized in the tables below. Based on a variety of measures, substantial research has been conducted in order to assess sex differences in dominance, or dominance-seeking, behavior.

Methods used to assess dominance or striving to achieve dominance are widely varied, which is likely to be responsible for inconsistencies regarding sex differences (Chen Zeng, Cheng & Henrich 2022). Among children, tendencies to pick fights, to be tough or bossy, and to bully others (Omark, Omark & Edelman 1975; Sluckin & Smith 1977; Weisfeld & Beresford 1982) as well as grab toys from playmates (Hattwick 1937) have been used. In the case of adolescents and adults, measures include tendencies to interrupt others while they are speaking (McCloskey & Coleman 1992) or time spend speaking in social groups (Schmid Mast 2001).

Regarding those who provide the ratings of dominance or dominance striving, sometimes self-ratings are used (Lortier-Lussier et al. 1992; Voelck 2003). One example was a study that asked research participants to assess themselves with such questions as "I demand respect from members of my peer group." and "Others recognize me for my contributions to my social group." (Simmons & Roney, 2011).

Other studies ask research participants for peer ratings (Omark, Omark & Edelman 1975), including ratings by dating partners (Hopwood, Harrison et al. 2020). One example of a peer measure of dominance used the following three question: "They [meaning he or she] enjoy having control over other members of the group," "They often try to get their

own way regardless of what others in the group may want," "They are willing to use aggressive tactics to get their way," "They try to control others rather than permit them to control them" (Redhead, Cheng et al. 2019). Still other studies are based on ratings or recordings made by trained observers (e.g., Schmid Mast 2001).

It is also pertinent to note that some studies of dominance have to do with interactions between members of the opposite sex (Stets 1991; Laroche 2005; Hopwood, Harrison et al. 2020). Other studies pertain to within-sex interactions or within mixed-sex groups of widely varying sizes (Redhead, Cheng et al. 2019).

A final point to make regarding methodological issues surrounding dominance involves confusing terminology. Some researchers use *dominance* (or *dominance striving*) interchangeably with *social status* (or *status-striving*) or with *leadership*, *authority*, and *prestige* (e.g., Fiske, Dupree et al. 2016; McClanahan, Maner & Cheng 2021). In assigning findings to specific tables, we tried to make reasonable distinctions between these different variables, but doubtfully succeeded in all cases. Also, readers will see that a number of tables following this one deal with these other "hierarchy-related" variables.

Findings are presented in Table 20.4.1.1a. One can see that most studies have concluded that males exhibit dominance (or dominance striving) behavior to a greater degree than do females. Nonetheless, there are several exceptions, particularly regarding failures to identify significant sex differences. Given the numerous methodological nuances in how dominance and striving for dominance have been assessed, it is not surprising that research regarding sex differences in such behavior has reached different conclusions (Cheng, Tracy & Henrich 2010:343).

Considerable research on sex differences in dominance attained or in dominance-striving among non-human animals have been reported. As one can see in Table 20.4.1.1b, most of the studies suggest that males are more prone to exhibit dominance-like behavior than are females. Species differences in this regard are likely.

One research team noted that "Dominance strategies are characterized by intimidation, coercion, and threat of aggression" and then added that "Dominance reflects an evolutionarily ancient strategy that humans share in common with other primates" (Maner & Case 2016:12). If so, much remains to be learned about sex differences in human dominance (as well as related social hierarchical phenomena) by studying non-humans.

In an especially clever series of experiments with laboratory animals, researchers were able to manipulate dominance-submissiveness among mice by imposing stress on the dominant animals. Their research even led to tentatively identifying some of the neurological underpinnings of dominance-submissiveness (Qu & Dreher 2018).

Table 20.4.1.1a Dominance or dominance striving in general

Nature of difference	*Pre-pubertal*		*Post-pubertal*		*Wide age range*
		Child	*Adolescent*	*Adult*	
More among males		**NORTH AMERICA** *United States*: Hattwick 1937 (grabbing toys from others); Sheehy 1938; Whiting & Pope 1974 (displaying dominating behavior); Omark, Omark & Edelman 1975; Hold 1976; MH Goodwin 1980 (directive speech of a dominance nature); Martin & Fabes 2001:444 (dominance oriented play)	**EUROPE** *Belgium*: Vermeersch, T'Sjoen et al. 2008 (average age 14; N = 301M + 298F) **NORTH AMERICA** *Canada*: Hakstian & Cattell 1975:307 (personality test); *United States*: Bernreuter 1933 (dominance-orientation); HD Carter 1935 (among twins, being dominance-oriented); Yarrow et al. 1958; RL McDonald & Gynther 1965 (self-rated); Savin-Williams 1979 (physically); Savin-Williams 1987; Jarvinen & Nicholls 1996 (self-report)	**ASIA** *Japan*: A Arkoff et al. 1962* (undergrad); Doi 1973 (in marriage); *Russia*: J Sidanius et al. 1995* **EUROPE** *Britain*: Singh-Manoux et al. 2005:857 (self-assessed interpersonal status); *Netherlands*: Luxen 2005 (N = 10M + 10F); *Multiple European Countries*: SH Schwartz & Rubel-Lifschitz 2009:177 (importance of power as a life's goal) **MIDDLE EAST** *Turkey*: Akyunus, Gençöz & Aka 2021 (hostile-dominant, ages 18-35, N = 257M + 257F) **NORTH AMERICA** *Canada*: CL Martin 1987:492 (self-report); Carre & McCormick 2008; *United States*: RC Perry 1934 (undergrad, being dominance-oriented); A Arkoff et al. 1962* (undergrad); DM Buss 1981 (undergrad); DM Buss & Craik 1981 (undergrad); Aries & Johnson 1983 (undergrad); Zimmer et al. 1983; Snodgrass & Rosenthal 1984:363 (self-rated, among leaders); Biaggio et al. 1985 (N = 41M + 50F, d = .90); EA Robinson & Follingstad 1985; Lortier-Lussier et al. 1992 (N = 32M + 32F, dominance rating, d = .16); RL Piedmont et al. 1992 (undergrad, dominance rating, N = 107M + 223F, d = .13); Stake 1992 (young, self-report); Pratto et al. 1993 (undergrad); Feingold 1994 (self-perception); Sidanius et al. 1994; J Sidanius et al. 1995*; M Conway et al. 1996; Jarvinen & Nicholls 1996:438 (undergrad); JA Hall & Friedman 1999:1088 (young, vocally); Lippa & Arad 1999 (undergrad); TL Newton et al. 1999 (young); Goldsmith & Flynn 2000:1215 (undergrad, self-assessed); McCreary & Rhodes 2001 (undergrad); Neff & Terry-Schmitt 2002*; Voelck 2003:403 (self-rated, among library administrators); Del Giudice, Booth & Irving 2012:Tables 1 & 2	**EUROPE** *Germany*: Beckmann & Richter 1975 (self-rated) **MIDDLE EAST** *Israel*: Shepher & Tiger 1978 **NORTH AMERICA** *United States*: Spangler & Thomas 1962; DG Freedman 1979:186; Tannen 1990; Neff & Terry-Schmitt 2002* (undergrad)

(*Continued*)

Table 20.4.1.1a (Continued)

Nature of difference	*Pre-pubertal*		*Post-pubertal*		*Wide age range*
		Child	*Adolescent*	*Adult*	
				(representative sample, N = 5,124M + 5,137F) **OCEANIA** *Australia*: J Sidanius et al. 1995* **INTERNATIONAL** *Multiple Countries*: Costa et al. 2001 **OVERVIEW** *Generalization*: Friedan 1963; Gavron 1966; Knudsen 1969 (in industrial societies); Dwyer 1973:46 (man's status superior to a woman's); J Berger et al. 1977 (overall status); Meeker & Weitzel-O'Neill 1985 (overall status); DG Wagner & Berger 1997 (overall status)	
Not significant		**EUROPE** *Switzerland*: Rossier et al. 2007:128 (parent-rated) **NORTH AMERICA** *United States*: McCloskey & Coleman 1992 (young, conversational dominance); Gest, Davidson et al. 2007 (N = 427, prominence of dominance hierarchy)		**EUROPE** *Norway*: F Vollmer 1984 (undergrad, N = 55M + 75F) **NORTH AMERICA** *United States*: Arkoff et al. 1962* (undergrad, Japanese-Americans); KA Harris & Morrow 1992 (self-rated); Hopwood, Harrison et al. 2020:48 (N = 603 dating couples)	
More among females				**NORTH AMERICA** *United States*: Sawrie et al. 1991 (undergrad, N = 174M + 195F, d = .06)	**OCEANIA** *Papua New Guinea*: M Mead 1935/1950 (among the Tchambuli tribe)

Table 20.4.1.1b Dominance (or dominance-striving) in general among non-humans.

Nature of difference			*Post-pubertal*		*Wide age range*
			Adolescent	*Adult*	
More among males			**PRIMATE** *Chimpanzee*: Nadler & Braggio 1974*; *Orangutan*: Nadler & Braggio 1974*	**PRIMATE** *Baboon*: PC Lee & Oliver 1979*; LM Scott 1984; *Cercopithecine Monkey*: Andelman 1986; *Chimpanzee*: King, Weiss & Sisco 2015; Weiss & King 2015:Table 8*; Rawlings, Flynn et al. 2020:Table 2; *Lemur*: Pereira & Kappeler 1997; *Rhesus Macaque*: Sugiyama 1976; *Sifakas Lemur*: Kraus et al. 1999; *Spider Monkey*: LM Fedigan & Baxter 1984 (socially cohesive) **RODENT** *Rat*: N Adams & Boice 1983 (young)	**INSECT** *Wasp*: S O'Donnell 1999 **PRIMATE** *Chimpanzee*: Buirski, Plutchik & Kellerman 1978; *Macaques*: Drickamer 1974; Sugiyama & Ohsawa 1982; Reinhardt 1987; MA Cooper & Bernstein 2002:223; *Rhesus Macaque*: SD Singh 1969; Suomi 1977; Reinhardt 1987
Not significant				**PRIMATE** *Orangutan*: Weiss & King 2015:Table 8*	
More among females			**PRIMATE** *Baboon*: PC Lee & Oliver 1979*	**CANINE** *Spotted Hyena*: Frank 1986; East, Burke et al. 2003 **PRIMATE** *Bonobo*: Kano 1992; de Waal & Lanting 1997	

20.4.1.2 Forming or Maintaining a Stable Position within a Social Hierarchy

Only a few studies of sex differences in behavior that seems to form or maintain one's position within a social hierarchy were located. The one pertaining to humans is shown in Table 20.4.1.2a. One can see that it indicated that male children formed such relationships with peers more than did female children.

Table 20.4.1.2a Forming or maintaining a stable position within a social hierarchy

Nature of difference	*Pre-pubertal*				
		Child			
More among males		**NORTH AMERICA** *United States*: Charlesworth & Dzur 1987:199 (forming hierarchical relationships with others)			
Not significant					
More among females					

The studies of sex differences in forming and maintaining of hierarchical relationships with conspecifics among non-humans are shown in Table 20.4.1.2b. This table indicates that results are not consistent regarding any sex differences, although species differences may be involved.

Table 20.4.1.2b Forming or maintaining a stable position within a social hierarchy among non-humans.

Nature of difference					*Wide age range*
More among males					**PRIMATE** *Bonnet Macaques*: N Koyama 1973 (field)
Not significant					
More among females					**PRIMATE** *Baboon*: Hausfater 1975; Bercovitch 1986; *Vervet Monkey*: JB Lancaster 1973

20.4.1.3 Intra-Sex Dominance

Three studies of sex differences in intra-sex dominance behavior were located. As shown in Table 20.4.1.3, all three studies concluded that males exhibit such behavior toward other males to a greater degree than females do toward other females.

Table 20.4.1.3 Intra-sex dominance

Nature of difference	*Pre-pubertal*		*Post-pubertal*		
		Child		*Adult*	
More among males		**NORTH AMERICA** *Canada*: Serbin et al. 1982 (giving commands)		**NORTH AMERICA** *United States*: Schmid Mast 2001; Schmid Mast 2002	
Not significant					
More among females					

20.4.1.4 Inter-Sex Dominance or Status

Several studies have been conducted regarding sex differences in dominance *between the sexes* (rather than within the sexes as discussed in the preceding table). One will notice that most of the studies involve relationships between spouses. As shown in Table 20.4.1.4a, the findings have been fairly evenly divided between those reporting that males display

Table 20.4.1.4a Inter-sex dominance or status

Nature of difference				*Post-pubertal*	*Wide age range*
				Adult	
More among males				**NORTH AMERICA** *United States*: Sugarman & Straus 1988 (among spouses); Felmlee 1994 (in marital relationships) **INTERNATIONAL** *Multiple Countries*: Garcia-Moreno et al. 2005 (among spouses) **OVERVIEW** *Generalization*: Sussman & Tyson 2000:384 (men are "the dominant social group")	**MIDDLE EAST** *Israel*: Habash 1977 (Arab population, among spouses and siblings); Kacen et al. 1992 (Negev region, among spouses); Al-Krenawi 1996 (Negev region, among spouses and siblings) **NORTH AMERICA** *United States*: D Lott & Sommer 1956; Tindall et al. 1978
Not significant				**NORTH AMERICA** *Canada*: Laroche 2005 (among spouses); *United States*: Stets 1991 (among spouses); Ehrensaft & Vivian 1999 (among spouses); Stets & Hammons 2002 (among spouses); DL Oswald & Russell 2006 (among spouses); Felson & Outlaw 2007 (among spouses) **INTERNATIONAL** *Multiple Countries*: MA Straus 2008:262 (among spouses, dominance score)	
More among females					

within sex dominance more while the remaining studies suggest there is no significant sex difference (especially among spouses).

Table 20.4.1.4b shows that, in the case of non-human primates, studies of most species indicate that males tend to dominate females. Exceptions were found, however. In the case of chimpanzees during estrus and among certain species of lemurs, females were found to dominate over males.

20.4.1.5 Status Striving (Career Aspirations)

Status striving refers to the tendency to devote time and energy toward seeking to rise in dominance or social status (or to at least not move down in dominance or status). Most studies cited in Table 20.4.1.5 suggest that this tendency is more common among males than among females.

20.4.1.6 Social Dominance Orientation

People vary in the extent to which they perceive social groups (such as classes or races of people) as existing in a social hierarchy and approve of

Table 20.4.1.4b Inter-sex dominance for non-humans.

Nature of difference	*Pre-pubertal*		*Post-pubertal*		*Wide age range*
		Child	*Adolescent*	*Adult*	
More among males		**PRIMATE** *Pig-Tailed Macaque*: AJ Stynes et al. 1975* (captivity); *Rhesus Macaque*: AJ Stynes et al. 1975* (captivity)	**PRIMATE** *Pig-Tailed Macaque*: AJ Stynes et al. 1975* (captivity); *Rhesus Macaque*: AJ Stynes et al. 1975* (captivity)	**PRIMATE** *Campbell's Guenon*: C Hunkeler et al. 1972 (field); *Chimpanzee*: HG Birch & Clark 1950* (captivity); *Hamadryas Baboons*: JH Crook 1968 (field); *Nilgiris Langur*: FE Poirier 1970 (field); *Lorisiform*: Bearder 1987	**BIRD** *Crow*: H Richner 1989:Table 1 (adolescent & adult) **PRIMATE** *Macaque*: Nieuwenhuijsen et al. 1988c:362; *Spider Monkey*: Fedigan & Baxter 1984 (wild); *Vervet Monkeys*: JB Lancaster 1973 (free-ranging)
Not significant					
More among females				**PRIMATE** *Chimpanzee*: HG Birch & Clark 1950* (captivity, during height of sexual swelling); *Lemur*: A Jolly 1984; AF Richard 1987	

Table 20.4.1.5 Status striving (career aspirations)

Nature of difference	*Pre-pubertal*		*Post-pubertal*		
		Child	*Adolescent*	*Adult*	
More among males		**NORTH AMERICA** *United States*: Coie & Dodge 1998; Roy & Benenson 2002	**NORTH AMERICA** *United States*: F Harrison 1969* (education aspirations); LB Otto et al. 1974; HH Garrison 1979; Lueptow 1981; Gitelson et al. 1982; Erkut 1983; Stake 1983	**NORTH AMERICA** *United States*: EM Bennett & Cohen 1959:129 (strive for status & recognition); Powell & Butterfield 2003 (undergrad); Luxen 2005 (dominance-seeking); Sax & Harper 2007:680 (undergrad, making money and gaining recognition, N = 6,736M + 10,901F)	
Not significant			**NORTH AMERICA** *United States*: F Harrison 1969* (job aspirations)		
More among females			**NORTH AMERICA** *United States*: H Olive 1973	**NORTH AMERICA** *United States*: Leaper 1987 (young)	

the appropriateness of such hierarchies. Those who hold these perceptions to the highest degree are said to be high in terms of a social dominance orientation (SDO).

Many studies of sex differences in people's tendencies to subscribe to an SDO have been published. As shown in Table 20.4.1.6, nearly all these studies have concluded that males subscribe to an SDO more than do females.

20.4.1.7 Inter-Generational Similarity in Dominance

Inter-generational dominance has to do with how closely the ranks of one or both parents resemble the rank of an offspring at a comparable age. Studies of a few species of non-human mammals have reported on this matter. As shown in Table 20.4.1.7, all the available evidence points toward greater similarity among mothers and their offspring than among the father and his offspring (although this finding could be at least partly due to the fact that fatherhood is typically more difficult to identify than is the case for motherhood).

20.4.2 Social Stratification and Reproductive Success (RS)

Why do social animals (including humans) form dominance hierarchies? From an evolutionary perspective, it is likely that under most circumstances, these hierarchies facilitate the rate at which animals are able to pass on their genes to future generations. This transmission of genes from one generation to the next is known as *reproductive success* (*RS*), and is a key concept in Darwinian evolutionary theory. In essence, the more genes one transmits to future generations, the greater one's RS.

The concept of RS leads to another question: Why do many animals spend time and energy trying to rise high in status or dominance? Do those in the upper social status positions usually pass on more genes than do those of low status? Part of the answer comes from noting that social status (in humans) and dominance rank (in other social animals) has been found to be positively related to access to resources, be those resources in the form of control over land or territory all the way to the size of one's bank account. Especially when times are hard (such as during famines, offspring survival may depend heavily on the social status of their parents. Of course, if such evolutionary reasoning is correct, it is bound to have exceptions.

Another variable to consider with respect to variations in RS is sex. In this regard, it is reasonable to suspect that males and females would evolve different tendencies toward status-striving (or dominance-striving). One reason is that male RS depends much more than female RS on mating with as many members of the opposite sex as possible due to the fact that males

Table 20.4.1.6 Social dominance orientation

Nature of difference			*Post-pubertal*		*Wide age range*
			Adolescent	*Adult*	
More among males			**EUROPE** *Germany*: Laabuhn, Wagner et al. 2004 (d = .26); *Sweden*: Akrami & Ekehammar 2006 (N = 332, d = .41); Poteat, Espelage & Green 2007 (d = .70)	**EUROPE** *Belgium*: Duriez, Soenens, & Vansteenkiste 2007 (d = .49); Duriez, Soeuens et al. 2008 (d = .44); *Britain*: MS Wislon & Liu 2003; Guimond, Chatard et al. 2006:233 (undergrad); Dickins & Sergeant 2008 (d = .44); ME Price et al. 2011:638 (undergrad, N = 56M + 62F); *France*: Dambrun, Duarte & Guimond 2004 (undergrad, d = .41); Dambrun, Kamiejski et al. 2009 (undergrad, d = .45); *Germany*: Cohrs, Kielmann & Maes 2005 (d = .39); Cohrs, Moschner et al. 2005 (d = .28); *Italy*: Aiello, Chirmbolo et al. 2004 (d = .38); Caricati 2007 (d = .33); *Sweden*: Akrami & Ekehammar 2006 (undergrad, N = 332, d = .41); Backstrom & Bjorklund 2007 (d = .63); Zakrisson 2008 (d = .32) **NORTH AMERICA** *Canada*: Lalonde, Fontaine & Smith 2007 (undergrad, whites: d = 48, blacks: d = .58); Yeageley, Morling & Nelson 2007 (undergrad, d = 1.11); Christopher & Wojda 2008 (d = .47); Cameron & Nickerson 2009 (d = .38); *United States*: Sidanius & Liu 1992 (d = .48); Lippa 1995 (undergrad, 8-item measure, d = .65); Lippa & Arad 1999 (undergrad, 8-item measure, d = .47); Nelson & Milburn 1999 (undergrad, d = .51); Sidanius & Pratto 1999; AY Wang 1999 (undergrad, d = .68); BE Whitley 1999 (undergrad, sample 1: d = .95, sample 2: d = .34); Lambert & Raichle 2000 (undergrad, d = .43); BF Whitley & Lee 2000 (undergrad, d = .70); McDermott & Cowden 2001 (undergrad, d = .41); M Walter, Thorpe & Kingery 2001 (undergrad, d = .60); Capps 2002 (d = .39); MT Schmitt, Banscombe & Kappen 2003 (undergrad, d = .52); Foels & Pappas 2004; BL Russell & Grigg 2004 (undergrad, d = .43); Aquino, Rowatt, Franklin & Cotton 2005 (undergrad, d = .43); Stewart & Reed 2005 (d = .47); Christopher & Mull 2006 (d = .34); McGuigan & Scholl 2007 (10-item scale, d = .97); Phelan & Basow 2007 (undergrad, d = .24); R Thornhill & Fincher 2007 (undergrad, d = .52); Lehmiller & Schmitt 2008 (undergrad, d = .29); D Freeman, Aquino & McFerran 2009 (undergrad, d = .45 for sample 1 and d = .61 for sample 2); HM Crowson 2009 (undergrad, d = .46) **OCEANIA** *Australia*: Heaven 1999 (undergrad, d = .63); PCL Heaven & Bucci 2001 (undergrad, d = .39); Heaven & St-Quintin 2003 (undergrad, d = .46); Lyall & Thorsteinsson 2007 (d = .43); Feather & McKee 2008 (undergrad, d = .73); *New Zealand*: MS Wilson 2003 (undergrad, d = .57) **INTERNATIONAL** *Multiple Countries*: Lee, Pratto & Johnson 2011 (22 countries, N = 25,081M + 27,745F)	**OVERVIEW** *Meta-Analysis*: Lee, Pratto & Johnson 2011
Not significant				**EUROPE** *Italy*: Villano & Zani 2007 **NORTH AMERICA** *Canada*: Christopher, Zabel et al. 2008 (d = .02, F>M); *United States*: Crownson, DeBacker & Thoma 2005; McIntyre et al. 2007:759 (N = 176, M>F)	
More among females					

Table 20.4.1.7 Inter-generational similarity in dominance among non-humans.

Nature of difference			*Post-pubertal*		*Wide age range*
			Adolescent	*Adult*	
More among males					
Not significant					
More among females			**PRIMATE** *Japanese Macaque*: Kawai 1958 (dependent on mother's rank)	**PRIMATE** *Rhesus Macaque*: Sade 1967 **RODENT** *Rat*: Calhoun 1962	**PRIMATE** *Baboon*: Hausfater et al. 1982; Walters 1980; *Japanese Macaque*: Eaton 1976; *Rhesus Macaque*: Sade 1967; Loy 1971; Missakian 1972; Hausfater et al. 1982; *Stumptail Macaque*: Nieuwenhuijsen et al. 1988:262; *Vervet Monkey*: Cheney et al. 1981

have a much higher "reproductive ceiling" than do females. On the other hand, females can increase their RS more by getting help during pregnancy and after giving birth, particularly help in the form of providing a dependable supply of resources.

In Chapter 15, a large number of studies were cited indicating that females are much more interested than males are in a prospective mate's ability to "make a living." From an evolutionary perspective, this type of sex difference in mate preference may have arisen due to the fact that women with such preferences are likely to produce more offspring (who go on to have offspring themselves) than women with little concern for their mate's ability to acquire resources. This section addresses questions regarding sex differences in RS relative to social status (or dominance).

20.4.2.1 Relationship between Status (or Dominance) and Number of Sex Partners

RS can only be estimated for individuals, since even if they have numerous offspring, it is possible that none of these offspring will have offspring themselves. One of the ways to estimate RS is by determining if an individual is sexually active, especially with multiple sex partners. In most species, the more members of the opposite sex with whom one copulates, the better one's chances are for passing his or her genes on to one or more offspring. Of course, as noted above, in most species, males stand to benefit more in reproductive terms by having numerous sex partners than do females.

To the extent that social status is positively correlated with having money and other types of resources, Darwinian theory leads one to expect that male social status will be more strongly associated with having multiple sex partners among males than among females. Evidence bearing on this expectation is provided in Table 20.4.2.1a.

Table 20.4.2.1a Relationship between status and number of sex partners

Nature of difference				*Post-pubertal*	
				Adult	
Stronger among males				**NORTH AMERICA** *United States*: Kanazawa 2003:Table 1 & Table 3 (income positively correlated for males, not significant for females)	
Not significant					
Stronger among females				**NORTH AMERICA** *United States*: Blanchflower & Oswald 2004 (years of education negatively correlated for females)	

The evidence pertaining to sex differences in the relationship between status and number of sex partners was not limited to humans. As shown in Table 20.4.2.1b, the available evidence from studies of non-humans suggests that males exhibit a stronger positive correlation between dominance rank and number of sex partners.

Table 20.4.2.1b Relationship between dominance and number of sex partners among non-humans.

Nature of difference			*Post-pubertal*	*Wide age range*
			Adult	
Stronger among males			**PRIMATE** *Stumptail Macaque*: Nieuwenhuijsen et al. 1988:261 (own rank, positive)	**BIRD** *Chicken*: Guhl et al. 1945 (own rank, positive); *Magpie*: Komers & Dhindsa 1989 (own rank, positive) **CANINE** *Wolf*: Rabb et al. 1967 (own rank, positive)
Not significant				
Stronger among females				

20.4.2.2 Relationship between Status and Number of Offspring

One study was located pertaining to the relationship between years of education (as a measure of social status) and sex differences in reproductive success (measured in terms of number of live births). Table 20.4.2.2 shows that the study indicated that there was a stronger positive correlation

between status and number of offspring for males, and that, in fact the correlation was actually negative for females.

Table 20.4.2.2 Relationship between status and number of offspring

Nature of difference				*Post-pubertal*	
				Adult	
Stronger among males				**EUROPE** *Hungary*: Bereczkei & Csanaky 1996:28 (years of education, positive for males and negative for females)	
Not significant					
Stronger among females					

20.4.3 Leadership

Three issues having to do with sex differences in leadership will be addressed. One has to do with who is most likely to assume a leadership role under various circumstances. Another involves how effective males or females are in terms of performing their leadership roles. The third issue surrounds which types of leadership styles males and females are most likely to utilize. Each of these three issues are considered below.

20.4.3.1 Being Leaders/Assuming Leadership

Who is most likely to assume leadership when an opportunity arises, or at least has the potential for doing so? Table 20.4.3.1 suggests that the answer varies somewhat according to sex with males being more likely to take on a leadership role in general or at least in regard to masculine-typical tasks (such as auto mechanics and engineering). On the other hand, females seem to become leaders specifically in the case of feminine-typical tasks (such as clothing design and childcare).

Table 20.4.3.1 Being leaders/assuming leadership

Nature of difference	*Pre-pubertal*		*Post-pubertal*	
		Child		*Adult*
More among males		**NORTH AMERICA** *United States*: Thorne 1993		**EUROPE** *Denmark*: PM Christiansen et al. 2001 (prominent leaders); *Netherlands*: Fetchenhauer & Buunk 2005:102 (in one's occupation); *Norway*: Haugen & Brandt 1994 (working in hierarchal fashion, among farmers) **NORTH AMERICA** *United States*: RW Rice et al. 1980 (lab experiment); RW Rice et al. 1984 (undergrad, military cadets, screener

(*Continued*)

Table 20.4.3.1 (Continued)

Nature of difference	*Pre-pubertal*		*Post-pubertal*		
		Child		*Adult*	
				ratings leadership potential, N = 1,024M + 86F); N Porter et al. 1985 (mixed-sex groups); Watson et al. 1987 (undergrad, N = 83M + 120F, d = .23); HA Walker et al. 1996 (assume leadership more in mixed-sex groups); Rotolo & Wilson 2007 (in voluntary organizations) **OVERVIEW** *Literature Review*: Wentworth & Anderson 1984* (for masculine tasks); Eagly & Johnson 1990* (for masculine tasks); Eagly & Karau 1991	
Not significant				**NORTH AMERICA** *United States*: Bem 1978 (leadership ability, undergrad); Gurman & Long 1992 (undergrad, self-rated, N = 21M + 38F, d = .02)	
More among females				**OVERVIEW** *Literature Review*: Wentworth & Anderson 1984* (for feminine tasks); Eagly & Johnson 1990* (for feminine tasks)	

20.4.3.2 Leadership Effectiveness

Studies of sex differences in leadership effectiveness are usually based on assessments made by those being led (such as in a business or some other organization). A summary of the findings that were located is shown in Table 20.4.3.2. One can see that the results are inconsistent. Even the meta-analyses that have been performed are not uniform in their conclusions.

Table 20.4.3.2 Leadership effectiveness

Nature of difference			*Post-pubertal*		
			Adolescent	*Adult*	
More among males			**NORTH AMERICA** *United States*: Underwood et al. 1990 (mixed-sex problem solving tasks); NR Thomson & Zand 2007:293	**NORTH AMERICA** *United States*: Bartol & Butterfield 1976; Frasher & Frasher 1980 (education administrators); RW Rice et al. 1984 (leadership ratings, military cadets, N = 1,024M + 86F, d = .26); PJ Watson et al. 1987 (leadership ratings, undergrad, N = 83M + 120F, d = .23); Tsui 1998:368 (self-assessed, undergrad); Sugihara & Warner 1999:204 (Mexican-American, undergrad); JT Spence & Buckner 2000:49 (self-assessed) **OVERVIEW** *Meta-Analysis*: Dobbins & Platz 1986* (laboratory experiments); Eagly et al. 1992 (small difference)	

(*Continued*)

Table 20.4.3.2 (Continued)

Nature of difference			*Post-pubertal*		
			Adolescent	*Adult*	
Not significant				**NORTH AMERICA** *United States*: Gurman & Long 1992 (leadership ratings, undergrad, N = 21M + 39F, d = .02); Stricker et al. 2001 (undergrad, students taking the GRE, leadership test scores) **OVERVIEW** *Meta-Analysis*: Dobbins & Platz 1986* (real world leadership)	
More among females				**NORTH AMERICA** *Canada*: ND Cole 2004 (managers, score higher on transformational leadership skills); *United States*: Bartone et al. 2002 (military cadets, leadership test scores) **OVERVIEW** *Meta-Analysis*: Eagly et al. 1995 (effective leadership in government and educational organizations)	

20.4.3.3 Leadership/Management Styles

Attention now turns to sex differences in various leadership styles. To address this issue, one must first identify and name each leadership style (or at least each of the main ones) and then devote attention to each style separately. Consequently, five leadership styles will be identified, and a separate table will be devoted to each one. The styles are as follows: autocratic, democratic/collegial, laissez-faire, task-oriented, and other.

An autocratic (or dictatorial) leadership or management style involved one individual (the leader) making all the essential decisions about how organization will be run with little or no input from those who are employed or otherwise associated with the organization. One can see in Table 20.4.3.3a that, except for a few studies reporting no significant sex differences, studies have indicated that males are more likely than females to adopt autocratic leadership or management styles.

Table 20.4.3.3a Autocratic leadership/management styles

Nature of difference				*Post-pubertal*	
				Adult	
More among males				**EUROPE** *Spain*: Cuadrado, Molero et al. 2012:Table 2 & Table 3* (autocratic style, style rated by leaders and by male subordinates) **NORTH AMERICA** *Canada*: Korabik et al. 1993* (undergrad, role playing study); *United States*: Jago & Vroom 1982; Rosener 1990:120 (dictatorial organizational style); Komives 1991a; Komives 1991b; C Johnson 1993 **INTERNATIONAL** *Multiple Countries*: CB Gibson 1995	

(*Continued*)

Table 20.4.3.3a (Continued)

Nature of difference				*Post-pubertal*	
				Adult	
				OVERVIEW *Meta-Analysis*: Eagly & Johnson 1990; Eagly et al. 2003; van Engen & Willemsen 2004	
Not significant				**EUROPE** *Spain*: Cuadrado, Molero et al. 2012: Table 3* (style rated by female subordinates) **NORTH AMERICA** *Canada*: Korabik et al. 1993* (full adults, actual manager); *United States*: Sitt et al. 1983 (undergrad)	
More among females					

Democratic and collegial leadership emphasizes steering a group toward reaching consensus among leaders and those who are being led. One can see by viewing Table 20.4.3.3b that all studies of sex differences in the use of this style of leadership have found that females exhibit it more than do males.

Table 20.4.3.3b Democratic/collegial leadership/management styles

Nature of difference				*Post-pubertal*	
				Adult	
More among males				**EUROPE** *Spain*: Cuadrado, Molero et al. 2012:Table 2 & Table 3* (style rated by leaders)	
Not significant				**EUROPE** *Spain*: Cuadrado, Molero et al. 2012:Table 3* (style rated by subordinates)	
More among females				**NORTH AMERICA** *United States*: JR Bond & Vinacke 1961; Uesugi & Vinacke 1963; Flammang 1985 (in government); Rosener 1990:120 (democratic & inclusive organizational style); Komives 1991a; Komives 1991b; Yoder 1991; C Johnson 1993; S Thomas 1994 (among legislators); Voelck 2003:404 (self-rated, among library administrators) **INTERNATIONAL** *Multiple Countries*: CB Gibson 1995 **OVERVIEW** *Meta-Analysis*: Eagly & Johnson 1990; Eagly et al. 2003; van Engen & Willemsen 2004	

A laissez-faire style of leadership or management basically involves giving those being led a clear picture of the desired outcome and then simply allowing each one figure out on his or her own how to achieve that particular outcome. The studies presented in Table 20.4.3.3c indicate that males use this style more than females or failed to identify any significant sex differences.

A task-oriented leadership style involves leaders (or employers) giving workers an assigned task with little or no detailed instructions regarding

Table 20.4.3.3c Laissez-faire leadership/management styles

Nature of difference					*Wide age range*
More among males					**EUROPE** *Spain*: Cuadrado, Molero et al. 2012:Table 2 & Table 3 (style rated by leaders and by subordinates) **NORTH AMERICA** *United States*: Eagly & Johannesen-Schmidt 2001 (laissez-faire management style) **OVERVIEW** *Meta-Analysis*: Eagly & Johnson 1990; Eagly et al. 2003; van Engen & Willemsen 2004
Not significant					**EUROPE** *Netherlands*: van Engen et al. 2001 (department store managers) **NORTH AMERICA** *United States*: KM Bartol & Martin 1986 (in experimental task groups)
More among females					

how to actually perform the task. In other words, performing the task is largely up to the workers themselves. Table 20.4.3.3d shows that findings of sex differences in this type of leadership style are mixed between males using this style more to ones indicating that there are no significant sex differences.

Table 20.4.3.3d Task-oriented leadership style

Nature of difference				*Post-pubertal*	
				Adult	
More among males				**NORTH AMERICA** *United States*: JR Bond & Vinacke 1961; Uesugi & Vinacke 1963; **OVERVIEW** *Meta-Analysis*: Eagly & Johnson 1990* (in experimental groups); Eagly & Karau 1991 (d = .41); van Engen 2001	
Not significant				**EUROPE** *Spain*: Cuadrado, Molero et al. 2012:Table 2 & Table 3 (style rated by leaders and by subordinates) **OVERVIEW** *Meta-Analysis*: Eagly & Johnson 1990* (in real life management)	
More among females					

The remaining types of leadership styles are usually called *transformational* and *transactional leadership*, styles that are rather difficult to precisely define other than to say that they both focus on changing the organization that is being managed and usually do so by pointing toward the changes needed and then organizing teams to guide the transition. As shown in Table 20.4.3.3e, the findings of sex differences in this type of management style are not consistent.

Table 20.4.3.3e Other leadership styles

Nature of difference	*Post-pubertal*
	Adult
More among males	
Not significant	**EUROPE** *Netherlands*: van Engen et al. 2001 (transformational/transactional) **NORTH AMERICA** *United States*: Komives 1991; KJ Maher 1997
More among females	**OVERVIEW** *Meta-Analysis*: Eagly & Karau 1991 (social-emotional oriented); Eagly et al. 2003 (transformational/transactional); van Engen & Willemsen 2004 (transformational/transactional)

20.4.3.4 Achieving Prominence in One's Occupational Field

A great amount of research has assessed sex differences in people's tendencies to become widely recognized in their occupational endeavors. One can see in Table 20.4.3.4 that nearly all studies agree that males do so more than females.

20.4.3.5 Upward Social Status Mobility

Mobility in social status refers to making significant changes in where one's social status began and where it is at a later point in time. There are two distinct types of social status mobility. One is *interpersonal*, meaning that the status of an individual changes throughout his or her career. The other is *intergenerational*, meaning that an individual's status changes relative to the status of the individual's family of origin. Social status mobility can be in either and upward or a downward direction, although most studies have focused on upward mobility. Also, it is worth mentioning that most intergenerational social status mobility measures involve comparing occupational prestige or years of education, while the most common measure used in assessing interpersonal status mobility is income or occupational level.

Research findings having to do with sex differences in upper social status mobility appears in Table 20.4.3.5. One can see that nearly all the available research indicates that males experience greater degrees of upward social status mobility than do females. It is worth adding that no studies of sex differences in downward mobility were located.

20.4.3.6 Relationship between Social Status and Stress

Research has documented an inverse correlation between social status and feelings of stress (Baum, Garofalo, & Yali 1999). Two studies were

Table 20.4.3.4 Achieving prominence in one's occupational field

Nature of difference	*Post-pubertal*	
	Adult	
More among males	**AFRICA** *Angola*: McCullough 1952; *Cameroon*: Fezeu et al. 2006:108 (N = 1,301M + 1,530F); *South Africa*: Schapera 1930 (Khoisan tribe) **ASIA** *China*: Andors 1983; Whyte 1984; Bauer et al. 1992; Gilmartin 1993; Gang & Guiyang 2000; *India*: Rajalakshmi 1985; Swarup et al. 1994; Hoskyns & Rai 1998:347; *Japan*: O'Reilly 1983:69; *Russia*: Lapidus 1976; Nechemias 1994; W Slater 1994; *Former Soviet Union*: Boelza 1943 (among musicians) W Mandel 1975; BG Rosenthal 1975 **EUROPE** *Britain*: S Welch & Studlar 1990*; A Phillips 1991 (legislators 81% M in 1918); Panteli et al. 2001 (computer innovators); *Denmark*: PM Christiansen et al. 2001 (prominent leaders); *Finland*: Paasilinna 1987; *Ireland*: M Manning 1978; RL Engstrom 1987; Galligan 1992; Galligan & Wilford 1999; *Norway*: Matland 1994:273; *Sweden*: Towns 2003:20 (legislators, 80% M in 1970s and 60% M in 1990s); Sainsbury 2004 (elected office); *Multiple European Countries*: P Norris 1985 (legislators); Dahlerup 1989 (legislators); Pascall & Manning 2000 (legislators in former Soviet Union block countries); Panteli et al. 2001 (computer industry) **LATIN AMERICA & CARIBBEAN** *Argentina*: MP Jones 1996 (elective office); *Colombia*: Escobar-Lemmon & Taylor-Robinson 2005; *Costa Rica*: Matland & Taylor 1997; *Mexico*: VE Rodriguez 2003; *Multiple Latin American Countries*: Aviel 1981; Htun & Jones 2001; Escobar-Lemmon & Taylor-Robinson 2005:838 (government ministers) **MIDDLE EAST** *Iran*: Azari 1983; Fathi 1985; *Multiple Islamic Countries*: Kazemi 2000; *Israel*: Rabin 1970:298; Zak & Horowitz 1985 (school administrators); Addi-Raccah & Ayalon 2002 (school administrators) **NORTH AMERICA** *Canada*: Matland & Taylor 1997; *United States*: Terman & Oden 1947; Duverger 1955:145; Werner 1966; MK Jennings & Thomas 1968:48 (political leader); Lamson 1968:23; Werner 1968:43 (elective office); Grimm & Stern 1974; A Bayer & Astin 1975; H Zuckerman & Cole 1975; Gross & Trask 1976; R Darcy & Scramm 1977; I Diamond 1977; Gehlen 1977; Merritt 1977; S Welch 1977 (state legislature); Hedlund et al. 1979; WC Wolf & Fligstein 1979a; WC Wolf & Fligstein 1979b; M Johnson 1980; DW Stewart 1980:4; I Diamond & Hartsock 1981; DB Hill 1981; Rule 1981; Schramm 1981; SJ Carroll & Strimling 1983; Antonlini 1984; Center for American Women and Politics 1984; Gertzog 1984; Darcy et al. 1985 (state legislature); G Schubert 1985; S Welch et al. 1985; Benze & Declercq 1986 (state legislature); R Darcy et al. 1987; Gona 1987; National Women's Political Caucus 1987; Nechemias 1987 (state-level offices)L; Rule 1987; Burt-Way 1988; R Kelly et al. 1988; Saint-Germain 1989; US Bureau of the Census 1989:253; E Costantini 1990; Rule 1990 (state legislature); S Welch & Studlar 1990*; S Thomas & Welch 1991 (state legislature); Basow 1992:299 (national office, 1947-1992); Moncrief & Thompson 1992 (state legislature); M Savage 1992; CL Williams 1992; Berkman & O'Connor 1993 (state legislature); Adler 1994; Burrell 1994; SJ Carroll 1994; R Darcy et al. 1994; S Thomas 1994; Boyd et al. 1995; Center for American Women and Politics 1995 (state legislature, 79% M); Hill & Ragland 1995; Gertzog 1995; Weisenburger et al. 1995:37 (school board members); Matland & Studlar 1996; Pyle 1996 (listed in Who's Who); Zweigenhaft & Domhoff 1998 (listed in Who's Who); RL Fox 1997 (US congress); R Seltzer et al. 1997; Tijdens 1997 (prominent in computer industry); Norrander & Wilcox 1998	

(*Continued*)

Table 20.4.3.4 (Continued)

Nature of difference	*Post-pubertal*		
		Adult	
		(state legislature); McDowell et al. 1999 (academic elite); FD Blau & Kahn 2000:89 (academic elite); Center for American Women in Politics 2000 (elective office); Kanazawa 2000:319 (scientific achievement); Reingold 2000 (state legislature); Arceneaux 2001:150 (state legislature); Center for American Women in Politics 2001; Dolan 2001; Bratton 2002 (state legislatures); McDermott 2002 (listed in Who's Who); Sanbonmatsu 2002 (state level office holders); Swers 2002 (state legislatures); Center for American Women in Politics 2003 (senate, house of representatives, & governor); L Elder 2004:28; Ding, Murray, & Stuart 2006 (obtain patents, in the life sciences); Sanbonmatsu 2006 (state legislature) **INTERNATIONAL** *Multiple Countries*: Rule 1981 (23/23 countries); Oakes & Almquist 1993; Rule & Zimmerman 1994; EO Wright et al. 1995; NJ Adler 1996; Moore & Shackman 1996; Matland 1998 (US congress); Kenworthy & Malami 1999:242-243 (more males in political in 146/146 countries); A Reynolds 1999; Bordons et al. 2003 (among scientists); *Multiple Industrial Countries*: RA Rosenfeld et al. 1998; Aldrich & Kage 2003:35; *Multiple Pre-Industrial Societies*: Whyte 1978:217* (72/74 preliterate societies) **OVERVIEW** *Meta-Analysis*: Eagly et al. 1999	
Not significant		**EUROPE** *France*: Squires & Wickham-Jones 2001 (52.5% M in 2001 after passage of a sex parity law) **INTERNATIONAL** *Multiple Pre-Industrial Societies*: Whyte 1978:217* (2 out of 74 preliterate societies)	
More among females			

Table 20.4.3.5 Upward social status mobility

Nature of difference	*Post-Pubertal*		
		Adult	
More among males		**AFRICA** *Zambia*: T Turner & O'Connor 1994 (civil services) **ASIA** *Japan*: Brinton 1989; Brinton 1993; S Buckley 1993; Kawashima 1995; B Molony 1995; Creighton 1996; Ogasawara 1998 **EUROPE** *Britain*: Goldthorpe et al. 1987; G Marshall et al. 1988; Abbott & Payne 1990; Jonsson & Mills 1993*; Alimo-Metcalfe 1995; Currie & Thiele 2001 (in academics); *France*: RV Robinson & Garnier 1985; Portocarero 1983a*; Portocarero 1983b*; Portocarero 1985*; Portocarero 1987*; *Germany*: Li & Singelmann 1998*; Bornmann & Enders 2004:34 (among PhDs); Harkonen et al. 2016* (individual); *Netherlands*: De Weert 2001 (in academia); *Sweden*: Portocarero 1983a*; Portocarero 1983b*; Portocarero 1985*; Portocarero 1987*; Portocarero 1989 Jonsson & Mills 1993*; Harkonen et al. 2016* (individual) **LATIN AMERICA & CARIBBEAN** *Trinidad & Tobago*: Bissessar 1999 (civil services) **NORTH AMERICA** *Canada*: BD Adam & Baer 1984:39 (lawyers, individual); M Boyd 1986:471 (inter-generational upward occupational prestige); *United States*: J Bernard 1964:120 (college teaching); AE Bayer & Astin 1968 (college teaching); JR Cole & Cole 1973 (college teaching); ND Glenn et al. 1974 (excluding mobility via marriage); Tyree & Treas 1974; AE Bayer & Astin 1975:801 (college teaching); RM Hauser et al. 1977; JR Cole 1979; National Research Council 1979:60 (college teaching); Reskin & Hargens 1979:117; Marini 1980 (interpersonal); Sewell, Hauser & Wolf 1980 (interpersonal occupational prestige); Ahem & Scott 1981; JR Cole 1981 (college teaching); Y Weiss & Lillard 1982 (college teaching); Lorber & Ecker 1983; Cole & Zuckerman 1984 (university professor); Szafran 1984 (college teaching); DiPrete & Soule 1986 (civil servants); RA Rosenfeld & Jones 1986 (college teaching); PD Allison & Long 1987 (college teaching); AM Morrison et al. 1987; DiPrete & Soule 1988 (civil service, generational); Hachen 1988:35 (individual); PD Allison & Long 1990 (college teaching); Nickerson et al. 1990 (medical faculty); Roscher 1990:72 (among chemists); Spurr 1990 (lawyers); American College of Physicians 1991; Cox & Harquail 1991 (MBA grads, individual); Ehrenberg 1991 (college teaching); Hurlbert & Rosenfeld 1992 (college teaching); Stroh et al. 1992 (among managers); Fagenson 1993; Kahn 1993 (economy professors); JS Long et al. 1993 (biochemistry college teaching); S Morgan et al. 1993; Kahn 1995 (economy professors); Schneer & Reitman 1995 (managers); Tesch et al. 1995 (medical faculty); Hersch & Viscusi 1996; Higginbotham & Romero 1997; Li & Singelmann 1998*; Cobb-Clark & Dunlop 1999* (in 1990); C Edwards et al. 1999; McDowell et al. 1999a (economy professors); McDowell et al. 1999b (economy professors); Pergamit & Veum 1999; Powell 1999 (management positions); Nonnemaker 2000 (among medical faculty); Budig 2002; Ginther & Hayes 2003 (humanities professors); Goldberg et al. 2004 (managers); Petersen & Saporta 2004:877; Hamel et al. 2006 (in medical academic positions); Timmers et al. 2010 (in academia) **OCEANIA** *Australia*: Lafferty & Fleming 2000 (higher education) **INTERNATIONAL** *Multiple Industrial Countries*: PA Ross 1985; JH Li & Singelmann 1998* (generational); R Erikson & Goldthorpe 1992	
Not significant		**NORTH AMERICA** *United States*: Cobb-Clark & Dunlop 1999* (in 1996)	
More among females			

located that have sought to determine if there are sex differences in the strength of this relationship. One can see in Table 20.4.3.6 that both studies found the relationship to be stronger for males than for females.

Table 20.4.3.6 Relationship between status and stress

Nature of difference			*Post-pubertal*		
				Adult	
More among males				**ASIA** *Japan*: Kawakami et al. 1995 (occupational status and job stress); Kawakami et al. 2004 (occupational status and job stress)	
Not significant					
More among females					

20.5 Territorial, Migration, and Spacing Behavior

Nearly all animals seem to recognize when they are in familiar surroundings and when they are not. In this regard, substantial research has compared the sexes with regard to their tendencies to be territorial, their frequency of migration, and the amount of spacing they exhibit relative to other members of their species. This section pertains to these types of sex differences.

20.5.1 Territorial Behavior

The amount of territory (usually in the form of land mass) an individual controls is known as *territoriality* or *territorial behavior*. Results of research surrounding sex differences in such behavior are reviewed below.

20.5.1.1 Scent Marking

Scent marking using urine, feces, or specialized glandular secretions is found in many species as a way to laying claim to a particular territory, especially among mammals. Sometimes, however, sent marking may simply be a way of telling conspecifics that "This area is mine" or "I come here often." As shown in Table 20.5.1.1, studies indicate that, in most species, scent marking is more common among males than among females. Nonetheless, several exceptions have been found.

20.5.1.2 Territorial/Resource Procurement and Defense

Studies of sex differences in procurement and defense of territories or resources are summarized in Table 20.5.1.2, all of which pertain to studies of non-humans. The only form of territorial procurement and defense that

Table 20.5.1.1 Scent marking among non-humans.

Nature of difference			*Post-pubertal*		*Wide age range*
			Adolescent	*Adult*	
More among males			**RODENT** *Gerbil*: Thiessen et al. 1970*	**CANINE** *Domestic Dog*: B McGuire 2016 (urine marking) **CARNIVORE** *Giant Panda*: Nie, Swaisgood et al. 2012 (year-round, females only during mating season) **FELINE** *Domestic Cat*: Liberg 1980 **HERPESTID** *Meerkat*: NR Jordan 2007 **MARSUPIAL** *Gray Short-Tailed Opossum*: BH Fadem & Cole 1985 (scent mark); BH Fadem & Corbett 1993a (scent mark); BH Fadem & Corbett 1997 (scent mark more after puberty) **PRIMATE** *Sifaka*: RT Lewis 2005:394 **RODENT** *Gerbil*: Thiessen et al. 1970; JW Turner 1975 (young)	**CANINE** *Dog*: IA Berg 1944 (urine mark); Martins & Valle 1948 (urine mark); MW Fox et al. 1975 (urine mark); *Spoted Hyena*: Boydston et al. 2001; *Wolf*: Asa et al. 1990 (urine mark) **RODENT** *Gerbil*: Ulibarri & Yahr 1988 (scent mark)
Not significant				**PRIMATE** *Marmoset*: Lazaro-Perea et al. 1999	**CANINE** *Coyote*: Barrette & Messier 1980 (urine mark); Bowen & Cowan 1980 (urine mark); MC Wells & Beckoff 1981 (urine mark)
More among females				**CANINE** *Spotted Hyena*: Henschel & Skinner 1991 **PRIMATE** *Tamarin*: JA French & Cleveland 1984; Heymann 1998; Epple et al. 2002	

Table 20.5.1.2 Territorial/resource procurement and defense among non-humans.

Nature of difference			*Post-pubertal*		*Wide age range*
				Adult	
More among males				**FELINE** *Lion*: C Packer et al. 1990; Grinnell et al. 1995; Heinsohn & Packers 1995 **PRIMATE** *Chimpanzee*: Muller & Mitani 2005; *Spider Monkey*: LM Fedigan & Baxter 1984:Table 1 **RODENT** *Ground Squirrel*: FC Evans & Holdenried 1943; *Mouse*: RJ Berry & Bronson 1992; Parmigiani et al. 1999	**BIRD** *Chicken*: G McBride & Foenander 1962; G McBride et al. 1969; *Starling*: Verheyen 1980 (secure & defend nesting site); Feare 1984 (secure nesting site); Pinxten et al. 1989 (secure & defend nesting site) **HERPEST** *Meerkat*: NR Jordon 2007; *Mongoose*: Cant et al. 2002 **RODENT** *Ground Squirrel*: Owings et al. 1977

(*Continued*)

Table 20.5.1.2 (Continued)

Nature of difference			*Post-pubertal*		*Wide age range*
				Adult	
Not significant					
More among females				**BIRD** *Black Coucal*: Goymann et al. 2004 **CANINE** *Spotted Hyena*: Henschel & Skinner 1991; Boydston, Morelli, & Holekamp 2001 (team boarder patrol & clan fights)	

is not included in this particular table has to do strictly with (which is summarized separately above). One can see that most studies have indicated that males are more active in procuring and defending territories (and the resources they contain) than are females. The exceptions seem to be limited to a minority of species.

20.5.1.3 Size of Territory or Home Range

A considerable number of studies were located in which males and females were compared regarding the size of the territories or home ranges they explore or occupy. One can see in Table 20.5.1.3a that all but one study has indicated that males explore, "own," or lay claim to larger territories than do females.

Table 20.5.1.3a Size of territory or home range

Nature of difference	*Pre-pubertal*		*Post-pubertal*		
		Child		*Adult*	
More among males		**EUROPE** *Britain*: P Webley 1981 (play & exploring range, N = 16M + 16F) **NORTH AMERICA** *United States*: RA Hart 1979 (play & exploring range); Munroe & Munroe 1971 (play & exploring range)		**AFRICA** *Central African Republic*: MacDonald & Hewlett 1999:508 (Aka foragers, N = 109, home range size); *Namibia*: Vashro & Cashdan 2015:Figure 1 (Twe & Himba tribe, N = 68, size of home range); Vashro, Padilla & Cashdan 2016:23 (Twe & Himba tribe, N = 65M + 64F, size of home range); *Tanzania*: Marlowe 2006:367 (Hadza foragers, N = 108M + 110F, home range size); Cashdan, Marlowe et al. 2012:281 (N = 38M + 35F, Hadza foragers, home range size) **NORTH AMERICA** *Canada*: Ecuyer-Dab & Robert 2004 (size of home range); *United States*: N Bagley & Mokhatanan 2012 (N = 515, size of home range)	

(*Continued*)

Table 20.5.1.3a (Continued)

Nature of difference	*Pre-pubertal*		*Post-pubertal*		
		Child		*Adult*	
Not significant				**LATIN/CARIBBEAN AMERICA** *Mexico*: Cashdan, Kramer et al. 2016:Figures 1 & 2 (home range size, Yucatan Maya, N = 70M + 78F)	
More among females					

Numerous studies of non-humans have compared the sexes with respect to the size of the territories or home ranges that they occupy or control. Table 20.5.1.3b shows that the findings have been mixed, with about half of them indicating that territorial size of males is greater than that of females. As a qualifying note, it is worth mentioning that territorial sizes are usually in flux, depending on the competition and sometimes on seasonality factors.

20.5.2 Dispersal Behavior

Many animals, including humans, have a tendency to move away from where they grew up and take up residence elsewhere. Sex differences in this regard are summarized in the following tables.

20.5.2.1 Migration and Dispersal

Migration refers to changing one's location in geographic space. Among humans, it is usually assessed in one of two ways. First, job-related migration usually occurs within a country. Second, migration sometimes occurs from one country to another country.

Considerable research has studied sex differences in the tendency to migrate usually for the purpose of taking on a new job. One can see in Table 20.5.2.1a that the vast majority of studies have concluded that males do so more than females.

A special form of migration, often called *emigration* (also spelled *immigration*), involves moving from one country to another country. As shown in Table 20.5.2.1b, most studies have concluded that males are more likely than females to emigrate.

Turning to research involving non-human animals, a great deal of research has been conducted. Much of the research has been driven by theoretical arguments suggesting that natural selection favors what is known as *homogametic hybridization* more than *heterogametic hybridization* (Haldane 1922; Turelli & Orr 2000). In mammals, males are the heterogametic sex (XY), and Haldane argued that (a) heterogametic animals (males) should seek

Table 20.5.1.3b Size of territory or home range among non-humans.

Nature of difference	*Post-pubertal*	*Wide age range*
	Adult	
More among males	**BIRD** *Warbler*: Petit et al. 1990 **CARNIVORE** *Leopard*: Mizutani & Jewell 1998; *Stoat*: Alterio 1998; Samson & Raymond 1998 **MUSTELID** *Ferret*: Norbury et al. 1998 **PINNIPED** *Gray Seal*: CA Beck et al. 2003; *Harbor Seal*: Coltman et al. 1997; WD Bowen et al. 1999 **PRIMATE** *Baboon*: Rowell 1972:43 (territorial size); *Bushbaby*: Bearder 1987; *Suimang*: Chivers 1974 **RODENT** *Meadow Vole*: Gaulin & FitzGerald 1986* (a polygamous species); *Rat*: Behrends et al. 1986; JA Randall 1991; Ribble & Stanley 1998 **UNGULATE** *Bighorn Sheep*: Krausman et al. 1989; *Blacktail Deer*: Schoen & Kirchhoff 1985* (summer); Weckerly 1993; *Caribou*: TK Fuller & Keith 1981* (winter); *Elk*: McCorquodale et al. 1989 (summer); *Moose*: RB Addison et al. 1980; Sweanor & Sandergren 1989; BK Miller & Litvaitis 1992* (summer); Cederlund & Sand 1994; Kufeld & Bowden 1996; MacCracken et al. 1997* (winter); *Mouflon*: M Dubois et al 1994* (summer); *Mule Deer*: Pac et al. 1988* (summer); *Red Deer*: Lazo et al. 1994; Koubek & Hrabe 1996; *Roe Deer*: Cederlund 1983* (winter); NG Chapman et al. 1993; Koubek 1995* (summer); Danilkin 1996* (summer); Mysterud 1998 (summer); *Whitetail Deer*: Drolet 1976 (winter); ME Nelson & Mech 1981 (summer); Tierson et al. 1985; Beier & McCullough 1990	**PRIMATE** *Orangutan*: Galdikas 1988
Not significant	**RODENT** *Levant Vole*: Bodenheimer 1949; Cohn-Shlagman et al. 1984; *Mole-Rat*: Zuri & Terkel 1996; *Prairie Vole*: Gaulin & FitzGerald 1986* (a monogamous species); *Rat*: SA Barnett 1963 **UNGULATE** *Bighorn Sheep*: DM Leslie et al. 1996; *Moose*: Hauge & Keith 1981; Leptich & Gilbert 1989; *Mouflon*: M Dubois et al. 1994* (winter); *Pronghorn Sheep*: Hoskinson & Tester 1980* (summer); *Roe Deer*: Cederlund 1983* (summer); Thor 1990 (summer); Bjar et al. 1991 (summer); Cederlund et al. 1993 (summer); Schmidt 1993; Danilkin 1996* (winter)	
More among females	**BIRD** *Black Coucal*: Goymann et al. 2004b:812 (home range) **UNGULATE** *Blacktail Deer*: Schoen & Kirchhoff 1985* (winter); *Caribou*: Fuller & Keith 1981* (summer); *Moose*: RL Phillips et al. 1973; Miller & Litvaitis 1992* (winter); MacCracken et al. 1997* (summer); *Mule Deer*: Pac et al. 1988* (winter); Rautenstrauch & Krausman 1989; MC Nicholson et al. 1997; *Pronghorn Sheep*: Hoskinson & Tester 1980* (winter); TD Reynolds 1984 (summer); *Roe Deer*: NG Chapman et al. 1993; Koubek 1995* (winter); *Whitetail Deer*: Rongstad & Tester 1969 (winter)	

to hybridize more than homogametic animals (females), and (b) moving away from where one was born is one of the best ways to insure hybridization. In fish and birds, however, females are the heterogametic sex (YW), so in these types of animals, females should disperse more than males.

Table 20.5.2.1a Migration and dispersal

Nature of difference			*Post-pubertal*		*Wide age range*
		Child	*Adolescent*	*Adult*	
More among males		**EUROPE** *Britain*: MH Matthews 1987 (N = 166, size of home range) **NORTH AMERICA** *United States*: P Webley 1981 (age 8, size of home range)	**LATIN/ CARIBBEAN AMERICA** *Bolivia*: EJ Miner et al. 2014 (Tsimane horticulturalists, N = 53M + 52F, travel away from home, especially by the unmarried)	**AFRICA** *Kenya*: Agesa & Agesa 1999 (rural to urban migration); *Multiple African Countries*: Brockerhoff & Eu 1993 (Sub-Saharan males migrate more); Lucas 1997 **ASIA** *South Korea*: BS Lee & McDonald 2003:1288 (commuting to work, N = 49,442M + 24,144F) **EUROPE** *Italy*: Cristaldi 2005:277 (N = 893,995M + 508,114F, commuting); *Sweden*: P Gustafson 2006 (work-related) **LATIN/CARIBBEAN AMERICA** *Mexico*: VS Trujillo 2014:Table 7 (job-related) **NORTH AMERICA** *United States*: Fanning Madden 1981:185-188 (N = 1,291, work-related); S Hanson & Johnston 1985 (484M vs. 303F, work-related); M White 1986 (work-related); P Gorden, Kuimar & Richardson 1989 (job-related); EK Wyly 1998 (work-related); R Crane 2007 (commuting to work, N = 467,335M + 501,349F) **INTERNATIONAL** *Multiple Countries*: J Armitage & Sabot 1991; Lucas 1997 **OVERVIEW** *Literature Review*: O Blumen 1994 (work-related)	**EUROPE** *Spain*: Miralles-Guasch, Melo & Marquet 2016 (distance traveled)
Not significant				**EUROPE** *Austria*: P Stephan et al. 2014:820 (undergrad, N = 53M + 52F, M>F)	**AFRICA** *Tanzania*: Crittenden et al. 2013:301* (Hadza foragers, ages 1-17, N = 18M + 25F, distances traveled)
More among females					

Table 20.5.2.1b Migrating from one country to another

Nature of difference			*Post-pubertal*	*Wide age range*
			Adult	
More among males			**NORTH AMERICA** *United States*: Massey et al. 2006:74 (to the US from several Latin American countries)	**NORTH AMERICA** *United States*: EP Hutchinson 1956 (to the US from multiple European countries, 1820-1920); Sassen-Koob 1984:1158 (to the US); Chavez et al. 1989:Table 1* (to the US, from all Hispanic countries except Mexicans); Angrist 2002:1036 (to the US from multiple European countries, 1900-1930) **OVERVIEW** *Literature Review*: M Wachs 1987 (migration)
Not significant				
More among females				**NORTH AMERICA** *United States*: Chavez et al. 1989:Table 1* (to the US from Mexico)

Among mammals, another factor that may contribute to greater male dispersal is the fact that reproductively successful males are usually those who establish and maintain ownership over territory, and moving away from where one grew up often facilitates territory procurement. The types of pair bonding patterns that animals exhibit could also affect male dispersal patterns. In particular, in non-monogamous species, males appear to be especially likely to disperse following the onset of puberty, whereas in monogamous species, both sexes tend to disperse to roughly equal degrees (Dobson 1982).

Research findings regarding mammals (excluding humans) are summarized in Table 20.5.2.1c. One can see that, in most mammalian species, males are more likely to migrate or disperse further distances from where they grew up than are females. Nevertheless, there are quite a few exceptions, including studies of chimpanzees (where females usually migrate more) and gorillas (which exhibit no sex differences in migration patterns).

Research attention now turns to sex differences in migration and dispersal patterns among birds and fish. For these categories of animals, one finds two types of migration and dispersal. One is called *natal dispersal*, which occurs sometime after hatching but before breeding activity normally begins. The second type is known as *breeding dispersal*. As its name implies, this latter type of dispersal occurs during the time birds or fish begin to actively begin mating (PJ Greenwood & Harvey 1982). For this reason, findings are presented in two tables, one for pre-pubertal animals and the other for post-pubertal animals.

Results regarding sex differences in dispersal are summarized in Table 20.5.2.1d. One can see that the findings are quite inconsistent, with just a slight majority of findings indicate that, in most species, females disperse more prior to puberty than do males.

Table 20.5.2.1c Migration and dispersal among mammals except humans

Nature of difference			*Post-pubertal*		*Wide age range*
			Adolescent	*Adult*	
More among males			**CANINE** *Wolf*: Mech 1970; Fritts & Mech 1981 **FELINE** *Lion*: Schaller 1972; Bertram 1975 **HARE** *Pika*: Tapper 1973; AT Smith 1978; Svendsen 1979 **MARSUPIAL** *Wallaby*: JH Kaufmann 1974 **PINNIPED** *Dwarf Mongoose*: Rasa 1977; Rood 1978; *Fur Seal*: JE King 1964; Warneke 1975 **PRIMATE** *Blue Monkey*: Rudran 1978; *Baboon*: C Parker 1978 (away from natal troops); *Gelada Baboon*: Dunbar & Dunbar 1975; Ohsawa 1979; *Bonobo*: Ihobe 1992*; *Gibbon*: CR Carpenter 1940; Ellefson 1974; *Hanuman Langur*: Sugiyama 1965; Sugiyama 1967; *Howler Monkey*: CR Carpenter 1965; *Japanese Macaque*: Sugiyama 1976; Muroyana, Imae & Okuda 2000; *Patas Monkey*: KR Hall 1975; *Red-Fronted Lemur*: Wimmer & Kappeler 2002; *Red-Tail Monkey*: Struhsaker 1977; *Rhesus Macaque*: Lindberg 1969; Drickamer & Vessey 1973; *Sifaka Lemur*: Richard et al. 1993; *Tamarin*: GA Dawson 1977; JF Eisenberg 1977; Neyman 1977; *Toque Macaque*: Dittus 1975; Dittus 1979 **PROBOSID** *African Elephant*: Law 1974; Douglas-Hamilton & Douglas-Hamilton 1975; Hall-Martin 1987; Douglas-Hamilton 1973; PC Lee & Moss 1999:120; Fernando & Lande 2000; Ke Evans 2006; Fernando et al. 2008 **PROSIMIAN** *Bushbaby*: AB Clark 1978 **RODENT** *Beach Mouse*: MH Smith 1968; Foltz 1981; *Beaver*: Tawnsend 1953; *Chipmunk*: SF Smith 1977; L Elliot 1978; Y Ahner 1978; *Coati*: Kaufmann 1962; *Deer Mouse*: Dice & Howard 1951; Birdsall & Nash 1973; Fairbairn 1978; *Gopher*: JL Patton & Feder 1981; *Ground Squirrel*: FC Evans & Holdenried 1943; Fitch 1948; Balph & Stokes 1963; Rongstad 1965; McCarley 1966; Carl 1971; Yeaton 1972; Slade & Balph 1974; Dunford 1977; Michener & Michener 1977; Owings et al. 1977; PW Sherman 1977; Murie &	**PRIMATE** *Bonobo*: Ihobe 1992*; *Brown Mouse Lemur*: Atsalis 2000; *Gray Mouse Lemur*: Barre et al. 1988; Pagès-Feuillade 1988; Radespiel 2000; Schwab 2000; Radespiel et al. 2003 (free living) **CANINE** *Spotted Hyena*: LG Frank 1986; East & Hoffer 2001; Smale et al. 1995; Höner et al. 2007	**CANINE** *Spotted Hyena*: Kruuk 1972 **LAGOMOPH** *Rabbit*: N Webb et al. 1995 **PRIMATE** *Black & White Colobus Monkey*: Oates 1977; *Olive Baboon*: C Packer 1979; *Bonobo*: Van Hooff & Van Schair 1994; *Purple-Faced Langur*: Rudran 1973; *Red-Fronted Lemur*: Ostner & Kappeler2004; *Ringtail Lemur*: Sussman 1992; *Spider Monkey*: LM Fedigan & Baxter 1984; *Yellow Baboon*: Altmann & Altmann 1970; Hausfater 1975 **RODENT** *House Mouse*: FP Rowe et al. 1963; DeLong 1967; JH Myers 1974; Lidicker 1976; *Marmot*: Schwartz & Armitage 1980 **OVERVIEW** *Literature Review*: Pusey & Packer 1987 (primates); CN Johnson 1988

(*Continued*)

Table 20.5.2.1c (Continued)

Nature of difference			*Post-pubertal*		*Wide age range*
			Adolescent	*Adult*	
			Harris 1978; FS Dobson 1979; Michener 1979; Boag & Murie 1981; Hanken & Sherman 1981; FS Dobson 1982; *Marmot*: Barash 1973; KB Armitage & Downhower 1974; Downhower & Armitage 1981; *Muskrat*: Beer & Meyer 1951; Mallach 1971; Steiniger 1976; *Prairie Dog*: Foltz & Hoogland 1981; Hoogland 1981; *Prairie Vole*: Gaines et al. 1979; JA Thomas & Birney 1979; *Raccon*: Fritzell 1978; *Woodchuck*: FH Bronson 1964 **UNGULATE** *African Buffalo*: AR Sinclair 1974; *Dik Dik*: Hendrichs & Hendrichs 1971; *Mountain Sheep*: Geist 1971; *Red Deer*: Darling 1937; VP Lowe 1966; Kruuk et al. 1999; *Reedbuck*: H Hendrichs 1975; *Soay Sheep*: P Grubb & Jewell 1966; *Vicuna*: Kaford 1957; Franklin 1974; *White-Tail Deer*: Kammermeyer & Marchinton 1976; McCullough 1979		
Not significant			**PRIMATE** *Gorilla*: AH Harcourt 1978; *Hamadryas Baboon*: Kummer 1968; *Red Colobus*: Struhsaker & Struhsaker-Leland 1979 **RODENT** *Gray Squirrel*: Thompson 1977; Thompson 1978; *Red Squirrel*: CC Smith 1968; Kemp & Keith 1970; Rusch & Reeder 1978; *Sand Rat*: M Daly & Daly 1975 **UNGULATE** *Zebra*: Klinger 1974		
More among females			**CANINE** *African Wild Dog*: Kuhme 1965; Frame & Frame 1976; Frame et al. 1979 **CHIROPTERAN** *Bat*: Bradbury & Emmons 1974; Bradbury & Vehrencamp 1976; Bradbury & Vehrencamp 1977 **PRIMATE** *Chimpanzee*: Sugiyama 1973; Pusey 1980; *Spider Monkey*: Fedigan & Baxter 1984:Table 1 (wild)		

Table 20.5.2.1d Dispersal before puberty among birds and fish

Nature of difference	*Pre-pubertal*	
		Child
More among males		**BIRD** *Adelie Penguin*: Ainley & DeMaster 1980 (proportion); Ainley et al. 1983 (proportion); *Canadian Goose*: Lessells 1985* (proportion & distance); *Goshawk*: Kenward et al. 1993 (distance); *Great Bustard*: Alonso & Alonso 1992 (proportion); *Long-Tailed Duck*: Alison 1977 (proportion); *Mute Swan*: AE Coleman & Minton 1979 (proportion & distance); *Pintail Duck*: Sowls 1955 (proportion); *Spotted Sandpiper*: Reed & Oring 1993* (proportion)
Not significant		**BIRD** *Blue-Footed Booby*: Osorio-Beristain & Drummond 1993 (distance); *Cliff Swallow*: Mayhew 1958 (proportion); CR Brown & Brown 1992 (proportion); *Great Reed Warbler*: Bensch & Hasselquist 1991 (proportion & distance); *Hen Harrier*: Picozzi 1984 (distance); *Large Cactus Finch*: BR Grant & Grant 1989 (distance); *Magpie*: Birkhead et al. 1986* (distance); *Nuthatch*: Matthysen & Schmidt 1987 (distance); *Pied Flycatcher*: Berndt & Sternberg 1969 (distance); Potti & Montalvo 1991 (proportion & distance); *Sage Grouse*: PO Dunn & Braun 1985 (proportion); *Song Sparrow*: Weatherhead & Boak 1986 (proportion); Arcese 1989 (proportion & distance); *South Polar Skua*: Ainley et al. 1990* (distance); *Sparrow Hawk*: I Newton et al. 1989 (distance); *Wren Tit*: M Baker et al. 1995 (proportion & distance); *Zebra Finch*: Zann 1994 (distance); Zann & Runciman 1994 (distance)
More among females		**BIRD** *Blue Grouse*: Jamieson & Zwickel 1983 (distance); *Blue Tit*: Zeh et al. 1985 (proportion); *Common Babbler*: Gaston 1978 (proportion); *Cory's Shearwater*: Thibault 1993 (proportion & distance); *Florida Scrub Jay*: Woolfender & Fitzpatrick 1984* (proportion & distance); *Great Tit*: Bulmer 1973 (distance); PJ Greenwood et al. 1979 (distance); *Groove-Billed Ani*: Bowenj et al. 1989 (proportion & distance); *Helmeted Honeyeater*: Runciman et al. 1995 (proportion); *Herring Gull*: Chabrzyk & Coulson 1976; *Hobby Falcon*: Fiuczynski 1978 (proportion); *House Sparrow*: RC Fleischer et al. 1984 (distance); *Kittiwake*: Coulson & Neve De Mevergines 1992 (proportion); *Layson Albatross*: HI Fisher 1971 (proportion); *Manx Shearwater*: Brooke 1978 (proportion & distance); *Marsh Tit*: Nilsson 1989 (distance); *Pinyon Jay*: Marzluff & Balda 1989 (proportion); *Red-Neck Phalarope*: JD Reynolds & Cooke 1988* (proportion); *Red-Winged Fairy-Wren*: Rowley et al. 1988 (proportion); *Ruffed Grouse*: RJ Small & Rusch 1989 (proportion & distance); *Sage Grouse*: PO Dunn & Braun 1985* (distance); *Spruce Grouse*: Schroeder 1985 (proportion); *Shag*: Aebischer et al. 1995 (proportion); *Sparrow Hawk*: I Newton & Marquiss 1982 (proportion & distance); I Newton & Marquiss 1983 (proportion & distance); *Spruce Grouse*: Schroeder 1985 (proportion); Keppie & Towers 1992 (proportion); *Splendid Fairy-Wren*: EM Russell & Rowley 1993 (proportion & distance); *Striped-Back Wren*: Rabenold 1985 (proportion & distance); *Tengmalm's Owl*: Sonerud et al. 1988 (proportion); *Welsh Dipper*: SJ Tyler et al. 1990* (proportion & distance); *White-tailed Ptarmigan*: Giesen & Braun 1993; *Willow Warbler*: Lawn 1983* (proportion)

The last set of findings regarding sex differences in migration and dispersal is Table 20.5.2.1e. It pertains to birds and fish following puberty. One can see that the findings are quite varied, although roughly half of the studies concluding that females migrate more (or greater distances).

Table 20.5.2.1e Dispersal after puberty among birds and fish

Nature of difference	*Post-pubertal*		*Wide age range*
	Adolescent	*Adult*	
More among males		**FISH** *Guppies*: DP Croft et al. 2003 (upstream from release point)	**BIRD** *Eider Duck*: Baillie & Milne 1989 (post-pubertal, proportion); *Lesser Snow Goose*: RF Rockwell & Cooke 1977 (post-pubertal, proportion); Cooke et al. 1983 (post-pubertal)
Not significant	**BIRD** *Magpie*: Dhindsa & Boag 1992 (proportion); *Shag*: Aebischer et al. 1995* (proportion)	**BIRD** *Bay-Winged Cowbird*: Fraga 1991* (proportion); *Brambling*: Lindstrom 1987 (proportion); *Canadian Goose*: Lessells 1985* (proportion and distance); *Florida Scrub Jay*: Woolfender & Fitzpatrick 1994* (proportion and distance); *Harris' Sparrow*: Norment 1994 (proportion); *Red-Necked Phalarope*: JD Reynolds & Cooke 1988* (proportion and distance); *Redwing Blackbird*: Bjerke & Espmark 1988 (distance); *Spotted Sandpiper*: Reed & Oring 1993* (proportion); *Welsh Dipper*: SJ Tyler et al. 1990* (distance); *Willow Warbler*: Lawn 1983* (proportion)	**BIRD** *Acorn Woodpecker*: Kaenig & Mumme 1987 (post-pubertal, proportion); *Greenfinch*: PJ Greenwood & Harvey 1977 (post-pubertal, distance); *Lapwing*: PS Thompson et al. 1994 (post-pubertal, proportion and distance); *Piping Plover*: Haig & Oring 1988 (post-pubertal, proportion and distance); *Styan's Grasshopper Warbler*: Nagata 1993* (post-pubertal, proportion); *Whinchat*: Bastian 1992 (post-pubertal, distance)
More among females	**BIRD** *Gannet*: B Nelson 1978 (proportion); *House Wren*: Drilling & Thompson 1988 (proportion and distance); *Magpie*: Birkhead et al. 1986* (distance); *Song Thrush*: PW Savies & Snow 1965 (proportion)	**BIRD** *Bay-Winged Cowbird*: Fraga 1991* (distance); *Bobalink*: Bollinger & Gavin 1989 (proportion and distance); *European Blackbird*: PJ Greenwodd & Harvey 1977 (distance); Desrochers & Magrath 1993 (distance); *Gray Catbird*: Darley et al. 1977 (proportion); *Great Tit*: PH Harvey et al. 1979 (distance); *Killdeer*: Lenington 1975 (proportion); *Kirtland's Warbler*: AJ Berger & Radabaugh 1968 (proportion and distance); *Pied Flycatcher*: PH Harvey 1984 (distance); *Piping Plover*: LR Wilcox 1959 (distance); *Prairie Warbler*: Nolan 1978 (proportion); *Puerto Rican Vireo*: Woodworth et al. 1998 (proportion); *Red Bunting*: Haukioja 1971 (proportion and distance); *Reed Warbler*: Catchpole 1972 (proportion); *Rufous-Collared Sparrow*: SM Smith 1978 (proportion); *Skylark*: Delius 1965; *Snowy Plover*: Paton & Edwards 1996 (proportion); *South Polar Skua*: Ainley et al. 1990 (distance); Pietz & Parmelee 1994 (proportion); *White Bearded Manakin*: Lill 1974 (proportion); *White-Crowned Sparrow*: Petrinovich & Patterson 1982 (proportion)	**BIRD** *Black-Tailed Godwit*: Groen 1993 (post-pubertal); *Cactus Wren*: AH Anderson & Anderson 1973 (post-pubertal, proportion); *Collard Flycatcher*: Part & Gustafsson 1989 (post-pubertal, proportion and distance); *Dunlin*: DB Jackson 1994 (distance); *Nazca Booby*: Huyvaert & Anderson 2004; *Red-Cockaded Woodpecker*: JR Walters et al. 1988 (post-pubertal, proportion and distance); JR Walters 1992 (proportion and distance); *Styan's Grasshopper Warbler*: Nagata 1993* (post-pubertal, distance); *Superb Fairy Wren*: Mulder 1995 (post-pubertal, proportion); *Tengmalm's Owl*: Korpimaki 1987 (post-pubertal, proportion and distance); Korpimaki & Lagerstrom 1988 (post-pubertal, proportion and distance); *Wood Thrush*: RR Roth & Johnson 1993 (post-pubertal, proportion) **FISH** *Barbus*: Chenuil et al. 2004 (post-pubertal)

From theoretical perspectives, this table (and the preceding one) suggest that among birds (and possibly fish), there is a slight tendency for females in most species to move farther away from their home than do males, a pattern that is the opposite of what occurs in most species of mammals. Because females are the heterogametic sex in birds and fish, while males are among mammals, one might interpret these patterns as supporting Haldane's evolutionary reasoning. The other theoretical perspective that may have bearing on the findings of phylum differences in migration patterns was put forth by PJ Greenwood (1980). Without considering fish, Greenwood provided evidence that more species of birds are monogamous than is the case for mammals, and that in monogamous species, females are more likely to disperse than are males.

20.5.2.2 Running Away from Home

Research findings on sex differences in tendencies to run away from home, usually during adolescence, are summarized in Table 20.5.2.2. One can see that findings have yielded mixed results.

Table 20.5.2.2 Running away from home

Nature of difference	*Pre-pubertal*		*Post-pubertal*		
		Child	*Adolescent*		
More among males		**NORTH AMERICA** *United States*: C Edelbrock 1980:216* (ages 6-11)	**EUROPE** *Greece*: Kokkevi et al. 2014 (N = 23,279) **NORTH AMERICA** *United States*: A McCormack, Janus & Burgess 1986		
Not significant					
More among females			**NORTH AMERICA** *United States*: C Edelbrock 1980:216* (ages 12-16); KA Tyler & Bersani 2008:243		

20.5.2.3 Peripheralization

Peripheralization refers to the tendency for individuals to leave their natal social group and then join age-mates on the "periphery" of the natal social group. This form of migration usually occurs around the time that animals reach puberty and normally last through early adulthood. As adults, these peripheralized animals often eventually establish mixed-sex sex groups of their own or they fight with and eventually replace the dominant male in a neighboring social group.

Evidence of sex differences in the peripheralization phenomenon is presented in Table 20.5.2.3. One can see that the relevant literature has

(a) involved various species of primates, and (b) consistently found it to be predominantly a male characteristic. As noted above, some have suggested that gang membership is a human manifestation of what is termed *peripheralization* in other primate species.

Table 20.5.2.3 Peripheralization among non-humans.

Nature of difference			*Post-pubertal*		*Wide age range*
			Adolescent	*Adult*	
More among males			**PRIMATE** *Japanese Macaque*: Hazama 1964; *Olive Baboon*: Packer 1975; *Rhesus Macaque*: Koford 1963; Boelkins & Wilson 1972; Drickamer & Vessey 1973; *Stumptail Macaque*: Nieuwenhuijsen et al. 1988; *Toque Macaque*: Dittus 1975	**PRIMATE** *Howler Monkey*: MR Clarke 1990 (forced out of troop by older adults, young)	**PRIMATE** *Baboon*: KR Hall 1963; DeVore & Hall 1965; Rowell 1969; Stoltz & Saayman 1970; WJ Hamilton et al. 1975; CM Anderson 1981; Ransom 1981; Rasmussen 1981; DA Collins 1984; Rasmussen 1985; LH Watson 1985; Lejeune 1986; Bercovitch 1988; DJ Brand 1994; Cowlishaw 1995; Noe & Shuijter 1995; Kenyatta 1995; Henzi & Lycett 1995; Sapolsky 1996; Bentley-Condit & Smith 1997; *Langur*: Gartlan & Brain 1968; *Rhesus Macaque*: Lindburg 1969; Sade 1980
Not significant					
More among females					

20.5.2.4 Moving Away from Where One Grew Up

Two studies were located that compared the sexes regarding how far away individuals moved from where they grew up. As shown in Table 20.5.2.4a, both studies indicated that males move farther away on average than do females.

Table 20.5.2.4a Moving away from where one grew up

Nature of difference			*Post-pubertal*		
			Adolescent	*Adult*	
More among males			**NORTH AMERICA** *United States*: Hewison & Gaillard 1996	**INTERNATIONAL** *Multiple Societies*: Pasternak et al. 1997 (young)	
Not significant					
More among females					

Many studies of non-humans have compared the sexes regarding how far away they moved from their natal home after reaching adolescence or adulthood. In Table 17.1.7.9b, one can see that, for most species, males tend to move further away from where they were raised than was the case for females. Table 20.5.2.4b

20.5.3 Spacing Behavior

Spacing behavior is a term having to do with the distance normally maintained between one individual and another (usually of the same species). This brief section focuses on sex differences in two aspects of spacing behavior.

20.5.3.1 Personal Spacing Behavior in General

Studies of personal spacing behavior are typically based on observations of individuals when they sit or stand regarding how much space exists between them and any other individual. As shown in Table 20.5.3.1, while no sex difference was found among one study of children, for adults and people regardless of age, all the research suggests that males usually maintain greater personal space than do females.

20.5.3.2 Expansive Posturing

While sitting or standing, some people arrange their arms or legs in ways that are wide apart, thus occupying considerably more space than other people. They are said to exhibit *expansive posturing*. As shown in Table 20.5.3.2, the available research indicates that males exhibit more expansive posturing than do females.

Table 20.5.2.4b Moving away from where one grew up among non-humans.

Nature of difference			*Post-pubertal*		*Wide age range*
			Adolescent	*Adult*	
More among males			**CANINE** *Spotted Hyena*: Goymann et al. 2001 **PRIMATE** *Baboon*: KR Hall 1965; Rowell 1972:42; Rudran 1973; Dunbar & Dunbar 1975; Hausfater 1975; Packer 1979; Hausfater et al. 1982; *Blue Monkey*: Rudran 1978; *Capuchin Monkey*: Oppenheimer 1968; *Colobus Monkey*: Oates 1977; *Howler Monkey*: NJ Scott et al. 1978; Rudran 1979; *Japanese Macaque*: Kawai 1958; Lindburg 1969; Simonds 1973; Angst 1975; Sugiyama 1976; Dittus 1977; *Langur*: Poirier 1969; Hrdy 1977; *Lemur*: Budnitz & Dainis 1975; *Mangabey Monkey*: Struhsaker & Leland 1979; *Olive Baboon*: C Packer 1975; *Red-tail Monkey*: Struhsaker 1977; *Rhesus Macaque*: Sade 1972; Sade 1967; Lindburg 1969; Boelkins & Wilson 1972; Drickamer & Vessey 1973; Tilford 1982; Meikle et al. 1984:176; *Spider Monkey*: Symington 1987 **UNGULATE** *Red Deer*: Clutton-Brock et al. 1968:460	**PRIMATE** *Japanese Macaque*: Kawai & Yoshiba 1968 (young); Sugiyama 1976 (young)	
Not significant					
More among females			**PRIMATE** *Spider Monkey*: Fedigan & Baxter 1984; F White 1986; Symington 1987; CA Chapman et al. 1989		**PRIMATE** *Chimpanzee*: Van Lawick-Goodall 1973:6

Table 20.5.3.1 Personal spacing behavior in general

Nature of difference	*Pre-pubertal*		*Post-pubertal*		*Wide age range*
		Child		*Adult*	
More among males				**NORTH AMERICA** *United States*: JC Baxter 1970; M Davis & Weitz 1981:86 (undergrad) **INTERNATIONAL** *Multiple Countries*: Hewes 1957	**EUROPE** *Germany*: Wex 1979 **NORTH AMERICA** *United States*: Hewes 1957; E Goffman 1959; NM Henley 1977 **OVERVIEW** *Meta-Analysis*: J Hall 1984 (d = .56 when approached by others, d = .95 when approaching others)
Not significant		**NORTH AMERICA** *United States*: Melson 1977 (play territory)			
More among females					

Table 20.5.3.2 Expansive posturing

Nature of difference					*Wide age range*
More expansive among males					**NORTH AMERICA** *United States*: Collett & Marsh 1974; Aries 1982 (sitting); Cashdan 1998 (standing) **INTERNATIONAL** *Multiple Societies*: Hewes 1957 (sitting) **OVERVIEW** *Literature Review*: La France & Mayo 1979; *Meta-Analysis*: J Hale 1984 (d = 1.04)
Not significant					
More expansive among females					

21 Sex Stereotypes

A *sex stereotype* is a belief (or an assumption) that one sex exhibits a particular trait to a greater degree than the other sex. Sometimes the term is only applied to traits that are considered *false*, rather than those that happen to be true. In this case, the statement "Men are taller than women" would not be considered a stereotype (since it appears to be true in all know societies and periods of time, at least among adults – see Chapter 1.) However, for less well-established statements about average male-female differences, such as those having to do with cognition, emotions, personality, and behavior, separating true stereotypes from false stereotypes can be very difficult.

The study of sex stereotypes has a long history in the social sciences, dating back to the 1930s. Researchers have tried to assess not only the nature and stability of sex stereotypes, but also how well sex stereotypes correspond to *actual* sex differences (Swim 1994).

This chapter presents a review of findings regarding a wide array of sex stereotypes. The review is presented in a table-based format similar to the formatting for the rest of the book. The age ranges that are cited pertain to the individuals who were sampled, not the sex being stereotyped. In other words, if adults were surveyed about their beliefs regarding whether a particular type of toy was more likely to be chosen by boys than by girls, the study would be listed under adults.

21.1 General Aspects of Sex Stereotypes

Large numbers of potential sex stereotypes have been examined. Before presenting them one by one, research findings regarding sex differences and some fairly general information about sex stereotyping will be summarized.

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21.1.1 Sex Stereotypes in General

Considerable research has been conducted over the years on how people of both sexes think of males and females compare, particularly regarding differences in behavior and preferences. When sex differences are widely recognized by people in a given society, they are often referred to as *sex stereotypes*.

It is obviously unrealistic to expect people in any society to agree 100% about how males and females differ on average in any respect. Therefore, when social scientists conduct surveys on sex stereotypes, they often used a cut-off of 75% (Hosoda & Stone 2000:1284). In other words, at least 75% of research participants should agree that one sex has (or should have) a trait to a greater degree than the other sex in order for the trait to be considered a sex stereotype. Thus, while the term *stereotype* is often used in everyday discourse as being an *in*accurate depiction of something, in scientific research, stereotypes are usually considered any belief about people that are not based on specific scientific evidence.

21.1.1.1 Sex Stereotype About Being Feminine

A few studies have sought to determine if sex differences exist in people's perceptions of femininity. Table 21.1.1.1 shows that, as one would expect, females are perceived as being more feminine than males.

Table 21.1.1.1 Sex stereotype about being feminine

Nature of stereotype			*Post-pubertal*		
				Adult	
Males stereotyped as more					
No significant difference					
Females stereotyped as more				**EUROPE** *Norway*: JE Williams & Best 1977 (effeminate, college) **NORTH AMERICA** *United States*: Sherriffs & McKee 1957:453 (college); Werner & LaRussa 1985 (effeminate, college); Hosoda & Stone 2000:1289 (college) **INTERNATIONAL** *Multiple Countries*: JE Williams et al. 1999:519 (92%)	

21.1.1.2 Sex Stereotype About Being Masculine

As with femininity, some studies of stereotyping have also investigated whether males or females are considered more masculine. As shown in Table 21.1.1.2, all the research has shown that males are stereotyped as being more masculine than females.

Table 21.1.1.2 Sex stereotype about being masculine

Nature of stereotype				*Post-pubertal*	
				Adult	
Males stereotyped as more				**EUROPE** *Germany*: Wilde & Diekman 2005*; *Spain*: Lopez-Zafra et al. 2008; Lopez-Zafra & Garcia-Retamero 2012 **NORTH AMERICA** *United States*: Werner & LaRussa 1985 (college); Diekman & Eagly 2000; Hosoda & Stone 2000:1289 (college); Diekman et al. 2005; Wilde & Diekman 2005* **INTERNATIONAL** *Multiple Countries*: JE Williams et al. 1999:519 (96%)	
No significant difference					
Females stereotyped as more					

21.1.1.3 Sex Stereotype About Preferring Feminine Toys

Do people assume females will like feminine toys more than males will? Two studies asked adults what types of toys young boys and girls would most like to play with. Table 21.1.1.3 reveals that both studies concluded that most people believe or assume that females have a stronger preference for feminine toys.

Table 21.1.1.3 Sex stereotype about preferring feminine toys

Nature of stereotype	*Pre-pubertal*				
	Infant/toddler				
Males stereotyped as preferring feminine toys more					
No significant difference thought to exist					
Females stereotyped as preferring feminine toys more	**NORTH AMERICA** *United States*: Pomerleau et al. 1990 (toys adults would offer to toddlers); Campenni 1999 (toys that would be liked the most by toddlers)				

21.1.1.4 Sex Stereotype About Preferring Masculine Toys

Do people assume males will like masculine toys (such as trucks) more than females will? To find out, one study, asked adults what types of toys young boys and girls would most like to play with, while another study observed the types of toys offered by adults to young children. As shown in Table 21.1.1.4, both studies concluded that most people believe that

Table 21.1.1.4 Sex stereotype about preferring masculine toys

Nature of stereotype	*Pre-pubertal*					
	Infants/Toddlers					
Males stereotyped as preferring masculine toys more	**NORTH AMERICA** *United States*: Pomerleau et al. 1990 (toys adults would offer to toddlers); Campenni 1999 (toys that would be liked the most by toddlers)					
No significant difference thought to exist						
Females stereotyped as preferring masculine toys more						

most boys would prefer to play with masculine toys and that most girls would prefer feminine toys.

21.1.1.5 Sex Stereotype Regarding the Extent to Which Males and Females Differ

In a few surveys, people were asked to rate the extent to which they perceive the sexes to be different or essentially the same. Findings from this stereotype are summarized in Table 21.1.1.5. One can see that the findings have been mixed regarding any sex differences in these estimates.

Table 21.1.1.5 Sex stereotype regarding the extent to which males and females differ

Nature of stereotype			*Post-pubertal*		*Wide age range*
				Adult	
Greater differences perceived by males				**NORTH AMERICA** *United States*: Frey & Ruble 1992 **INTERNATIONAL** *Multiple Countries*: Williams & Best 1982	
Not significant					**MIDDLE EAST** *Israel*: Kulik 2002 (about occupations) **NORTH AMERICA** *United States*: BA Riemer & Visio 2003 (about sports)
Greater differences perceived by females				**NORTH AMERICA** *United States*: Sherriffs & Jarrett 1953; Babladelis 1973 (college)	

21.1.2 Comparing Males and Females Regarding Sex Stereotypes

Some studies have assessed the possibility that one sex receives more positive stereotypes than does the other sex. Other studies have compared males and females regarding the amount of stereotyping each does. Findings from these types of studies are summarized below.

21.1.2.1 Positive (versus Negative) Sex Stereotypes

Six studies were located that sought to assess whether more positive (or favorable) sex stereotypes pertained to males or to females. As shown in Table 21.1.2.1, these studies all indicate that people generally held more favorable (less negative) stereotypes toward females than toward males.

Table 21.1.2.1 Positive versus negative sex stereotypes

Nature of stereotype				*Post-pubertal*	
				Adult	
More male stereotypes were positive (favorable)					
No significant difference					
More female stereotypes were positive (favorable)				**NORTH AMERICA** *United States*: Werner & LaRussa 1985; Eagly & Mladinic 1989; Eagly et al. 1991; Eagly & Mladinic 1994; Haddock & Zanna 1994; Hosoda & Stone 2000 (college, less negative); Laditka et al. 2004:416 (undergrad)	

21.1.2.2 Sex Differences in Sex Stereotyping

Two studies asked people which sex they thought were more likely to subscribe to or express sex stereotypes. As shown in Table 21.1.2.2, both studies indicated that males were thought to do so more than females.

21.1.2.3 Trends in the Degree to Which the Sexes Are Stereotyped

Are males and females stereotyped more or less strongly today than in the past? Researchers have been able to empirically address this question by comparing people's responses to essentially the same questionnaire items that were used to measure stereotypes in recent years with responses that were given as far back as the 1950s and 1960s.

As a backdrop to these comparisons, it is worth mentioning that most social scientists believe that sex role behavior (upon which most sex

Table 21.1.2.2 Sex differences in sex stereotyping

Nature of stereotype				*Post-pubertal*	
				Adult	
Males express more stereotypes				**EUROPE** *The Netherlands*: JJ Endendijk et al. 2014:101 (adults, N = 304 families with 2-year-old and 4-year-old children) **NORTH AMERICA** *United States*: Peplau, Hill & Rubin 1993 (college)	
No significant difference					
Females express more stereotypes					

stereotypes are thought to be based) is largely learned behavior (Wood & Eagly 2002). If so, individuals in liberal sex role countries (e.g., most Western countries) should be less prone toward sex stereotyping than individuals living in ridged sex role cultures (Croft et al. 2015). Also, within Western societies, most social scientists have assumed that the strength of sex stereotypes would have diminished somewhat in recent years. This expectation has come from noting that Western countries have experienced increased emphasis on sex equality in employment and in political legislation in recent decades.

The evidence bearing on trends in sex stereotyping is summarized in Table 21.1.2.3. One can see that nearly all of these studies have concluded that the proportions of people who stereotype the sexes in various ways do not appear to have changed significantly, and one study actually reported a slight overall *increase* in the extent to which males and females are stereotyped, at least in the United States.

21.2 Specific Sex Stereotypes

Research findings regarding specific sex stereotypes will now be given consideration. They are subsumed under a number of categories, ranging from physical abilities and health to people's attitudes and interests, their cognitive abilities, their emotions, and of course their behavior.

21.2.1 Sex Stereotypes Regarding Physical and Athletic Traits

Some research has assessed people's stereotypes regarding sex differences in physical and athletic abilities and traits. Results from these studies are summarized below.

Table 21.1.2.3 Trends in the degrees to which the sexes are stereotyped

Nature of stereotype			*Post-pubertal*		*Wide age range*
			Adolescent	*Adult*	
Increase in recent decades				**NORTH AMERICA** *United States*: Haines, Deaux & Lofaro 2016 (1983-2014)	
No significant changes			**NORTH AMERICA** *United States*: DE Bush et al. 1978 (1968-1975)	**EUROPE** *Germany*: Wilde & Diekman 2005*; *Norway*: Bjerke et al. 1989 (1977-1987) **NORTH AMERICA** *United States*: Helmreich 1982:160 (1952-1980); RO Baldwin 1984 (1970-1981); DeLisi & Soundranayagam 1990; Lueptow et al. 1995:524 (1974-1991, possibly a slight increase); Hosoda & Stone 2000 (college); Lueptow, Garovich-Szabo & Lueptow 2001:16 & 20-21 (1974-1997); Wilde & Diekman 2005* **OVERVIEW** *Literature Review*: LB Lueptow, Garovich-Szabo & Lueptow 2001:11 (review of 15 studies)	**NORTH AMERICA** *United States*: Neufeld et al. 1974 (1950-1970); Der-Karabetian & Smith 1977:193 (1965-1975); ME Heilman, Block al. 1989 (1980-1988); Bergen & Williams 1991:422 (r = .90 between 1972-1988)
Decrease in recent decades					

21.2.1.1 Sex Stereotype About Being More Athletic in General

Is one sex regarded as more athletic? Table 21.2.1.1 lists the only study found that examined which sex is stereotyped as being more athletic. This study found that males were stereotyped as more athletic.

Table 21.2.1.1 Sex stereotype about being more athletic in general

Nature of stereotype			*Post-pubertal*		
			Adolescent		
Males stereotyped as more			**NORTH AMERICA** *United States*: Luepton et al. 2001:19		
No significant difference					
Females stereotyped as more					

21.2.1.2 Sex Stereotype About Gymnastics and Aerobics Participation

Do people assume people participating in gymnastics and aerobics are of a particular sex? Table 21.2.1.2 shows the results of the only study located that examined this question. This study found that females were more stereotyped in this manner.

Table 21.2.1.2 Sex stereotype about gymnastics and aerobics participation

Nature of stereotype			*Post-pubertal*		
			Adolescent		
Males stereotyped as more					
No significant difference					
Females stereotyped as more			**NORTH AMERICA** *United States*: BA Riemer & Visio 2003:200		

21.2.1.3 Sex Stereotype About Participating in Hockey

Do people assume one sex is more likely to play hockey than the other? As indicated in Table 21.2.1.3, one study found that males were more often stereotyped as playing hockey.

21.2.1.4 Sex Stereotype About Being Graceful

Is one sex stereotyped as moving in a smooth and pleasing manner? Table 21.2.1.4 lists three studies finding that people think females are more graceful than males.

Table 21.2.1.3 Sex stereotype about participating in hockey

Nature of stereotype			*Post-pubertal*		
			Adolescent		
Males stereotyped as more			**NORTH AMERICA** *United States*: BA Riemer & Visio 2003:200		
No significant difference					
Females stereotyped as more					

Table 21.2.1.4 Sex stereotype about being graceful

Nature of stereotype			*Post-pubertal*		
			Adolescent		
Males stereotyped as more					
No significant difference					
Females stereotyped as more			**EUROPE** *Norway*: JE Williams & Best 1977; Deaux & Lewis 1983; Hosoda & Stone 2000:1289 (pleasant, undergrad)		

21.2.1.5 Sex Stereotype About Being Physically Attractive

Is one sex assumed to be more attractive? Table 21.2.1.5 lists a number of studies that have attempted to answer this question. These studies found that people consider females to be more attractive or beautiful than males.

Table 21.2.1.5 Sex stereotype about being physically attractive

Nature of stereotype			*Post-pubertal*		
			Adolescent	*Adult*	
Males stereotyped as more					
No significant difference					
Females stereotyped as more			**EUROPE** *Sweden*: Intons-Peterson 1988:67-69* **NORTH AMERICA** *United States*: Intons-Peterson 1988:67-69*	**NORTH AMERICA** *United States*: Oliver-Rodriguez et al. 1999:179 (female face more attractive according to both sex); Hosoda & Stone 2000:1289 (undergrad); de Munck et al. 2002:238* **OCEANIA** *Sri Lanka*: de Munck et al. 2002:238* **INTERNATIONAL** *Multiple Countries*: JE Williams et al. 1999:519 (86%)	

21.2.1.6 Sex Stereotype About Being Physically Strong

Is one sex assumed to have greater physical strength than the other? Table 21.2.1.6 indicates that people assume males have greater physical strength.

Table 21.2.1.6 Sex stereotype about being physically strong

Nature of stereotype			*Post-pubertal*		
			Adolescent	*Adult*	
Males stereotyped as more				**NORTH AMERICA** *United States*: Csigma et al. 1988 (college, male-typical); Koivula 1995 (male-typical)	
No significant difference			**NORTH AMERICA** *United States*: Riemer & Visio 2003 (typical for either sex)		
Females stereotyped as more					

21.2.1.7 Sex Stereotype About Participating in Soccer

Is the sport of soccer sex stereotyped? As shown in Table 21.2.1.7, several studies located about participating in soccer found differing results. Two studies found that males were assumed to participate in soccer more, but the third study found no significant difference.

Table 21.2.1.7 Sex stereotype about participating in soccer

Nature of stereotype			*Post-pubertal*		
			Adolescent		
Males stereotyped as more			**NORTH AMERICA** *United States*: BA Riemer & Visio 2003:200		
No significant difference					
Females stereotyped as more					

21.2.1.8 Sex Stereotype About Participating in Wrestling

Do people assume that a wrestler will be one particular sex? One study, listed in Table 21.2.1.8, concluded that wrestlers were stereotyped as being male.

Table 21.2.1.8 Sex stereotype about participating in wrestling

Nature of stereotype	*Post-pubertal*
	Adolescent
Males stereotyped as more	**NORTH AMERICA** *United States*: BA Riemer & Visio 2003:200
No significant difference	
Females stereotyped as more	

21.2.2 Sex Stereotypes Regarding Health

Some studies of how people stereotype males and females regarding various health conditions have been published. The results are summarized in the following tables.

21.2.2.1 Sex Stereotype About Life Expectancy

Do people assume one sex will live longer? Table 21.2.2.1 lists two studies on this topic. Both of these studies found that people assume females will live longer on average than males.

Table 21.2.2.1 Sex stereotype about life expectancy

Nature of stereotype				*Post-pubertal*	
				Adult	
Males stereotyped as living longer					
No significant difference					
Females stereotyped as living longer				**NORTH AMERICA** *United States*: de Munck et al. 2002:246* **OCEANIA** *Sri Lanka*: de Munck et al. 2002:246*	

21.2.2.2 Sex Stereotype About Being Ill More Often

Do people stereotype the members of one sex as sickly more than the other sex? As seen in Table 21.2.2.2, studies have reached opposite conclusions regarding people's stereotypes surrounding which sex is most likely to be ill or most frequently ill.

Table 21.2.2.2 Sex stereotype about being ill more often

Nature of stereotype				*Post-pubertal*	
				Adult	
Males stereotyped as more				**NORTH AMERICA** *United States*: Sherriffs & McKee 1957:453 (by college students)	
No significant difference					
Females stereotyped as more				**EUROPE** *Britain*: S Macintyre et al. 1999 (by physicians); Hosoda & Stone 2000:1289 (physically weak, undergrad)	

21.2.2.3 Sex Stereotype About Being Accident Prone

Do people assume one sex is more likely to have accidents? The only study located on the stereotype of being accident prone is listed in Table 21.2.2.3. This study found that males are stereotyped as having more accidental injuries than females.

Table 21.2.2.3 Sex stereotype about being accident prone

Nature of stereotype			*Post-pubertal*	
			Adult	
Males stereotyped as having more			**EUROPE** *Britain*: S Macintyre et al. 2005:463	
Not significant				
Females stereotyped as having more				

21.2.2.4 Sex Stereotype About Having More Coronary Heart Disease

Is heart disease thought to be a bigger problem for one sex? Table 21.2.2.4 shows that the research located concluded that males are perceived as more likely than females to suffer from coronary heart disease.

21.2.3 Sex Stereotypes About Toy Preferences

How appropriate are various types of toys for boys and girls? Some research has examined this question with regard to a variety of toys. Findings are reviewed below.

Table 21.2.2.4 Sex stereotype about having more coronary heart disease

Nature of stereotype				*Post-pubertal*	
				Adult	
Males stereotyped as more				**EUROPE** *Britain*: Emslie et al. 2001a; S Macintyre et al. 2005:463 **NORTH AMERICA** *United States*: Ruston et al. 1998; Emslie et al. 2001b	
No significant difference					
Females stereotyped as more					

21.2.3.1 Sex Stereotype Regarding Preferences for Feminine Toys in General

A few studies were located pertaining to sex differences in children's preferences for feminine toys according to the judgments of adults. One can see in Table 21.2.3.1 that all of these studies concluded that girls would be more likely to desire or play with feminine toys. Examples of feminine toys were dolls, doll carriages, toy cooking appliances, and toy makeup kits.

Table 21.2.3.1 Sex stereotype regarding preferences for playing with feminine toys

Nature of stereotype				*Post-pubertal*	
				Adult	
Males stereotyped as more					
No significant difference					
Females stereotyped as more				**NORTH AMERICA** *Canada*: Serbin et al. 2001; *United States*: Kutner & Levinson 1978; Ungar 1982; K Reynolds 1994; Blackemore & Centers 2005 (college)	

21.2.3.2 Sex Stereotype Regarding Preferences for Masculine Toys in General

Studies that sought to assess adult stereotypes about feminine children toy preferences also examined masculine toy preferences. Table 21.2.3.2 shows that all these investigations concluded that boys would be more interested in and inclined to play with masculine toys. Prominent examples of masculine toys were toy cars and trucks, firefighting and superhero costumes and equipment, toy trains and airplanes, and footballs (Blackemore & Center 2005).

Table 21.2.3.2 Sex stereotype regarding preferences for playing with masculine toys

Nature of stereotype			*Post-pubertal*		
				Adult	
Males stereotyped as more				**NORTH AMERICA** *Canada*: Serbin et al. 2001; *United States*: Kutner & Levinson 1978; Ungar 1982; K Reynolds 1994; Blackemore & Centers 2005 (college)	
No significant difference					
Females stereotyped as more					

21.2.3.3 Sex Stereotype Regarding Preferences for Playing with Darts

One study asked adults whether playing a game of darts (dart throwing) would be more appropriate for one sex than for the other. As shown in Table 21.2.3.3, most respondents stated that this particular game would be more appropriate for boys.

Table 21.2.3.3 Sex stereotype regarding preferences for playing with darts

Nature of stereotype			*Post-pubertal*		
				Adult	
Males stereotyped as more				**NORTH AMERICA** *United States*: CJ Miller 1987:482 (appropriate for children, N = 100)	
No significant difference					
Females stereotyped as more					

21.2.3.4 Sex Stereotype Regarding Preferences for Playing with Dolls

Adults have been asked if playing with dolls was more suitable for boys or girls because one sex preferred to play with dolls. The two studies asking this question are presented in Table 21.2.3.4. They found that the research participants thought it was more appropriate for girls to play with dolls.

21.2.3.5 Sex Stereotype Regarding Preferences for Playing with Electric Trains

The two studies presented in Table 21.2.3.5 investigated people's stereotypes regarding sex differences in preferring to play with electric trains. According to both studies, this type of play was considered more appropriate or typical for boys than for girls.

Table 21.2.3.4 Sex stereotype regarding preferences for playing with dolls

Nature of stereotype			*Post-pubertal*		
				Adult	
Males stereotyped as more					
No significant difference					
Females stereotyped as more				**NORTH AMERICA** *United States*: CJ Miller 1987:482 (dolls and doll stroller, appropriate for children, N = 100); Blackemore & Centers 2005 (college)	

Table 21.2.3.5 Sex stereotype regarding preferences for playing with electric trains

Nature of stereotype			*Post-pubertal*		
				Adult	
Males stereotyped as more				**NORTH AMERICA** *United States*: CJ Miller 1987:482 (appropriate for children, N = 100); Blackemore & Centers 2005 (college)	
No significant difference					
Females stereotyped as more					

21.2.3.6 Sex Stereotype Regarding Preferences for Playing with Footballs

Two studies asked research participants if boys or girls are more likely to prefer playing with a football. Table 21.2.3.6 shows that males are stereotyped as preferring to play with such a toy than are females.

Table 21.2.3.6 Sex stereotype regarding preferences for playing with footballs

Nature of stereotype			*Post-pubertal*		
				Adult	
Males stereotyped as more				**NORTH AMERICA** *United States*: CJ Miller 1987:482 (appropriate for children, N = 100); Blackemore & Centers 2005 (college)	
No significant difference					
Females stereotyped as more					

21.2.3.7 Sex Stereotype Regarding Preferences for Playing with an Iron/Ironing Board

The study presented in Table 21.2.3.7 asked respondents if boys or girls were more likely to prefer playing with an iron and ironing board. It concluded that adults thought girls would be more likely to make such choices.

Table 21.2.3.7 Sex stereotype regarding preferences for playing with an iron/ironing board

Nature of stereotype			*Post-pubertal*		
				Adult	
Males stereotyped as more					
No significant difference					
Females stereotyped as more				**NORTH AMERICA** *United States*: CJ Miller 1987:482 (appropriate for children, N = 100)	

21.2.3.8 Sex Stereotype Regarding Preferences for Jumping Rope

Is the behavior of jumping rope thought to be an activity more preferred by one sex than by the other? Table 21.2.3.8 shows that the only pertinent study found that females were stereotyped as preferring to jump rope.

Table 21.2.3.8 Sex stereotype regarding preferences for jumping rope

Nature of stereotype			*Post-pubertal*		
				Adult	
Males stereotyped as more					
No significant difference					
Females stereotyped as more				**NORTH AMERICA** *United States*: CJ Miller 1987:482 (appropriate for children, N = 100)	

21.2.3.9 Sex Stereotype Regarding Preferences for Playing with Model Airplanes

Do people think it is more appropriate for one sex to play with model airplanes? The one study asking this question of adults is presented in Table 21.2.3.9. It revealed that males were stereotyped as preferring to play with model airplanes.

Table 21.2.3.9 Sex stereotype regarding preferences for playing with model airplanes

Nature of stereotype			*Post-pubertal*		
				Adult	
Males stereotyped as more				**NORTH AMERICA** *United States*: CJ Miller 1987:482 (appropriate for children, N = 100)	
No significant difference					
Females stereotyped as more					

21.2.3.10 Sex Stereotype Regarding Preferences for Playing with Model Cars and Trucks

Two studies asked subjects if they thought one sex had a greater preference for playing with model cars and trucks. Table 21.2.3.10 shows that both of these studies concluded that people expected boys to prefer playing with model cars and trucks.

Table 21.2.3.10 Sex stereotype regarding preferences for playing with model trucks

Nature of stereotype			*Post-pubertal*		
				Adult	
Males stereotyped as more				**NORTH AMERICA** *United States*: CJ Miller 1987:482 (appropriate for children, N = 100); Blackemore & Centers 2005 (college)	
No significant difference					
Females stereotyped as more					

21.2.3.11 Sex Stereotype Regarding Preferences for Playing with Tea Sets

The one study of a stereotype regarding a preference for playing with tea sets is listed in Table 21.2.3.11. It found that the stereotype applied to girls more than boys.

21.2.3.12 Sex Stereotype Regarding Preferences for Playing with Toy Guns

One study asked adults if they thought playing with toy guns was more appropriate for boys or girls. Table 21.2.3.12 shows that this study found adults thought it was more appropriate for boys to play with toy guns.

Table 21.2.3.11 Sex stereotype regarding preferences for playing with tea sets

Nature of stereotype			*Post-pubertal*		
				Adult	
Males stereotyped as more					
No significant difference					
Females stereotyped as more				**NORTH AMERICA** *United States*: CJ Miller 1987:482 (appropriate for children, N = 100)	

Table 21.2.3.12 Sex stereotype regarding preferences for playing with toy guns

Nature of stereotype			*Post-pubertal*		
				Adult	
Males stereotyped as more				**NORTH AMERICA** *United States*: CJ Miller 1987:482 (appropriate for children, N = 100)	
No significant difference					
Females stereotyped as more					

21.2.4 Sex Stereotypes Regarding People's Overall Interests, Attitudes, and Concerns

Some studies pertaining to how people stereotype males and females regarding certain types of interests. Results are summarized below.

21.2.4.1 Sex Stereotype About Being Agreeable

Two studies asked adults if they thought one sex was more agreeable than the other. Table 21.2.4.1 shows that both studies concluded that females were stereotyped as being agreeable to a greater degree than males.

21.2.4.2 Sex Stereotype About Having Artistic Interests

Is one sex stereotyped as having a greater interest in art than the other? As indicated in Table 21.2.4.2, two studies found that people thought females are more interested in art.

21.2.4.3 Sex Stereotype About Interest in Science and Engineering

Just one study of stereotypes regarding sex differences in science and engineering interests was found. Table 21.2.4.3 shows that it concluded that more males than females were thought to have such interests.

Table 21.2.4.1 Sex stereotype about being agreeable

Nature of stereotype			*Post-pubertal*		
				Adult	
Males stereotyped as more					
No significant difference					
Females stereotyped as more				**INTERNATIONAL** *Multiple Countries*: Lockenhoff et al. 2014; JE Williams, Satterwhite & Best 1999:520 (25 countries, N = 50M + 50F in each country)	

Table 21.2.4.2 Sex stereotype about differences in artistic interests

Nature of stereotype			*Post-pubertal*		
				Adult	
Males stereotyped as more					
No significant difference					
Females stereotyped as more				**NORTH AMERICA** *United States*: Broverman et al. 1972; Nosek et al. 2002	

Table 21.2.4.3 Sex stereotype about interest in science and engineering

Nature of stereotype			*Post-pubertal*		
				Adult	
Males stereotyped as more				**NORTH AMERICA** *United States*: McCauley 1995:237 (college)	
No significant difference					
Females stereotyped as more					

21.2.4.4 Sex Stereotype About Being Concerned with Personal Appearance

Is one sex stereotyped as being more concerned with their personal appearance? Table 21.2.4.4 lists two studies finding that females are thought to be more concerned about personal appearance.

Table 21.2.4.4 Sex stereotype about being concerned with personal appearance

Nature of stereotype			*Post-pubertal*		
			Adolescent		
Males stereotyped as more					
No significant difference					
Females stereotyped as more			**EUROPE** *Sweden*: Intons-Peterson 1988:67-69* **NORTH AMERICA** *United States*: Intons-Peterson 1988:67-69*		

21.2.4.5 Sex Stereotype About Being Interested in Sports

Do people assume that one sex is more interested in sports? Table 21.2.4.5 lists two studies that found research participants were more interested in sports.

Table 21.2.4.5 Sex stereotype about being interested in sports

Nature of stereotype			*Post-pubertal*		
			Adolescent		
Males stereotyped as more			**NORTH AMERICA** *United States*: McCauley 1995:236 (enjoying team sports, college); BA Riemer & Visio 2003:200 (wanting to be a boxer)		
No significant difference					
Females stereotyped as more					

21.2.4.6 Sex Stereotype About Being Concerned for Others

Two studies sought to determine if males or females were stereotyped as being more concerned about the welfare of others? Table 21.2.4.6 shows that both studies indicated that females were stereotyped as being more concerned with the welfare of others.

Table 21.2.4.6 Sex stereotype about being concerned for others

Nature of stereotype				*Post-pubertal*	
				Adult	
Males stereotyped as more					
No significant difference					
Females stereotyped as more				**NORTH AMERICA** *Canada*: CL Martin 1987:492 (being more compassionate); Hosoda & Stone 2000:1289 (college)	

21.2.4.7 Sex Stereotype About Being Concerned for Personal Security and Safety

Do people stereotype one sex worrying more about their personal safety and well-being more than the other sex? The single study located on this matter is shown in Table 21.2.4.7. It found that females were stereotyped as being more concerned than males.

Table 21.2.4.7 Sex stereotype about being concern for personal security and safety

Nature of stereotype				*Post-pubertal*	
				Adult	
Males stereotyped as more					
No significant difference					
Females stereotyped as more				**NORTH AMERICA** *United States*: Broverman et al. 1972	

21.2.4.8 Sex Stereotype About Having Self-Pity

Are the members of one sex stereotyped as feeling sorry for themselves? Two studies listed in Table 21.2.4.8 concluded that people assume females are more prone toward self-pity than are males.

Table 21.2.4.8 Sex stereotype about having self-pity

Nature of stereotype				*Post-pubertal*	
				Adult	
Males stereotyped as more					
No significant difference					
Females stereotyped as more				**NORTH AMERICA** *United States*: Werner & LaRussa 1985 (undergrad); Hosoda & Stone 2000:1289 (undergrad)	

21.2.4.9 Sex Stereotype About Being Opinionated

Three studies sought to determine if males or females were considered to hold stronger opinions. Table 21.2.4.9 shows that all three studies concluded that males were stereotyped as being opinionated to a greater degree than females.

Table 21.2.4.9 Sex stereotype about being opinionated

Nature of stereotype				*Post-pubertal*	
				Adult	
Males stereotyped as more				**NORTH AMERICA** *United States*: Sherriffs & McKee 1957:453 (college); Werner & LaRussa 1985 (college); Hosoda & Stone 2000:1289 (also outspoken, and headstrong, college)	
No significant difference					
Females stereotyped as more					

21.2.4.10 Sex Stereotype About Being Politically Liberal

Are males or females more politically liberal? As indicated in Table 21.2.4.10, all the studies that were located concluded that females are thought to be more liberal than their male counterparts.

Table 21.2.4.10 Sex stereotype about being liberal

Nature of Difference				*Post-pubertal*	
				Adult	
Males stereotyped as more					
Not significant					
Females stereotyped as more				**NORTH AMERICA** *United States*: V Sapiro 1981; D Alexander & Andersen 1993; Huddy & Terkildsen 1993a; Huddy & Terkildsen 1993b; Burrell 1994; McDermott 1997; McDermott 1998; Koch 2000	

21.2.4.11 Sex Stereotype About Being Prejudiced

Two studies asked if adults thought one sex tended to be more prejudiced than the other. Table 21.2.4.11 shows that one of these studies concluded that neither sex was considered to be significantly more prejudice than the other, while the other study found males were more stereotyped as being more prejudiced.

21.2.5 Sex Stereotypes Regarding Cognitive and Intellectual Traits

Considerable research has been conducted on sex stereotypes concerning cognitive and intellectual traits. A summary of the findings appears below.

Table 21.2.4.11 Sex stereotype about being prejudiced

Nature of stereotype			*Post-pubertal*	
				Adult
Males stereotyped as more				**NORTH AMERICA** *United States*: Hosoda & Stone 2000:1289 (college)
No significant difference				**NORTH AMERICA** *United States*: Werner & LaRussa 1985 (college)
Females stereotyped as more				

21.2.5.1 Sex Stereotype About Being Artistic and Creative

Table 21.2.5.1 shows the results of three studies seeking to determine if one sex was stereotyped as being more artistic and creative than the other. All the studies reported that females were stereotyped as being more artistic and creative.

Table 21.2.5.1 Sex stereotype about being artistic and creative

Nature of stereotype			*Post-pubertal*	
				Adult
Males stereotyped as more				
No significant difference				
Females stereotyped as more				**NORTH AMERICA** *United States*: Werner & LaRussa 1985 (college); Boyce & Herd 2003:374; Luepton et al. 2001:19 (creativity)

21.2.5.2 Sex Stereotype About Having Clear Thinking

Is one sex stereotyped as thinking more clearly than the other? The one study located on this topic, listed in Table 21.2.5.2, found that neither sex was perceived to be more clear thinking than the other.

Table 21.2.5.2 Sex stereotype about having clear thinking

Nature of stereotype			*Post-pubertal*	
				Adult
Males stereotyped as more				
No significant difference				**NORTH AMERICA** *United States*: Werner & LaRussa 1985 (college)
Females stereotyped as more				

21.2.5.3 Sex Stereotype About Being Curious

A study asked if one sex was stereotyped as being more curious than the other. In this study, listed in Table 21.2.5.3, curiosity was stereotyped as more characteristic of females than males.

Table 21.2.5.3 Sex stereotype about being curious

Nature of stereotype			*Post-pubertal*		
				Adult	
Males stereotyped as more					
Not significant					
Females stereotyped as more				**NORTH AMERICA** *United States*: Werner & LaRussa 1985 (college)	

21.2.5.4 Sex Stereotype About Being Better at Computers

Are males or females better at computers? According to the available research, summarized in Table 21.2.5.4, people stereotype males as being better.

Table 21.2.5.4 Sex stereotype about being better at computers

Nature of stereotype			*Post-pubertal*		
				Adult	
Males stereotyped as better				**ASIA** *China*: Li & Kirkup 2007* (computer skills, N = 220) **EUROPE** *Britain*: Li & Kirkup 2007* (computer skills, N = 245) **NORTH AMERICA** *United States*: Fetler 1985 (college); S Williams et al. 1993; LJ Francis 1994 (college)	
No significant difference					
Females stereotyped as better					

21.2.5.5 Sex Stereotype About Being More Likely to Use Computers

Several researchers have sought to determine if one sex is thought to use computers more than the other. Table 21.2.5.5 indicates that the use of computers is stereotyped as being more a male than a female trait.

Table 21.2.5.5 Sex stereotype about being more likely to use computers

Nature of stereotype	*Pre-pubertal*		*Post-pubertal*		
		Child	*Adolescent*	*Adult*	
Males stereotyped as more likely		**EUROPE** *Britain*: J Archer & Macrae 1991 (ages 10-11, considered masculine); Brosnan 1999 (inferred from drawings of people using computers)	**EUROPE** *Britain*: G Chivers 1987 **NORTH AMERICA** *United States*: J Whitehead 1996	**EUROPE** *Britain*: Colley et al. 1994; Brosnan & Davidson 1996 **NORTH AMERICA** *United States*: J Whitehead 1996	
No significant difference					
Females stereotyped as more likely					

21.2.5.6 Sex Stereotype About Being Imaginative

Do people believe that one sex is more imaginative than the other? According to one study, cited in Table 21.2.5.6, females were thought to be more so than males.

Table 21.2.5.6 Sex stereotype about being imaginative/inventive

Nature of stereotype			*Post-pubertal*		
				Adult	
Males stereotyped as more					
No significant difference					
Females stereotyped as more				**NORTH AMERICA** *United States*: Werner & LaRussa 1985 (imaginative, college)	

21.2.5.7 Sex Stereotype About Being Intelligent

Is one sex one sex considered to be smarter than the other according to most people, and, if so, which sex? Two relevant studies were located. As shown in Table 21.2.5.7, one study found males being stereotyped as more intelligent, while the other study found no significant difference in how intelligent males and females were perceived.

21.2.5.8 Sex Stereotype About Being Inventive

Do people think one sex is more inventive than the other? In the only study located on this topic, shown in Table 21.2.5.8, subjects said males were more inventive than females.

Table 21.2.5.7 Sex stereotype about differences in intelligence

Nature of stereotype				*Post-pubertal*	
				Adult	
Males stereotyped as more				**NORTH AMERICA** *United States*: Canetto et al. 1995 (elderly)	
No significant difference				**NORTH AMERICA** *United States*: Werner & LaRussa 1985 (college)	
Females stereotyped as more					

Table 21.2.5.8 Sex stereotype about being inventive

Nature of stereotype			*Post-pubertal*		
				Adult	
Males stereotyped as more				**NORTH AMERICA** *United States*: Hosoda & Stone 2000:1289 (inventive, college)	
No significant difference					
Females stereotyped as more					

21.2.5.9 Sex Stereotype About Linguistic or Verbal Ability

Some studies have asked subjects about the relative linguistic or verbal ability of males and females. As shown in Table 21.2.5.9, these studies have found females are stereotyped as having better linguistic or verbal ability.

Table 21.2.5.9 Sex stereotype about linguistic or verbal ability

Nature of stereotype			*Post-pubertal*		
				Adult	
Males stereotyped as better					
No significant difference					
Females stereotyped as better				**EUROPE** *Scotland*: Palardy 1969 (reported by teachers regarding sex differences among children); Eccles, Arberton et al. 1993; M Bennett 2000:26 (college)	

21.2.5.10 Sex Stereotype About Being Logical

A number of studies have examined if people stereotype one sex as being more logical than the other. All the studies shown in Table 21.2.5.10 found that males were stereotyped as being more logical.

Table 21.2.5.10 Sex stereotype about being logical

Nature of stereotype				*Post-pubertal*	
				Adult	
Males stereotyped as more				**NORTH AMERICA** *United States*: Sherriffs & McKee 1957:453 (college); Broverman et al. 1970 (rational); P Johnson 1978; Werner & LaRussa 1985 (college); Hosoda & Stone 2000:1289 (college) **INTERNATIONAL** *Multiple Countries*: JE Williams et al. 1999:519 (79%)	
No significant difference					
Females stereotyped as more					

21.2.5.11 Sex Stereotype About Math Ability

One of the most widely researched sex stereotypes involves math ability. As shown in Table 21.2.5.11, all the available studies have concluded that males are believed to be more capable at math than females.

21.2.5.12 Sex Stereotype About Memory Ability

One study asked if either sex was thought to have a better memory than the other. This study, shown in Table 21.2.5.12, found that people believe that males are better at remembering some things, but females are better at remembering other things. In other words, research participants stereotyped males as being better at remembering directions, and females better at remembering word lists.

21.2.5.13 Sex Stereotype About Music Ability

Is either sex assumed to have a greater ability at music than the other? Table 21.2.5.13 indicates that research participants in one study stereotyped females as having more music ability than males.

21.2.5.14 Sex Stereotype About Being Realistic

Two studies asked subjects if they thought one sex was more realistic than the other. Table 21.2.5.14 shows that one of the two studies concluded that males and females were believed to be virtually equivalent in this regard, but the second study found that males were stereotyped as being more realistic.

Table 21.2.5.11 Sex stereotype about math ability

Nature of stereotype			*Post-pubertal*		*Wide age range*
			Adolescent	*Adult*	
Males stereotyped as more			**ASIA** *Japan*: Tartre & Fennnema 1995 (better at math) **EUROPE** *Switzerland*: C Keller 2001 (better at math) **NORTH AMERICA** *United States*: Ernest 1976; Fennema & Sherman 1976; Fennema & Sherman 1977 **OCEANIA** *Australia*: Iben 1991 (better at math)	**EUROPE** *Germany*: Tiedemann & Faber 1995 (by teachers); Tiedemann 2000 (by teachers); *Scotland*: M Bennett 2000:26 (college); *Sweden*: Brandell et al. 2005 (by parents) **NORTH AMERICA** *United States*: Ernest 1976 (by teachers, boys thought to be "naturally better"); Yee & Eccles 1988 (by parents); Jussim 1989 (by teachers); JS Hyde et al. 1990 (better at math); Jacobs & Eccles 1992; Jussim & Eccles 1992 (by teachers); Tiedemann 2000 (regarding elementary school children); Nosek et al. 2002 (males stereotyped as more interested in math); Kane & Mertz 2012 (being better)	**ASIA** *Japan*: Lummis & Stevenson 1990*; *Taiwan*: Lummis & Stevenson 1990* **NORTH AMERICA** *United States*: Lummis & Stevenson 1990* **OVERVIEW** *Generalization*: Eccles & Wigfield 2002; *Meta-Analysis*: Hyde, Fennema, Ryan et al. 1990 (among adolescents & adults, especially by males)
No significant difference					
Females stereotyped as more					

Table 21.2.5.12 Sex stereotype about memory ability

Nature of stereotype				*Post-pubertal*	
				Adult	
Males stereotyped as better				**NORTH AMERICA** *United States*: M Crawford et al. 1989* (remembering directions)	
No significant difference					
Females stereotyped as better				**NORTH AMERICA** *United States*: M Crawford et al. 1989* (remembering word lists)	

Table 21.2.5.13 Sex stereotype about music ability

Nature of stereotype				*Post-pubertal*	
				Adult	
Males stereotyped as more					
No significant difference					
Females stereotyped as more				**EUROPE** *Scotland*: M Bennett 2000:26 (college)	

Table 21.2.5.14 Sex stereotype about being realistic

Nature of stereotype				*Post-pubertal*	
				Adult	
Males stereotyped as more				**NORTH AMERICA** *United States*: Hosoda & Stone 2000:1289 (college)	
No significant difference				**NORTH AMERICA** *United States*: Werner & LaRussa 1985 (college)	
Females stereotyped as more					

21.2.5.15 Sex Stereotype About Spatial Ability

Three studies examined sex stereotypes regarding spatial ability. As shown in Table 21.2.5.15, all three studies found that males were stereotyped as having a better spatial ability than females.

21.2.5.16 Sex Stereotype About Being Suggestible

Two studies on sex stereotypes about being suggestible are presented in Table 21.2.5.16. One of the studies found no significant difference, and the other found females were stereotyped as being more suggestible.

Table 21.2.5.15 Sex stereotype about spatial ability

Nature of stereotype	*Pre-pubertal*		*Post-pubertal*		*Wide age range*
		Child		*Adult*	
Males stereotyped as better		**EUROPE** *Germany*: Neuburger, Ruthsatz et al. 2013 (better at map reading and building things, among 4th graders, N = 263)		**EUROPE** *Scotland*: M Bennett 2000:26 (undergrad)	**EUROPE** *Netherlands*: KM Vander Heyden et al. 2016:Table 2 (ages 7-13)
No significant difference					
Females stereotyped as better					

Table 21.2.5.16 Sex stereotype about being suggestible

Nature of stereotype			*Post-pubertal*		
				Adult	
Males stereotyped as more					
No significant difference				**NORTH AMERICA** *United States*: Werner & LaRussa 1985 (undergrad)	
Females stereotyped as more				**NORTH AMERICA** *United States*: Hosoda & Stone 2000:1289 (undergrad)	

21.2.5.17 Sex Stereotype About Being Superstitious

Four studies were located on sex stereotypes about being superstitious. Table 21.2.5.17 shows that all of these studies found that females were stereotyped as being more superstitious.

21.2.6 Sex Stereotypes Regarding Emotions and Perceptions

Many studies have been undertaken to assess sex stereotypes having to do with emotionality and perceptual ability. Findings are summarized below.

21.2.6.1 Sex Stereotype About Being Emotional

One of the more frequently studied sex stereotype concerns which sex is more emotionality. Table 21.2.6.1 shows that people believe females to be more emotional than males.

Table 21.2.5.17 Sex stereotype about being superstitious

Nature of stereotype				*Post-pubertal*	
				Adult	
Males stereotyped as more					
No significant difference					
Females stereotyped as more				**NORTH AMERICA** *United States*: Sherriffs & McKee 1957:453 (college); Werner & LaRussa 1985 (college); Hosoda & Stone 2000:1289 (college) **INTERNATIONAL** *Multiple Countries*: JE Williams et al. 1999:519 (87% agreement)	

21.2.6.2 Sex Stereotype About Being Emotionally Expressive

Several studies of sex stereotypes have been conducted pertaining to emotional expressiveness. As shown in Table 21.2.6.2, these studies have all indicated that females are believed to be more emotionally expressive than are males.

21.2.6.3 Sex Stereotype About Being Emotionally Stable

Just one study of sex stereotypes pertaining to emotional stability was located. Table 21.2.6.3 shows that this study concluded that emotional stability was thought to be more common among males than among females.

21.2.6.4 Sex Stereotype About Being Affectionate

Sex differences in tendencies to be affectionate have been investigated in three studies. Table 21.2.6.4 shows that all three agree that females are stereotyped as being more affectionate than males.

21.2.6.5 Sex Stereotype About Being Angry More Often

Table 21.2.6.5 lists studies undertaken to determine if one sex is stereotyped as getting angry more often. Table 21.2.6.5 shows that all of these studies found that people stereotype males as getting angry more often than females.

21.2.6.6 Sex Stereotype About Being More Often Anxious or Worried

Several studies have sought to determine if either sex is stereotyped as more often anxious or worried. As shown in Table 21.2.6.6., all of these studies found that people think females are more anxious or worried.

Table 21.2.6.1 Sex stereotype about being emotional

Nature of stereotype	*Pre-pubertal*		*Post-pubertal*		
	Infant/toddler	*Child*	*Adolescent*	*Adult*	
Males stereotyped as more					
No significant difference					
Females stereotyped as more	**NORTH AMERICA** *United States*: D Kuhn, Nash & Brucken 1978 (toddler)	**NORTH AMERICA** *United States*: Birnbaum et al. 1980 (except for anger); Birnbaum & Chemelski 1984	**EUROPE** *Sweden*: Intons-Peterson 1988:67-69* **NORTH AMERICA** *United States*: Intons-Peterson 1988:67-69*; Kite & Wagner 2002 (emotional and warm)	**NORTH AMERICA** *United States*: Rosenkrantz et al. 1968; Broverman et al. 1972; Hare-Mustin 1983; Ruble 1983; Deaux 1984; MJ Haring & Beyard-Tyler 1984; JP Weiner & Boss 1985; Ashmore et al. 1986; T Bernadez 1987; SA Shields 1987; Fabes & Martin 1991; M Heesacker & Pritchard 1992; Skovholt 1993; DW Wilcox & Forrest 1992; AR Fisher & Good 1994; MD Robinson & Johnson 1997; M Heesacker et al. 1999:492; Fischer & Manstead 2000; Hosoda & Stone 2000:1289 (college) **INTERNATIONAL** *Multiple Countries*: JE Williams & Best 1990; JE Williams et al. 1999:519 (88% agreement)	

Table 21.2.6.2 Sex stereotype about being emotionally expressive

Nature of stereotype				*Post-pubertal*	
				Adult	
Males stereotyped as more					
No significant difference					
Females stereotyped as more				**EUROPE** *Netherlands*: Visser 1996:593 (college); Timmers et al. 2003 (college) **NORTH AMERICA** *United States*: Broverman et al. 1972; Hesselbart 1977 (especially positive emotions); C Kramer 1977 (in communications with others); Ruble 1983; SA Shields 1984b; Werner & LaRussa 1985 (college); JT Johnson & Shulman 1988; Fabes & Martin 1991 (college, especially positive emotions); Dember et al. 1993; M Grossman & Wood 1993 (college)	

Table 21.2.6.3 Sex stereotype about being emotionally stable

Nature of stereotype			*Post-pubertal*	
				Adult
Males stereotyped as more				**INTERNATIONAL** *Multiple Countries*: JE Williams et al. 1999:520
No significant difference				
Females stereotyped as more				

Table 21.2.6.4 Sex stereotype about being affectionate

Nature of stereotype			*Post-pubertal*	
				Adult
Males stereotyped as more				
No significant difference				
Females stereotyped as more				**NORTH AMERICA** *Canada*: CL Martin 1987:492; *United States*: Werner & LaRussa 1985 (college); Hosoda & Stone 2000:1289 (college); Luepton et al. 2001:19 **INTERNATIONAL** *Multiple Countries*: JE Williams et al. 1999:519 (90% agreement)

Table 21.2.6.5 Sex stereotype about being angry more often

Nature of stereotype	*Pre-pubertal*		*Post-pubertal*		*Wide age range*
		Child		*Adult*	
Males stereotyped as more		**NORTH AMERICA** *United States*: Birnbaum et al. 1980; Birnbaum 1983; Birnbaum & Chemelski 1984; Birnbaum & Croll 1984; Karbon et al. 1992		**NORTH AMERICA** *United States*: JT Johnson & Shulman 1988 (young); Fabes & Martin 1991	**NORTH AMERICA** *United States*: Fabes & Martin 1991; Lutz 1996
No significant difference					
Females stereotyped as more					

Table 21.2.6.6 Sex stereotype about being more often anxious or worried

Nature of stereotype			*Post-pubertal*		
				Adult	
Males stereotyped as more					
No significant difference					
Females stereotyped as more				**NORTH AMERICA** *United States*: Werner & LaRussa 1985 (college); Stavosky & Borkovec 1987 (worrying); Hosoda & Stone 2000:1289 (college) **INTERNATIONAL** *Multiple Countries*: JE Williams et al. 1999:519 (77% agreement)	

21.2.6.7 Sex Stereotype About Being Calm

One study of sex stereotypes having to do with being relatively calm was located. Table 21.2.6.7 shows that it found no significant perceived sex differences in this particular trait.

Table 21.2.6.7 Sex stereotype about being calm

Nature of stereotype			*Post-pubertal*		
				Adult	
Males stereotyped as more					
No significant difference				**NORTH AMERICA** *United States*: Werner & LaRussa 1985 (college)	
Females stereotyped as more					

21.2.6.8 Sex Stereotype About Being Cheerful

The three studies listed in Table 21.2.6.8 sought to determine if either sex was stereotyped as being more cheerful. All of these studies found that people thought females were more cheerful than males.

Table 21.2.6.8 Sex stereotype about being cheerful

Nature of stereotype			*Post-pubertal*		
				Adult	
Males stereotyped as more					
No significant difference					
Females stereotyped as more				**NORTH AMERICA** *United States*: Werner & LaRussa 1985 (college); Hosoda & Stone 2000:1289 (college); Boyce & Herd 2003:373	

21.2.6.9 Sex Stereotype About Being Cowardly

The one study located on the stereotype of being cowardly is presented in Table 21.2.6.9. The research participants in this study were more likely to stereotype males as cowardly.

Table 21.2.6.9 Sex stereotype about being cowardly

Nature of stereotype			*Post-pubertal*		
				Adult	
Males stereotyped as more				**EUROPE** *Norway*: JE Williams & Best 1977 (college)	
Not significant					
Females stereotyped as more					

21.2.6.10 Sex Stereotype About Crying

Do people think one sex cries more than the other? The three studies listed in Table 21.2.6.10 all found that females are stereotyped as crying more than males.

21.2.6.11 Sex Stereotype About Being Depressed or Sad

Is one sex thought to be more depressed or sad than the other? Table 21.2.6.11 shows that all the studies on the sex stereotype of being depressed or sad found that females were more often stereotyped as having these traits.

Table 21.2.6.10 Sex stereotype about crying

Nature of stereotype	*Post-pubertal*	
	Adult	
Males stereotyped as more		
Not significant		
Females stereotyped as more	**NORTH AMERICA** *United States*: Broverman et al. 1972; Kuhn et al. 1978 (toddler, adult raters); Hosoda & Stone 2000:1289 (fussy, college)	

Table 21.2.6.11 Sex stereotype about the emotion of depression or sadness

Nature of stereotype	*Pre-pubertal*	*Post-pubertal*	*Wide age range*
	Child	*Adult*	
Males stereotyped as more			
No significant difference			
Females stereotyped as more	**NORTH AMERICA** *United States*: Birnbaum et al. 1980; Birnbaum 1983 (sad more often); Birnbaum & Chemelski 1984 (sad); Birnbaum & Croll 1984 (sad)	**NORTH AMERICA** *United States*: Brody & Hall 1993; EA Plant et al. 2000	**NORTH AMERICA** *United States*: Fabes & Martin 1991 (sadness); JT Spence & Buckner 2000 (emotionally expressive of sadness)

21.2.6.12 Sex Stereotype About Being Enthusiastic

Is one sex thought to be more enthusiastic than the other? The only study located on the sex stereotype of being enthusiastic, presented in Table 21.2.6.12, found that females were thought to be more enthusiastic than males.

Table 21.2.6.12 Sex stereotype about being enthusiastic

Nature of stereotype	*Post-pubertal*	
	Adult	
Males stereotyped as more		
No significant difference		
Females stereotyped as more	**NORTH AMERICA** *United States*: Werner & LaRussa 1985 (college)	

21.2.6.13 Sex Stereotype About Being Excitable

One study examined if people thought one sex was more excitable than the other. As indicated in Table 21.2.6.13, this study found that people thought females are more excitable than males.

Table 21.2.6.13 Sex stereotype about being excitable

Nature of stereotype			*Post-pubertal*		
				Adult	
Males stereotyped as more					
No significant difference					
Females stereotyped as more				**NORTH AMERICA** *United States*: Werner & LaRussa 1985 (undergrad)	

21.2.6.14 Sex Stereotype About Being More Fearful

A number of studies have sought to determine if people thought one sex was more fearful than the other. Table 21.2.6.14 reveals that these studies have found that children as well as adults think females are more fearful than males.

Table 21.2.6.14 Sex stereotype about being more fearful

Nature of stereotype	*Pre-pubertal*		*Post-pubertal*		
		Child		*Adult*	
Males stereotyped as more					
No significant difference					
Females stereotyped as more		**NORTH AMERICA** *United States*: Birnbaum et al. 1980; Birnbaum 1983; Birnbaum & Chemelski 1984; Birnbaum & Croll 1984		**NORTH AMERICA** *United States*: Sherriffs & McKee 1957:453 (college); Brody & Hall 1993; Hosoda & Stone 2000:1289 (college); Plant et al. 2000; Boyce & Herd 2003:374 **INTERNATIONAL** *Multiple Countries*: JE Williams et al. 1999:519 (83% agreement)	

21.2.6.15 Sex Stereotype About Being Happier

Three studies of children's stereotypes were located regarding which sex they thought was happier. In Table 21.2.6.15, one can see that all three studies reported children rating females happier than males.

Table 21.2.6.15 Sex stereotype about being happier

Nature of stereotype	*Pre-pubertal*				
		Child			
Males stereotyped as more					
No significant difference					
Females stereotyped as more		**NORTH AMERICA** *United States*: Birnbaum et al. 1980; Birnbaum & Chemelski 1984; Birnbaum & Croll 1984			

21.2.6.16 Sex Stereotype About Being More Hostile

Two studies asked adults if they thought one sex was more hostile than the other. As shown in Table 21.2.6.16, both studies found that research participants thought males were more hostile than females.

Table 21.2.6.16 Sex stereotype about being more hostile

Nature of stereotype			*Post-pubertal*		
				Adult	
Males stereotyped as more				**NORTH AMERICA** *United States*: Werner & LaRussa 1985 (college); Hosoda & Stone 2000:1289 (college)	
No significant difference					
Females stereotyped as more					

21.2.6.17 Sex Stereotype About Being Livelier

Two studies of adolescents asked people which sex they thought were livelier. Table 21.2.6.17 shows that both of these studies found males being rated as the more lively sex.

Table 21.2.6.17 Sex stereotype about being livelier

Nature of stereotype			*Post-pubertal*		
			Adolescent		
Males stereotyped as more			**EUROPE** *Sweden*: Intons-Peterson 1988:67-69* **NORTH AMERICA** *United States*: Intons-Peterson 1988:67-69*		
No significant difference					
Females stereotyped as more					

21.2.6.18 Sex Stereotype About Being More Lovable

Two studies concerning which sex was perceived to be more lovable are presented in Table 21.2.6.18. Both of these studies found females were thought to be more lovable.

Table 21.2.6.18 Sex stereotype about being more lovable

Nature of stereotype				*Post-pubertal*	
				Adult	
Males stereotyped as more					
No significant difference					
Females stereotyped as more				**NORTH AMERICA** *United States*: Werner & LaRussa 1985 (college); Luepton et al. 2001:19 (romantic)	

21.2.6.19 Sex Stereotype About Loving Children More

People in three countries were asked whether males or females loved children more. Table 21.2.6.19 shows that, in both countries, females were stereotyped as doing so to a greater degree than males.

Table 21.2.6.19 Sex stereotype about loving children more

Nature of stereotype				*Post-pubertal*	
				Adult	
Males stereotyped as more					
No significant difference					
Females stereotyped as more				**NORTH AMERICA** *Canada*: CL Martin 1987:492; *United States*: de Munck et al. 2002:238* **OCEANIA** *Sri Lanka*: de Munck et al. 2002:238*	

21.2.6.20 Sex Stereotype About Being Moody

A few studies have asked if one sex is considered to be moodier than the other. Table 21.2.6.20 reveals that two studies found that females were thought to exhibit mood swings more than males, but the third study found no significant difference in the perceived moodiness of the sexes.

21.2.6.21 Sex Stereotype About Being More Sensitive

Table 21.2.6.21 lists a number of studies aimed at determining if one sex is considered to be more sensitive than the other. All of these studies used adult research participants and found that females are stereotyped as being more sensitive than males.

Table 21.2.6.20 Sex stereotype about being moody

Nature of stereotype			*Post-pubertal*		
				Adult	
Males stereotyped as more					
No significant difference				**NORTH AMERICA** *United States*: Werner & LaRussa 1985 (college)	
Females stereotyped as more				**EUROPE** *Norway*: JE Williams & Best 1977 (college, moody/gloomy); Hosoda & Stone 2000:1289 (college)	

Table 21.2.6.21 Sex stereotype about being more sensitive

Nature of stereotype			*Post-pubertal*		
				Adult	
Males stereotyped as more					
No significant difference					
Females stereotyped as more				**NORTH AMERICA** *Canada*: CL Martin 1987:492; *United States*: Broverman et al. 1972 (having feelings more easily hurt); Werner & LaRussa 1985 (college); Hosoda & Stone 2000:1289 (college); Luepton et al. 2001:19 (sympathetic); Boyce & Herd 2003:373 **INTERNATIONAL** *Multiple Countries*: JE Williams et al. 1999:519 (86% agreement)	

21.2.6.22 Sex Stereotype About Being More Sentimental

Table 21.2.6.22 presents three studies concerning sentimentality. All of these studies found that females were stereotyped as being more sentimental.

21.2.6.23 Sex Stereotype About Being More Soft-Hearted

Is one sex thought to be kinder and more compassionate than the other? According to the three studies listed in Table 21.2.6.23, the answer is yes because females are stereotyped as being more soft-hearted.

21.2.6.24 Sex Stereotype About Being More Sympathetic

Are males or females stereotyped as being more sympathetic to the plight of others? As indicated in Table 21.2.6.24, most people think females are more sympathetic than males.

Table 21.2.6.22 Sex stereotype about being more sentimental

Nature of stereotype				*Post-pubertal*	
				Adult	
Males stereotyped as more					
No significant difference					
Females stereotyped as more				**NORTH AMERICA** *United States*: Werner & LaRussa 1985 (college); Hosoda & Stone 2000:1289 (college) **INTERNATIONAL** *Multiple Countries*: JE Williams & Best 1990 (25/25 countries)	

Table 21.2.6.23 Sex stereotype about being more soft-hearted

Nature of stereotype				*Post-pubertal*	
				Adult	
Males stereotyped as more					
No significant difference					
Females stereotyped as more				**NORTH AMERICA** *United States*: Werner & LaRussa 1985 (college); Hosoda & Stone 2000:1289 (college) **INTERNATIONAL** *Multiple Countries*: JE Williams et al. 1999:519 (81% agreement)	

Table 21.2.6.24 Sex stereotype about being more sympathetic

Nature of stereotype				*Post-pubertal*	
				Adult	
Males stereotyped as more					
No significant difference					
Females stereotyped as more				**EUROPE** *Netherlands*: Visser 1996:593 (college) **NORTH AMERICA** *Canada*: CL Martin 1987:492; *United States*: Werner & LaRussa 1985 (college); Hosoda & Stone 2000:1289 (college); Plant et al. 2000; Boyce & Herd 2003:373	

21.2.6.25 Sex Stereotype About Being More Unemotional

Only one study of the stereotype that one sex is more unemotional than the other was located. Table 21.2.6.25 shows that the research participants in this study thought males were more unemotional than females.

Table 21.2.6.25 Sex stereotype about being more unemotional

Nature of stereotype			*Post-pubertal*		
				Adult	
Males stereotyped as more				**INTERNATIONAL** *Multiple Countries*: JE Williams et al. 1999:519 (82% agreement)	
No significant difference					
Females stereotyped as more					

21.2.6.26 Sex Stereotype About Being More Vindictive

Is one sex thought to carry a grudge more than the other? Table 21.2.6.26 shows that the one study located on this subject concluded that most of those participating in the study thought females were more vindictive than males.

Table 21.2.6.26 Sex stereotype about being more vindictive

Nature of stereotype			*Post-pubertal*		
				Adult	
Males stereotyped as more					
No significant difference					
Females stereotyped as more				**EUROPE** *Norway*: JE Williams & Best 1977 (college)	

21.2.6.27 Sex Stereotype About Pain Tolerance

Several studies have sought to determine which sex is stereotyped as being better able to tolerate pain. As one can see by examining Table 21.2.6.27, all but one study concluded females are believed to tolerate more pain than males. The exceptional study found that males are thought to be less likely to *admit* to feeling pain.

Table 21.2.6.27 Sex stereotype about pain tolerance

Nature of stereotype				*Post-pubertal*	
				Adult	
Males stereotyped as more pain tolerant				**NORTH AMERICA** *Canada*: ME Robinson & Riley 2001 (less likely to admit to pain)	
No significant difference					
Females stereotyped as more pain tolerant				**EUROPE** *Britain*: Nurofen 1989 (opinions of both males & females); Bendelow 1993:286 (opinions of both males & females); Bendelow 1993 (women especially thought so); Bendelow 2000 (both sexes thought so) **NORTH AMERICA** *United States*: Fillingim & Maixner 1996 (thermal pain) **OVERVIEW** *Generalization*: Lester 1967:28	

21.2.7 Sex Stereotypes Regarding Personality

As one may suspect, the greatest number of sex stereotypes have had to do with personality traits. The following section presents a summary of findings pertaining to these stereotypes.

21.2.7.1 Sex Stereotype About Being More Active

Some studies of stereotypes regarding sex differences in activity levels were located. Table 21.2.7.1 shows that all the studies concluded that males were stereotyped as being more active than females.

Table 21.2.7.1 Sex stereotype about being more active

Nature of stereotype			*Post-pubertal*		
			Adolescent	*Adult*	
Males stereotyped as more			**EUROPE** *Sweden*: Intons-Peterson 1988:67* **NORTH AMERICA** *United States*: Intons-Peterson 1988:67-69* **INTERNATIONAL** *Multiple Countries*: JE Williams et al. 1999:519 (81% agreement)	**NORTH AMERICA** *United States*: Broverman et al. 1972; D Kuhn et al. 1978 (regarding toddlers, play in active ways)	
No significant difference					
Females stereotyped as more					

21.2.7.2 Sex Stereotype About Being More Adaptable

Just one study of sex stereotyping regarding the tendency to be adaptable was located. As shown in Table 21.2.7.2, it indicates that females were stereotyped as being more adaptable than males.

Table 21.2.7.2 Sex stereotype about being more adaptable

Nature of stereotype			*Post-pubertal*		
				Adult	
Males stereotyped as more					
No significant difference					
Females stereotyped as more				**EUROPE** *Norway*: JE Williams & Best 1977 (undergrad)	

21.2.7.3 Sex Stereotype About Being More Adventurous

Research in which individuals were asked to rate males and females according to how prone they are to be adventurous or take risks are shown in Table 21.2.7.3. One can see that all of the studies agree that males are perceived as exhibiting these tendencies to a greater degree than females.

Table 21.2.7.3 Sex stereotype about being more adventurous

Nature of stereotype			*Post-pubertal*		
				Adult	
Males stereotyped as more				**EUROPE** *Britain*: B Read et al. 2001 (college, according to a written essay); *Netherlands*: Visser 1996:593 (undergrad, adventurous) **NORTH AMERICA** *Canada*: CL Martin 1987:492; *United States*: Sherriffs & McKee 1957:453 (undergrad); Broverman et al. 1972; Zeff, Fremgen & Martinez 1994:761 (undergrad); Hosoda & Stone 2000:1289 (undergrad); Luepton et al. 2001:19 (adventurous) **INTERNATIONAL** *Multiple Countries*: JE Williams & Best 1990 (25/25 countries); JE Williams et al. 1999:519 (93% agreement)	
No significant difference					
Females stereotyped as more					

21.2.7.4 Sex Stereotype About Being More Agentic

The word *agentic* essentially means being the product of a social system, or at least viewing oneself as such. In the field of social science, the term is normally used to describe individuals who are unusually prone to behave in a way that conforms to the policies of an organization or to the dictates of an organizational leader. As shown in Table 21.2.7.4, two studies found males being stereotypes as agentic to a greater degree than females.

Table 21.2.7.4 Sex stereotype about being more agentic

Nature of stereotype				*Post-pubertal*	
				Adult	
Males stereotyped as more				**NORTH AMERICA** *United States*: Bakan 1966; Conway et al. 1996	
No significant difference					
Females stereotyped as more					

21.2.7.5 Sex Stereotype About Being More Aggressive

Multiple studies have asked research participants which sex they believed to be more prone toward aggression and combative. As shown in Table 21.2.7.5, in all studies that were located, males were stereotyped as possessing these tendencies to a greater degree than females. It is interesting to note that one study even involved the study of toddlers. As will individuals in all the other age groupings, children of both sexes expressed the belief that males were more prone toward "hitting people."

21.2.7.6 Sex Stereotype About Being More Aggressive in Relational Terms

Relational aggression has to do with denying friendly relationships to others, particularly others with whom good relationship had existed earlier. As shown in Table 21.2.7.6, two studies have indicated that, unlike physical forms of aggression, relational aggression is stereotyped as more common among females than males.

21.2.7.7 Sex Stereotype About Being More Aloof

The concept of *aloofness* refers to tendencies to act in a position which is superior to and detached from others. As shown in Table 21.2.7.7, just one study was located on aloofness as a sex stereotype trait. It indicated that this trait was more often attributed to females than to males.

Table 21.2.7.5 Sex stereotype about being more aggressive

Nature of stereotype	*Pre-pubertal*		*Post-pubertal*		
	Infant/toddler	*Child*	*Adolescent*	*Adult*	
Males stereotyped as more	**NORTH AMERICA** *United States*: D Kuhn et al. 1978 (toddler, hit people more)	**NORTH AMERICA** *United States*: Cowan & Hoffman 1986 (by adults); RSL Mills & Rubin 1990 (by parents); RSL Mills & Rubin 1992 (by mothers); DL Clay et al. 1996* (parent reports); PD Hastings & Rubin 1999 (by mothers)	**EUROPE** *Sweden*: Intons-Peterson 1988:67* **NORTH AMERICA** *United States*: Intons-Peterson 1988:67*	**EUROPE** *Norway*: Storli & Sandseter 2015 (boys play fight more, by 138 female teachers) **NORTH AMERICA** *Canada*: CL Martin 1987:492; *United States*: Sherriffs & McKee 1957:453 (college raters of persons generally); Broverman et al. 1972; HH Kelley et al. 1978; Eagly & Steffen 1984; Werner & LaRussa 1985 (college); Ashmore et al. 1986; Lyons & Serbin 1986 (college raters of children); DL Clay et al. 1996* (parent reports); MB Harris & Knight-Bonhoff 1996 (Anglo & Hispanic); Farkas 1999:25 (correction officers); Hosoda & Stone 2000:1289 (undergrad); Luepton et al. 2001:19; Stewart-Williams 2002 (physically); Boyce & Herd 2003:373; Vazsonyi & Keiley 2007:1058 **INTERNATIONAL** *Multiple Countries*: JE Williams et al. 1999:519 (88% agreement)	
No significant difference					
Females stereotyped as more					

Table 21.2.7.6 Sex stereotype about being more aggressive in relational terms

Nature of stereotype			*Post-pubertal*		
			Adolescent	*Adult*	
Males stereotyped as more					
No significant difference					
Females stereotyped as more			**NORTH AMERICA** *United States*: Wiseman 2003	**NORTH AMERICA** *United States*: Stewart-Williams 2002	

Table 21.2.7.7 Sex stereotype about being more aloof

Nature of stereotype			*Post-pubertal*		
				Adult	
Males stereotyped as more					
No significant difference					
Females stereotyped as more				**EUROPE** *Norway*: JE Williams & Best 1977 (college)	

21.2.7.8 Sex Stereotype About Being More Ambitious

A few studies on how people view ambitiousness with respect to sex differences were located. Table 21.2.7.8 indicates that males were more often thought to exhibit this trait than was the case for females.

Table 21.2.7.8 Sex stereotype about being more ambitious

Nature of stereotype			*Post-pubertal*		
				Adult	
Males stereotyped as more				**EUROPE** *Netherlands*: Visser 1996:593 (college, career oriented) **NORTH AMERICA** *United States*: Sherriffs & McKee 1957:453 (college); Broverman et al. 1972; Werner & LaRussa 1985 (college); Boyce & Herd 2003:373 (stronger need to achieve) **INTERNATIONAL** *Multiple Countries*: JE Williams et al. 1999:519 (82% agreement)	
No significant difference					
Females stereotyped as more					

21.2.7.9 Sex Stereotype About Being More Assertive

A number of studies have asked people if one sex is more assertive, decisive, persistent, or domineering. Table 21.2.7.9 shows that males are stereotyped by adolescents and adults as being more assertive than are females.

Table 21.2.7.9 Sex stereotype about being more assertive

Nature of stereotype			*Post-pubertal*		
			Adolescent	*Adult*	
Males stereotyped as more			**NORTH AMERICA** *United States*: Kite & Wagner 2002 (assertive and persistent)	**NORTH AMERICA** *Canada*: CL Martin 1987:492; *United States*: Bakan 1966; Werner & LaRussa 1985 (forceful); Conway et al. 1996; Hosoda & Stone 2000:1289 (college); Luepton et al. 2001:19 (decisive & domineering)	
No significant difference					
Females stereotyped as more					

21.2.7.10 Sex Stereotype About Being More Authoritative

Two studies examined whether one sex was stereotyped as being more authoritative than the other sex. Both of these studies, cited in Table 21.2.7.10, found that males were stereotyped as being more authoritative.

Table 21.2.7.10 Sex stereotype about being more authoritative

Nature of stereotype			*Post-pubertal*		
				Adult	
Males stereotyped as more				**NORTH AMERICA** *United States*: Hosoda & Stone 2000:1289 (college); Boyce & Herd 2003:373	
No significant difference					
Females stereotyped as more					

21.2.7.11 Sex Stereotype About Being More Authoritarian or Autocratic

Only one study was found regarding one sex being perceived as more authoritarian or autocratic. This study, presented in Table 21.2.7.11, found that males were thought to be more authoritarian or autocratic.

Table 21.2.7.11 Sex stereotype about being more authoritarian or autocratic

Nature of stereotype				*Post-pubertal*	
				Adult	
Males stereotyped as more				**INTERNATIONAL** *Multiple Countries*: JE Williams et al. 1999:519 (86% agreement)	
No significant difference					
Females stereotyped as more					

21.2.7.12 Sex Stereotype About Being More Autonomous

Is one sex stereotyped as being more autonomous? As shown in Table 21.2.7.12, one study found that males were stereotyped as being more autonomous than females.

Table 21.2.7.12 Sex stereotype about being more autonomous

Nature of stereotype			*Post-pubertal*		
				Adult	
Males stereotyped as more				**NORTH AMERICA** *United States*: Canetto et al. 1995 (elderly)	
No significant difference					
Females stereotyped as more					

21.2.7.13 Sex Stereotype About Being More Boastful

Does one sex boast more than the other? All four of the studies cited in Table 21.2.7.13 concluded that people believe that males are more boastful than females.

21.2.7.14 Sex Stereotype About Being More Charming

Table 21.2.7.14 presents the finding of the only study located on the stereotype that one sex is more charming than the other. Most of the

research participants for this study thought that females were more charming than males.

Table 21.2.7.13 Sex stereotype about being more boastful

Nature of stereotype			*Post-pubertal*		
				Adult	
Males stereotyped as more				**NORTH AMERICA** *United States*: Sherriffs & McKee 1957:453 (undergrad); C Kramer 1977; Werner & LaRussa 1985 (undergrad); Hosoda & Stone 2000:1289 (undergrad)	
No significant difference					
Females stereotyped as more					

Table 21.2.7.14 Sex stereotype about being more charming

Nature of stereotype			*Post-pubertal*		
				Adult	
Males stereotyped as more					
No significant difference					
Females stereotyped as more				**INTERNATIONAL** *Multiple Countries*: JE Williams et al. 1999:519 (81% of countries)	

21.2.7.15 Sex Stereotype About Being More Competent

Three studies attempted to determine if one sex was thought to be more competent than the other. Table 21.2.7.15 indicates that all of these studies found that people thought that males were more competent than females.

21.2.7.16 Sex Stereotype About Being More Competitive

Do people think one sex is more competitive than the other? Table 21.2.7.16 presents the results of a number of studies that found people consider males to be more competitive than females.

Table 21.2.7.15 Sex stereotype about being more competent

Nature of stereotype				*Post-pubertal*	
				Adult	
Males stereotyped as more				**NORTH AMERICA** *United States*: W Wood & Karten 1986; M Conway & Vartanian 2000; Fiske et al. 2002:892 **INTERNATIONAL** *Multiple Countries*: JE Williams & Best 1990:334	
No significant difference					
Females stereotyped as more					

Table 21.2.7.16 Sex stereotype about being more competitive

Nature of stereotype			*Post-pubertal*		
			Adolescent	*Adult*	
Males stereotyped as more			**EUROPE** *Sweden*: Intons-Peterson 1988:67-69* **NORTH AMERICA** *United States*: Intons-Peterson 1988:67-69*	**NORTH AMERICA** *United States*: Broverman et al. 1972; Deaux & Lewis 1983; Deaux 1984; Ashmore et al. 1986; Boyce & Herd 2003:373; Luepton et al. 2001:19	
No significant difference					
Females stereotyped as more					

21.2.7.17 Sex Stereotype About Being More Conscientious

One study asked a sample of people if they thought that one sex was more concerned than the other about doing things the right way. This study, presented in Table 21.2.7.17, found that most people stereotyped males as being more conscientious than females.

21.2.7.18 Sex Stereotype About Being More Critical or Prone to Find Fault

Does one sex criticize people more than the other sex? At least in terms of stereotypes, females were perceived as being more likely to find fault with others than was the case for males in the two studies that are presented in Table 21.2.7.18.

Table 21.2.7.17 Sex stereotype about being more conscientious

Nature of stereotype			*Post-pubertal*		
				Adult	
Males stereotyped as more				**INTERNATIONAL** *Multiple Countries*: JE Williams et al. 1999:520	
No significant difference					
Females stereotyped as more					

Table 21.2.7.18 Sex stereotype about being more critical or prone to find fault

Nature of stereotype			*Post-pubertal*		
				Adult	
Males stereotyped as more					
No significant difference					
Females stereotyped as more				**EUROPE** *Norway*: JE Williams & Best 1977 (college) **INTERNATIONAL** *Multiple Countries*: JE Williams et al. 1999:519 (complaining, 79%)	

21.2.7.19 Sex Stereotype About Being More Courageous

Do people stereotype other as being more courageous based on their sex? As indicated in Table 21.2.7.19, three studies indicated that people stereotype males as being more courageous than females.

Table 21.2.7.19 Sex stereotype about being more courageous

Nature of stereotype			*Post-pubertal*		
				Adult	
Males stereotyped as more				**NORTH AMERICA** *United States*: Werner & LaRussa 1985 (college); Hosoda & Stone 2000:1289 (college) **INTERNATIONAL** *Multiple Countries*: JE Williams et al. 1999:519 (86%)	
No significant difference					
Females stereotyped as more					

21.2.7.20 Sex Stereotype About Being Cruder or Coarser

People who are viewed as being crude or coarse tend to have unrefined speech and manners. As shown in Table 21.2.7.20, two studies of stereotyped sex differences regarding such behavior both indicated that males are more often perceives in this way than are females.

Table 21.2.7.20 Sex stereotype about being cruder or coarser

Nature of stereotype				*Post-pubertal*	
				Adult	
Males stereotyped as more				**NORTH AMERICA** *United States*: C Kramer 1977 (speech is more coarse) **INTERNATIONAL** *Multiple Countries*: JE Williams et al. 1999:519 (91%)	
No significant difference					
Females stereotyped as more					

21.2.7.21 Sex Stereotype About Being Crueler

The only study on sex stereotypes about cruelty that was located is presented in Table 21.2.7.21. This study found adults in multiple countries believed males were crueler than females.

Table 21.2.7.21 Sex stereotype about being crueler

Nature of stereotype			*Post-pubertal*		
				Adult	
Males stereotyped as more				**INTERNATIONAL** *Multiple Countries*: JE Williams et al. 1999:519 (86%)	
No significant difference					
Females stereotyped as more					

21.2.7.22 Sex Stereotype About Being More Curious

Does one sex have more curiosity than the other? The study presented in Table 21.2.7.22 found that females were stereotyped as more curious than males.

21.2.7.23 Sex Stereotype About Being More Daring or Prone to Take Risks

Is one sex more likely to take risks than the other? Table 21.2.7.23 indicates that three studies have found that most people think males take more risks than females.

Table 21.2.7.22 Sex stereotype about being more curious

Nature of stereotype				*Post-pubertal*	
				Adult	
Males stereotyped as more					
No significant difference					
Females stereotyped as more				**INTERNATIONAL** *Multiple Countries*: JE Williams et al. 1999:519 (76%)	

Table 21.2.7.23 Sex stereotype about being more daring or prone to take risks

Nature of stereotype			*Post-pubertal*		
				Adult	
Males stereotyped as more				**NORTH AMERICA** *United States*: Werner & LaRussa 1985 (risk-taking); Eckel & Grossman 2002 (risk-taking) **INTERNATIONAL** *Multiple Countries*: JE Williams et al. 1999:519 (daring, 86% agreement)	
No significant difference					
Females stereotyped as more					

21.2.7.24 Sex Stereotype About Being More Deliberate

Does one sex do more things with a conscious intention than the other? The one available study on this subject, presented in Table 21.2.7.24, found that neither sex is stereotyped as more deliberate than the other.

21.2.7.25 Sex Stereotype About Being More Dependent

Do people think one sex is more dependent on other people than the other? Table 21.2.7.25 presents the only study on this topic. This study found that females were stereotyped as being more dependent than males.

Table 21.2.7.24 Sex stereotype about being more deliberate

Nature of stereotype			*Post-pubertal*		
				Adult	
Males stereotyped as more					
No significant difference				**NORTH AMERICA** *United States*: Werner & LaRussa 1985 (college)	
Females stereotyped as more					

Table 21.2.7.25 Sex stereotype about being more dependent

Nature of stereotype			*Post-pubertal*		
				Adult	
Males stereotyped as more					
No significant difference					
Females stereotyped as more				**INTERNATIONAL** *Multiple Countries*: JE Williams et al. 1999:519 (81%)	

21.2.7.26 Sex Stereotype About Being Dreamy

The term *dreamy* means having a pleasant unreal quality or being absorbed by unrealistic (as opposed to practical) interests. As one can see in Table 21.2.7.26, three studies have found females being stereotyped as having dreamy qualities to a greater degree than males.

Table 21.2.7.26 Sex stereotype about being dreamy

Nature of stereotype			*Post-pubertal*		
				Adult	
Males stereotyped as more					
No significant difference					
Females stereotyped as more				**NORTH AMERICA** *United States*: Werner & LaRussa 1985 (college); Hosoda & Stone 2000:1289 (college) **INTERNATIONAL** *Multiple Countries*: JE Williams et al. 1999:519 (83%)	

21.2.7.27 Sex Stereotype About Being More Energetic

Which sex is stereotyped as being more energy than the others? Table 21.2.7.27 lists just one study pertaining to this question. One can see that it indicated most people think males are more energetic than females.

Table 21.2.7.27 Sex stereotype about being more energetic

Nature of stereotype				*Post-pubertal*	
				Adult	
Males stereotyped as more				**INTERNATIONAL** *Multiple Countries*: JE Williams et al. 1999:519 (82%)	
No significant difference					
Females stereotyped as more					

21.2.7.28 Sex Stereotype About Being More Enterprising

Do people think one sex is more enterprising than the other? As shown in Table 21.2.7.28, males were found to be stereotyped as more enterprising in the one study located on this subject.

Table 21.2.7.28 Sex stereotype about being more enterprising

Nature of stereotype				*Post-pubertal*	
				Adult	
Males stereotyped as more				**INTERNATIONAL** *Multiple Countries*: JE Williams et al. 1999:519 (83%)	
No significant difference					
Females stereotyped as more					

21.2.7.29 Sex Stereotype About Being More Fair-Minded

Table 21.2.7.29 summarizes findings from studies that sought to determine if people thought one sex was more fair-minded than the other. These studies came to opposite conclusions.

Table 21.2.7.29 Sex stereotype about being more fair-minded

Nature of stereotype				*Post-pubertal*	
				Adult	
Males stereotyped as more				**EUROPE** *Norway*: JE Williams & Best 1977 (college) **NORTH AMERICA** *United States*: Broverman et al. 1972 (being objective)	
No significant difference					
Females stereotyped as more				**NORTH AMERICA** *United States*: Werner & LaRussa 1985 (college); Hosoda & Stone 2000:1289 (peaceable, understanding, good-natured, college)	

21.2.7.30 Sex Stereotype About Being More Forceful or Insistent

Do people assume one sex is more forceful and insistent than the other? Table 21.2.7.30 indicates that people stereotype males as being more forceful than females.

Table 21.2.7.30 Sex stereotype about being more forceful or persistent

Nature of stereotype				*Post-pubertal*	
				Adult	
Males stereotyped as more				**EUROPE** *Norway*: JE Williams & Best 1977 (college, persistent) **NORTH AMERICA** *Canada*: CL Martin 1987:492; *United States*: C Kramer 1977 (forceful); Werner & LaRussa 1985 (college, forceful); Hosoda & Stone 2000:1289 (college); Boyce & Herd 2003:373 **INTERNATIONAL** *Multiple Countries*: JE Williams & Best 1990 (25/25 countries); JE Williams et al. 1999:519 (forceful, 93% agreement)	
No significant difference					
Females stereotyped as more					

21.2.7.31 Sex Stereotype About Being Relatively Frank or Blunt

Do people believe one sex is more direct in their criticism of other people? As shown in Table 21.2.7.31, three studies found that adult research participants stereotyped males as being blunter (less tactful) than females.

Table 21.2.7.31 Sex stereotype about being relatively frank or blunt

Nature of stereotype			*Post-pubertal*		
				Adult	
Males stereotyped as more				**NORTH AMERICA** *United States*: Werner & LaRussa 1985 (college); Hosoda & Stone 2000:1289 (college); Boyce & Herd 2003:373	
No significant difference					
Females stereotyped as more					

21.2.7.32 Sex Stereotype About Being More Friendly

Several studies of sex stereotypes having to do with friendliness have been published. As shown in Table 21.2.7.32, all but one of these studies concluded that females had one or both of these qualities to a greater degree than did males. The exception actually reported the opposite.

Table 21.2.7.32 Sex stereotype about being more friendly

Nature of stereotype			*Post-pubertal*		
			Adolescent	*Adult*	
Males stereotyped as more				**OCEANIA** *Sri Lanka*: de Munck 2002:242*	
No significant difference					
Females stereotyped as more			**EUROPE** *Sweden*: Intons-Peterson 1988:67-69* **NORTH AMERICA** *United States*: Intons-Peterson 1988:67-69*	**EUROPE** *Norway*: Storli & Sandseter 2015 (girls more nurturing, by 138 female teachers) **NORTH AMERICA** *United States*: Werner & LaRussa 1985 (college); RB Hays & Oxley 1986; Burda & Vaux 1987 (providing more support to others); Hays & Oxley 1986; Feingold 1998:263; Hosoda & Stone 2000:1289 (college); de Munck et al. 2002:242*; Andreoni & Petrie 2008:78	

21.2.7.33 Sex Stereotype About Being More Frivolous

Do people think one sex is less serious than the other? As shown in Table 21.2.7.33, three studies found that research participants thought females were more frivolous than males.

Table 21.2.7.33 Sex stereotype about being more frivolous

Nature of stereotype			*Post-pubertal*		
				Adult	
Males stereotyped as more					
No significant difference					
Females stereotyped as more				**NORTH AMERICA** *United States*: Cartwright 1972:215 (medical students, self-assessed); Werner & LaRussa 1985 (college); Hosoda & Stone 2000:1289 (college)	

21.2.7.34 Sex Stereotype About Being Fussy

Do people think one sex is more fastidious than the other? The three studies presented in Table 21.2.7.34 found that most research participants believed females were fussier than males.

Table 21.2.7.34 Sex stereotype about being fussy

Nature of stereotype			*Post-pubertal*		
				Adult	
Males stereotyped as more					
No significant difference					
Females stereotyped as more				**NORTH AMERICA** *United States*: Werner & LaRussa 1985 (college); Hosoda & Stone 2000:1289 (college) **INTERNATIONAL** *Multiple Countries*: JE Williams et al. 1999:519 (76%)	

21.2.7.35 Sex Stereotype About Being Gentle, Meek, or Mild

Several studies of sex stereotypes surrounding being gentle and meek were located. As indicated in Table 21.2.7.35, studies performed in a number of different countries found that research participants thought females were gentler than males.

21.2.7.36 Sex Stereotype About Being Greedy

Is one sex greedier than the other? Table 21.2.7.36 indicates that the only study attempting to answer this study found that neither sex was thought to be greedier than the other.

Table 21.2.7.35 Sex stereotype about being gentle, meek, or mild

Nature of stereotype			*Post-pubertal*		
				Adult	
Males stereotyped as more					
No significant difference					
Females stereotyped as more				**EUROPE** *Netherlands*: Visser 1996:593 (college) **NORTH AMERICA** *Canada*: CL Martin 1987:492; *United States*: Werner & LaRussa 1985 (college, well mannerly); Hosoda & Stone 2000:1289 (college) **INTERNATIONAL** *Multiple Countries*: JE Williams et al. 1999:519 (meek: 75%, mild: 78%)	

Table 21.2.7.36 Sex stereotype about being greedy

Nature of stereotype			*Post-pubertal*		
				Adult	
Males stereotyped as more					
No significant difference				**NORTH AMERICA** *United States*: Werner & LaRussa 1985 (college)	
Females stereotyped as more					

21.2.7.37 Sex Stereotype About Having a Good Sense of Humor

Do people think one sex has a better sense of humor than the other? Most of the studies presented in Table 21.2.7.37 found that people believe that males have a better sense of humor than females, although one study found that males and females were thought to be equal with regard to possessing a sense of humor.

21.2.7.38 Sex Stereotype About Being Hasty

Do people think one sex is more likely to do things with excessive speed than the other? As shown in Table 21.2.7.38, the research participants in two studies indicated that males were thought to be hastier in their actions than were females.

Table 21.2.7.37 Sex stereotype about having a good sense of humor

Nature of stereotype				*Post-pubertal*	
				Adult	
Males stereotyped as more				**ASIA** *China*: O Nevo, Nevo & Yin 2001:152 (sense of humor, college, N = 62M + 57F) **NORTH AMERICA** *United States*: Sherriffs & McKee 1957:453 (humorous/witty, college); M Crawford & Gressley 1991 (sense of humor, college, N = 72M + 131F); Hosoda & Stone 2000:1289 (humorous/witty, college)	
No significant difference				**NORTH AMERICA** *United States*: Werner & LaRussa 1985 (humorous/witty, college)	
Females stereotyped as more					

Table 21.2.7.38 Sex stereotype about being hasty

Nature of stereotype			*Post-pubertal*		
				Adult	
Males stereotyped as more				**NORTH AMERICA** *United States*: Werner & LaRussa 1985 (college); Hosoda & Stone 2000:1289 (impatient, college)	
No significant difference					
Females stereotyped as more					

21.2.7.39 Sex Stereotype About Being Independent

Substantial research has asked research participants of various ages which sex they believe is most likely to be independent (or self-reliant). As shown in Table 21.2.7.39, all of these studies have concluded that males are stereotyped as being more independent than females.

21.2.7.40 Sex Stereotype About Being Industrious

Is one sex considered to be more diligent and hardworking? The three studies on the sex stereotype of being industrious are shown in Table 21.2.7.40. All the studies indicated that males were stereotyped as being industrious to a greater degree than were females.

Table 21.2.7.39 Sex stereotype about being independent

Nature of stereotype	*Pre-pubertal*		*Post-pubertal*		
		Child	*Adolescent*	*Adult*	
Males stereotyped as more		**NORTH AMERICA** *United States*: Ruble & Martin 1998	**NORTH AMERICA** *United States*: JP Hill & Lynch 1983; Huston & Alvarez 1990; Neff & Terry-Schmitt 2002*	**EUROPE** *Netherlands*: Visser 1996:593 (college) **NORTH AMERICA** *Canada*: CL Martin 1987:492; *United States*: Sherriffs & McKee 1957:453 (college); Broverman et al. 1972; Deaux 1984; VW Berninger & DeSoto 1985; Werner & LaRussa 1985 (college); Heilman et al. 1995 (by company managers); Hosoda & Stone 2000:1289 (college); Neff & Terry-Schmitt 2002* (college); Boyce & Herd 2003:373 (self-reliant) **INTERNATIONAL** *Multiple Countries*: JE Williams & Best 1982 (30/30 countries); JE Williams et al. 1999:519 (84%)	
No significant difference					
Females stereotyped as more					

Table 21.2.7.40 Sex stereotype about being industrious

Nature of stereotype			*Post-pubertal*		
				Adult	
Males stereotyped as more				**NORTH AMERICA** *United States*: Werner & LaRussa 1985 (college); Hosoda & Stone 2000:1289 (college); Boyce & Herd 2003:374	
No significant difference					
Females stereotyped as more					

21.2.7.41 Sex Stereotype About Being Instrumental

Do people think one sex is more focused on the means to an end than the other? We located one study on the sex stereotype of being instrumental. This study, cited in Table 21.2.7.41, found that research participants stereotyped males as being more instrumental.

Table 21.2.7.41 Sex stereotype about being instrumental

Nature of stereotype	*Pre-pubertal*				
		Child			
Males stereotyped as more		**NORTH AMERICA** *United States*: Ruble et al. 1993			
No significant difference					
Females stereotyped as more					

21.2.7.42 Sex Stereotype About Being Inventive

Do people think that one sex is more inventive than the other? The study listed in Table 21.2.7.42 found that research participants thought that males were more inventive than females.

21.2.7.43 Sex Stereotype About Being Neurotic

Table 21.2.7.43 cites two studies on stereotypes regarding a trait known as neuroticism. It indicates that females are stereotyped as being more neurotic than males.

Table 21.2.7.42 Sex stereotype about being inventive

Nature of stereotype				*Post-pubertal*	
				Adult	
Males stereotyped as more				**INTERNATIONAL** *Multiple Countries*: JE Williams et al. 1999:519 (81%)	
No significant difference					
Females stereotyped as more					

Table 21.2.7.43 Sex stereotype about being neurotic

Nature of stereotype				*Post-pubertal*	
				Adult	
Males stereotyped as more					
No significant difference					
Females stereotyped as more				**NORTH AMERICA** *United States*: PR Bowman 1982 (N = 61); Werner & LaRussa 1985 (college)	

21.2.7.44 Sex Stereotype About Being Optimistic

Is one sex believed to hold a more positive view of things than the other? According to one study, listed in Table 21.2.7.44, research participants thought that females were generally more optimistic than males.

Table 21.2.7.44 Sex stereotype about being optimistic

Nature of stereotype				*Post-pubertal*	
				Adult	
Males stereotyped as more					
No significant difference					
Females stereotyped as more				**NORTH AMERICA** *United States*: Werner & LaRussa 1985 (college)	

21.2.7.45 Sex Stereotype About Being More Progressive

Who is more progressive, males or females? As shown in Table 21.2.7.45, one study found that subjects thought males were more progressive.

Table 21.2.7.45 Sex stereotype about being more progressive

Nature of stereotype			*Post-pubertal*		
				Adult	
Males stereotyped as more				**INTERNATIONAL** *Multiple Countries*: JE Williams et al. 1999:519 (78%)	
No significant difference					
Females stereotyped as more					

21.2.7.46 Sex Stereotype About Having More Pride

Which sex is more prone to feel or express feelings of pride? One study, presented in Table 21.2.7.46, found that adults stereotyped males do so more than females.

Table 21.2.7.46 Sex stereotype about having more pride

Nature of stereotype			*Post-pubertal*		
				Adult	
Males stereotyped as more				**NORTH AMERICA** *United States*: Plant et al. 2000	
No significant difference					
Females stereotyped as more					

21.2.7.47 Sex Stereotype About Being More Passive

Several studies have examined if one sex is believed to be more passive than the other. As shown in Table 21.2.7.47, these studies have found that females are stereotyped as being more passive.

21.2.7.48 Sex Stereotype About Being More Patient

Do people think one sex is more patient than the other? Both of the studies listed in Table 21.2.7.48 found that their research participants believed that females were more patient than males.

21.2.7.49 Sex Stereotype About Being More Poised

Which sex exhibits greater poise? Studies on this topic have reached different conclusions. As shown in Table 21.2.7.49, two studies have found that females are thought to be more poised than males. A third study, however, found that more people stereotyped males as being more "dignified."

Table 21.2.7.47 Sex stereotype about being more passive

Nature of stereotype	*Pre-pubertal*			*Post-pubertal*	
	Infant/toddler			*Adult*	
Males stereotyped as more					
No significant difference					
Females stereotyped as more	**NORTH AMERICA** *United States*: Kuhn et al. 1978 (toddlers, as perceived by adults)			**NORTH AMERICA** *United States*: Hosoda & Stone 2000:1289 (discreet, reserved, college); Boyce & Herd 2003:374	

Table 21.2.7.48 Sex stereotype about being more patient

Nature of stereotype			*Post-pubertal*		
				Adult	
Males stereotyped as more					
No significant difference					
Females stereotyped as more				**NORTH AMERICA** *United States*: Werner & LaRussa 1985 (college); Hosoda & Stone 2000:1289 (college)	

Table 21.2.7.49 Sex stereotype about being more poised

Nature of stereotype			*Post-pubertal*		
				Adult	
Males stereotyped as more				**EUROPE** *Norway*: JE Williams & Best 1977 (college, "dignified")	
No significant difference					
Females stereotyped as more				**NORTH AMERICA** *United States*: Sherriffs & McKee 1957:453 (college); Werner & LaRussa 1985 (college)	

21.2.7.50 Sex Stereotype About Being Polite/Well-Mannered/ Considerate

Do people assume one sex is more polite than the other, in the sense of being better mannered or more considerate? As shown in Table 21.2.7.50,

the three studies located on this topic found that women are stereotyped as more polite, well-mannered, or considerate than males.

Table 21.2.7.50 Sex stereotype about being polite/well-mannered/considerate

Nature of stereotype			*Post-pubertal*		
				Adult	
Males stereotyped as more					
No significant difference					
Females stereotyped as more				**NORTH AMERICA** *United States*: Werner & LaRussa 1985 (college, well mannerly); Hosoda & Stone 2000:1289 (college); Cann & Siegfried 1990 (adults, consideration perceived to be feminine)PS	

21.2.7.51 Sex Stereotype About Being Relatively Quiet

Some people describe others as being quiet. Is this label applied to one sex more than the other? As indicated in Table 21.2.7.51, the only study located on this topic concluded that research participants thought females were quieter than males.

Table 21.2.7.51 Sex stereotype about being relatively quiet

Nature of stereotype			*Post-pubertal*		
				Adult	
Males stereotyped as more					
No significant difference					
Females stereotyped as more				**NORTH AMERICA** *United States*: Hosoda & Stone 2000:1289 (college)	

21.2.7.52 Sex Stereotype About Being Robust

To refer to someone as "robust" usually means they are strong, healthy, and vigorous. One study, listed in Table 21.2.7.52, found that males were considered to be more robust than females.

21.2.7.53 Sex Stereotype About Being Rugged

Is one sex assumed to be more "rugged," defined in one study as being coarse and disorderly? As indicated in Table 21.2.7.53, several studies from North America have found that males are thought to be more rugged.

Table 21.2.7.52 Sex stereotype about being robust

Nature of stereotype				*Post-pubertal*	
				Adult	
Males stereotyped as more				**INTERNATIONAL** *Multiple Countries*: JE Williams et al. 1999:519 (85%)	
No significant difference					
Females stereotyped as more					

Table 21.2.7.53 Sex stereotype about being rugged

Nature of stereotype			*Post-pubertal*		
				Adult	
Males stereotyped as more				**NORTH AMERICA** *United States*: Sherriffs & McKee 1957:453 (college); Werner & LaRussa 1985 (college); Hosoda & Stone 2000:1289 (coarse, disorderly, college)	
No significant difference					
Females stereotyped as more					

21.2.7.54 Sex Stereotype About Being Sarcastic

Is one sex stereotyped as being more sarcastic than the other sex? Table 21.2.7.54 indicates that two out of the three pertinent studies that were located found research participants asserting that males were more sarcastic than females, although the third study found no significant sex difference.

Table 21.2.7.54 Sex stereotype about being sarcastic

Nature of stereotype			*Post-pubertal*		
				Adult	
Males stereotyped as more				**EUROPE** *Norway*: JE Williams & Best 1977 (college) **NORTH AMERICA** *United States*: Hosoda & Stone 2000:1289 (college)	
No significant difference				**NORTH AMERICA** *United States*: Werner & LaRussa 1985 (college)	
Females stereotyped as more					

21.2.7.55 Sex Stereotype About Being Self-Centered or Conceited

Self-centeredness typically refers to being egotistical and conceited. As shown in Table 21.2.7.55, the studies located found that males were stereotyped as being more self-centered.

Table 21.2.7.55 Sex stereotype about being self-centered or conceited

Nature of stereotype			*Post-pubertal*		
				Adult	
Males stereotyped as more				**EUROPE** *Norway*: JE Williams & Best 1977 (college, demanding) **NORTH AMERICA** *United States*: Werner & LaRussa 1985 (college); Hosoda & Stone 2000:1289 (egotistical, conceited, college)	
No significant difference					
Females stereotyped as more					

21.2.7.56 Sex Stereotype About Being Self-Confident

Do people assume that one sex possesses more self-confidence in their talents and abilities than the other? As listed in Table 21.2.7.56, a number of studies have found males to be more stereotyped as self-confident.

Table 21.2.7.56 Sex stereotype about being self-confident

Nature of stereotype			*Post-pubertal*		
				Adult	
Males stereotyped as more				**NORTH AMERICA** *United States*: Sherriffs & McKee 1957:453 (college); Broverman et al. 1972; Werner & LaRussa 1985 (college); Ashmore et al. 1986; Hosoda & Stone 2000:1289 (college); Luepton et al. 2001:19 **INTERNATIONAL** *Multiple Countries*: JE Williams et al. 1999:519 (79%)	
No significant difference					
Females stereotyped as more					

21.2.7.57 Sex Stereotype About Being Selfish

A few studies of stereotypes regarding sex differences in selfishness have been conducted. Table 21.2.7.57 shows that studies have reached inconsistent conclusions in this regard.

Table 21.2.7.57 Sex stereotype about being selfish

Nature of stereotype			*Post-pubertal*		
				Adult	
Males stereotyped as more				**NORTH AMERICA** *United States*: Feingold 1998:263; Hosoda & Stone 2000:1289 (undergrad); Boldy et al. 2001 (among military trainees of both sexes)	
No significant difference				**NORTH AMERICA** *United States*: Werner & LaRussa 1985 (undergrad)	
Females stereotyped as more				**EUROPE** *Norway*: JE Williams & Best 1977 (undergrad)	

21.2.7.58 Sex Stereotype About Being Sophisticated

Worldly experience, especially regarding culture and fashion, is known as sophistication. Is one sex thought to be more sophisticated than the other? The only study located on which sex is stereotyped as being more sophisticated is presented in Table 21.2.7.58. This study found that females are thought to be more sophisticated.

Table 21.2.7.58 Sex stereotype about being sophisticated

Nature of stereotype			*Post-pubertal*		
				Adult	
Males stereotyped as more					
No significant difference					
Females stereotyped as more				**NORTH AMERICA** *United States*: Werner & LaRussa 1985 (undergrad)	

21.2.7.59 Sex Stereotype About Being Spontaneous

Acting without deliberate thought may be considered desirable or undesirable, but is spontaneity associated with one sex more than the other? Both of the studies shown in Table 21.2.7.59 concluded that research participants thought one sex was more spontaneous than the other. However, the studies reached opposite conclusions regarding whether people thought males or females exhibited more spontaneity.

21.2.7.60 Sex Stereotype About Being Task-Oriented

Do people assume one sex is more focused on completing specific tasks than the other? Table 21.2.7.60 presents the one study located on the

stereotype of being task-oriented. It indicated that people stereotyped males as being more task-oriented.

Table 21.2.7.59 Sex stereotype about being spontaneous

Nature of stereotype				*Post-pubertal*	
				Adult	
Males stereotyped as more				**NORTH AMERICA** *United States*: Hosoda & Stone 2000:1289 (undergrad)	
No significant difference					
Females stereotyped as more				**NORTH AMERICA** *United States*: Werner & LaRussa 1985 (undergrad)	

Table 21.2.7.60 Sex stereotype about being task-oriented

Nature of stereotype				*Post-pubertal*	
				Adult	
Males stereotyped as more				**NORTH AMERICA** *United States*: Cann & Siegfried 1990	
No significant difference					
Females stereotyped as more					

21.2.7.61 Sex Stereotype About Being Tough

Are males or females stereotyped as being tougher? Studies examining this question are summarized in Table 21.2.7.61. One can see that all the studies indicate that people stereotype males as being tougher than females.

21.2.7.62 Sex Stereotype About Being Sincere

Sincerity is a trait that most people value. As shown in Table 21.2.7.62, one of the two studies located on this topic found that females were stereotyped as more sincere. However, the other study found no significant sex difference.

21.2.7.63 Sex Stereotype About Being Thorough

Is one sex stereotyped as being more likely to finish all aspects of a task carefully? The only study located on this matter is presented in Table 21.2.7.63. It indicated that sex stereotypes do not differ in this regard.

Table 21.2.7.61 Sex stereotype about being strong or tough

Nature of stereotype				*Post-pubertal*	
				Adult	
Males stereotyped as more				**EUROPE** *Sweden*: Intons-Peterson 1988:67-69* (tough) **NORTH AMERICA** *United States*: Cowan & Hoffman 1986; Intons-Peterson 1988:67-69* (tough); Hosoda & Stone 2000:1289 (undergrad, tough) **INTERNATIONAL** *Multiple Countries*: JE Williams et al. 1999:519 (92% for strong, 93% for tough)	
No significant difference					
Females stereotyped as more					

Table 21.2.7.62 Sex stereotype about being sincere

Nature of stereotype				*Post-pubertal*	
				Adult	
Males stereotyped as more					
No significant difference				**NORTH AMERICA** *United States*: Werner & LaRussa 1985 (undergrad)	
Females stereotyped as more				**NORTH AMERICA** *United States*: Hosoda & Stone 2000:1289 (undergrad)	

Table 21.2.7.63 Sex stereotype about being thorough

Nature of stereotype				*Post-pubertal*	
				Adult	
Males stereotyped as more					
No significant difference				**NORTH AMERICA** *United States*: Werner & LaRussa 1985 (undergrad)	
Females stereotyped as more					

21.2.7.64 Sex Stereotype About Being Tolerant

People often have to tolerate less than optimal behaviors, beliefs, and conditions, but is one sex thought to be more tolerant than the other? Table 21.2.7.64 reveals that research participants thought that females were more tolerant than males.

Table 21.2.7.64 Sex stereotype about being tolerant

Nature of stereotype			*Post-pubertal*		
				Adult	
Males stereotyped as more					
No significant difference					
Females stereotyped as more				**NORTH AMERICA** *United States*: Werner & LaRussa 1985 (undergrad); Hosoda & Stone 2000:1289 (sympathetic, forgiving, undergrad)	

21.2.7.65 Sex Stereotype About Trusting Others

Trust is both risky and crucial to human relationships. The three studies presented in Table 21.2.7.65 sought to determine if one sex was considered to be more trusting of others. All of these studies indicated that females were perceived to be more trusting of others than were males.

Table 21.2.7.65 Sex stereotype about trusting others

Nature of stereotype			*Post-pubertal*		
				Adult	
Males stereotyped as more					
No significant difference					
Females stereotyped as more				**NORTH AMERICA** *United States*: Broverman et al. 1972 (easily influenced); Werner & LaRussa 1985 (college); Hosoda & Stone 2000:1289 (undergrad)	

21.2.7.66 Sex Stereotype About Being Uninhibited

Is one sex assumed to be more uninhibited than the other? The one pertinent study of this topic that was located is presented in Table 21.2.7.66. It found that males were considered to be more uninhibited than females.

21.2.7.67 Sex Stereotype About Being Unscrupulous/Untrustworthy

Two studies were located having to do with sex stereotypes involving unscrupulousness. As shown in Table 21.2.7.67, both studies found that most people stereotype males as being unscrupulous and/or untrustworthy.

Table 21.2.7.66 Sex stereotype about being uninhibited

Nature of stereotype				*Post-pubertal*	
				Adult	
Males stereotyped as more				**NORTH AMERICA** *United States*: Werner & LaRussa 1985 (undergrad)	
No significant difference					
Females stereotyped as more					

Table 21.2.7.67 Sex stereotype about being unscrupulous/untrustworthy

Nature of stereotype				*Post-pubertal*	
				Adult	
Males stereotyped as more				**NORTH AMERICA** *United States*: Werner & LaRussa 1985 (college); Hosoda & Stone 2000:1289 (sly, mischievous, undergrad)	
No significant difference					
Females stereotyped as more					

21.2.7.68 Sex Stereotype About Being Vain

Vanity is having an excessive pride in one's appearance or accomplishments. Do people think being vain is more common in one of the sexes than the other? One study, identified in Table 21.2.7.68, found that females were stereotyped as having more vanity than males.

Table 21.2.7.68 Sex stereotype about being vain

Nature of stereotype				*Post-pubertal*	
				Adult	
Males stereotyped as more					
No significant difference					
Females stereotyped as more				**NORTH AMERICA** *United States*: Sherriffs & McKee 1957:453 (undergrad)	

21.2.8 Sex Stereotypes Regarding General Behavior

Some research has asked research participants for their opinions about sex differences in a variety of overall behavior patterns. Results from these studies are presented below.

21.2.8.1 Sex Stereotype About Playing Computer Games or Video Games

Computer and video games have become common, but do people associate these activities more with one sex than the other? Table 21.2.8.1 indicates that both of the two studies located on this topic found that males were assumed to play computer and video games more than females.

Table 21.2.8.1 Sex stereotype about playing computer games (or video games)

Nature of stereotype					*Wide age range*
Males stereotyped as more					**NORTH AMERICA** *United States*: Funk & Buchman 1996a; Cassell & Jenkins 1998 (by both sexes)
No significant difference					
Females stereotyped as more					

21.2.8.2 Sex Stereotype About Playing House and Family Activities

One study was located having to do with how the sexes were stereotypes regarding their tendencies to play house or related family-like activities. Table 21.2.8.2 shows that the study indicated that these types of activities were ascribed to girls more than to boys.

Table 21.2.8.2 Sex stereotype about playing house and family activities

Nature of stereotype	*Pre-pubertal*				
		Child			
Males stereotyped as more					
No significant difference					
Females stereotyped as more		**EUROPE** *Norway*: Storli & Sandseter 2015 (girls play house/family activities more, by 138 female teachers)			

21.2.8.3 Sex Stereotype About Being Mischievous

Do people think one sex is more likely to cause trouble in a playful manner than the other? The two studies listed in Table 21.2.8.3 reached different results. One study found males to be stereotyped as more mischievous, but the other found no significant sex difference in this stereotype.

Table 21.2.8.3 Sex stereotype about being mischievous

Nature of stereotype			*Post-pubertal*		
			Adolescent		
Males stereotyped as more			**NORTH AMERICA** *United States*: Intons-Peterson 1988:66*		
No significant difference			**EUROPE** *Sweden*: Intons-Peterson 1988:66*		
Females stereotyped as more					

21.2.8.4 Sex Stereotype About Being Neat and Tidy

Do people assume one sex will be more conscientious about keeping things clean and orderly? As shown in Table 21.2.8.4, two studies have found females to be stereotyped as being more neat and tidy than males.

Table 21.2.8.4 Sex stereotype about being neat and tidy

Nature of stereotype			*Post-pubertal*		
				Adult	
Males stereotyped as more					
No significant difference					
Females stereotyped as more				**NORTH AMERICA** *United States*: Broverman et al. 1972; Boyce & Herd 2003:373	

21.2.8.5 Sex Stereotype About Being Obnoxious

Is one sex thought to be more socially unpleasant than the other? The several studies listed in Table 21.2.8.5 concluded that males were stereotyped as being more obnoxious than females.

Table 21.2.8.5 Sex stereotype about being obnoxious

Nature of stereotype	*Post-pubertal*	
	Adult	
Males stereotyped as more	**NORTH AMERICA** *United States*: Werner & LaRussa 1985 (college); K Hawkins 1988 (interrupting others who are speaking); Hosoda & Stone 2000:1289 (undergrad) **INTERNATIONAL** *Multiple Countries*: JE Williams et al. 1999:519 (83%)	
No significant difference		
Females stereotyped as more		

21.2.8.6 Sex Stereotype About Frequent Reading

Do people assume one sex reads more than the other? According to two studies, as shown in Table 21.2.8.6, females are stereotyped as reading more than males.

Table 21.2.8.6 Sex stereotype about frequent reading

Nature of stereotype	*Pre-pubertal*	*Post-pubertal*	
	Child	*Adolescent*	*Adult*
Males stereotyped as more			
No significant difference			
Females stereotyped as more	**NORTH AMERICA** *United States*: Kagan 1964; Mazurkiewicz 1960* (by males)	**NORTH AMERICA** *United States*: Stein & Smithells 1969	**NORTH AMERICA** *United States*: Mazurkiewicz 1960* (by males)

21.2.8.7 Sex Stereotype About Being Religious

Do people believe one sex is more religious than the other? According to the studies listed in Table 21.2.8.7, females are stereotyped as being more religious.

21.2.8.8 Sex Stereotype About Being Stern

Do people consider one sex to be sterner or unyielding than the other sex? The single study located on this stereotype is listed in Table 21.2.8.8. It shows that adults in multiple countries found that males were stereotyped as being stern to a greater degree than females.

Table 21.2.8.7 Sex stereotype about being religious

Nature of stereotype				*Post-pubertal*	
				Adult	
Males stereotyped as more					
No significant difference					
Females stereotyped as more				**NORTH AMERICA** *United States*: Sherriffs & McKee 1957:453 (college); Broverman et al. 1972; Werner & LaRussa 1985 (undergrad)	

Table 21.2.8.8 Sex stereotype about being stern

Nature of stereotype			*Post-pubertal*		
				Adult	
Males stereotyped as more				**INTERNATIONAL** *Multiple Countries*: JE Williams et al. 1999:519 (84%)	
No significant difference					
Females stereotyped as more					

21.2.8.9 Sex Stereotype About Shopping Behavior

Are there sex stereotypes when it comes to purchasing goods and services? According to the study presented in Table 21.2.8.9, there are more stereotypes concerning shopping behavior applied to females.

Table 21.2.8.9 Sex stereotype about shopping behavior

Nature of stereotype			*Post-pubertal*		
				Adult	
Males stereotyped as more					
No significant difference					
Females stereotyped as more				**NORTH AMERICA** *United States*: South & Spitze 1994	

21.2.8.10 Sex Stereotype About Being Relatively Shy/Timid

The studies in Table 21.2.8.10 asked if people hold the stereotype that one sex is more reserved and nervous in social situations. These studies found that people thought females were shier or timid compared to males.

Table 21.2.8.10 Sex stereotype about being relatively shy/timid

Nature of stereotype				*Post-pubertal*	
				Adult	
Males stereotyped as more					
No significant difference					
Females stereotyped as more				**NORTH AMERICA** *United States*: Werner & LaRussa 1985 (college); Hosoda & Stone 2000:1289 (college); Luepton et al. 2001:19 (timid); Boyce & Herd 2003:374 **INTERNATIONAL** *Multiple Countries*: JE Williams et al. 1999:519 (shy: 75%, timid: 75%)	

21.2.8.11 Sex Stereotype About Being Stingy or Selfish

Do people hold that one sex is less generous with money? Three studies of sex stereotypes concerning stinginess were located. Table 21.2.8.11 indicates stereotypes regarding sex differences in stinginess and selfishness have not been consistent.

Table 21.2.8.11 Sex stereotype about being stingy or selfish

Nature of stereotype			*Post-pubertal*		
				Adult	
Males stereotyped as more				**NORTH AMERICA** *United States*: Hosoda & Stone 2000:1289 (undergrad, stingy)	
No significant difference				**NORTH AMERICA** *United States*: Werner & LaRussa 1985 (undergrad, stingy)	
Females stereotyped as more				**EUROPE** *Norway*: JE Williams & Best 1977 (college, selfish)	

21.2.8.12 Sex Stereotype About Being Stubborn

Is one sex thought to be more determined to maintain their thoughts and behavior? The three studies shown in Table 21.2.8.12 found that males are stereotyped as being more stubborn than females.

Table 21.2.8.12 Sex stereotype about being stubborn

Nature of stereotype			*Post-pubertal*		
				Adult	
Males stereotyped as more				**NORTH AMERICA** *United States*: Sherriffs & McKee 1957:453 (undergrad); Werner & LaRussa 1985 (college); Hosoda & Stone 2000:1289 (undergrad)	
No significant difference					
Females stereotyped as more					

21.2.8.13 Sex Stereotype About Smiling Frequency

The studies in Table 21.2.8.13 sought to determine if one sex was thought to smile more frequently than the other? All of these studies found females were believed to smile more than were males.

Table 21.2.8.13 Sex stereotype about smiling frequency

Nature of stereotype			*Post-pubertal*		*Wide age range*
				Adult	
Males stereotyped as more					
No significant difference					
Females stereotyped as more				**NORTH AMERICA** *Canada*: Fischer 1993 (undergrad); *United States*: JT Johnson & Shulman 1988; Briton & Hall 1995a (undergrad)	**NORTH AMERICA** *United States*: C Kramer 1977; DG Freedman 1979:176

21.2.8.14 Sex Stereotype About Being Whiny or Prone to Nagging

Do people consider one sex to complain more than the other? The studies shown in Table 21.2.8.14 found that people perceive females to whine and nag more than males.

21.2.9 Sex Stereotypes Regarding Social Behavior

Sex stereotypes regarding most forms of social behavior are reviewed below. (Studies of stereotypes involving sexuality are considered separately in a

separate section immediately following the present one.) A wide range of sex stereotypes concerning social behavior are presented in this section.

Table 21.2.8.14 Sex stereotype about being whiny or prone to nagging

Nature of stereotype			*Post-pubertal*		
				Adult	
Males stereotyped as more					
No significant difference					
Females stereotyped as more				**EUROPE** *Norway*: JE Williams & Best 1977 (college, nagging) **NORTH AMERICA** *United States*: Hosoda & Stone 2000:1289 (whiny) **INTERNATIONAL** *Multiple Countries*: JE Williams et al. 1999:519 (whiny, 77%)	

21.2.9.1 Sex Stereotype About Being Altruistic

Do people assume one sex will be more likely to sacrifice for the well-being of others? Several studies, listed in Table 21.2.9.1, have found that people assume females will be more altruistic.

Table 21.2.9.1 Sex stereotype about being altruistic

Nature of stereotype			*Post-pubertal*		
			Adolescent		
Males stereotyped as more					
No significant difference					
Females stereotyped as more			**NORTH AMERICA** *United States*: Zarbatany et al. 1985; Seefeldt 2008; Shigetomi, Hartmann & Gelfeld 1981		

21.2.9.2 Sex Stereotype About Being a Caregiver

A caregiver is someone who devotes time and effort to the well-being of someone in need. Table 21.2.9.2 lists the one study found concerning which sex was assumed to be a caregiver. This study found that people stereotyped females as being a caregiver.

Table 21.2.9.2 Sex stereotype about being a caregiver

Nature of stereotype				*Post-pubertal*	
				Adult	
Males stereotyped as more					
No significant difference					
Females stereotyped as more				**NORTH AMERICA** *United States*: A Walker 1992	

21.2.9.3 Sex Stereotype About Being Communal

Being communal involves a willingness to share with high degrees of equality. According to the one study found on sex stereotyping of communality, listed in Table 21.2.9.3, most research participants stereotyped females as more communal than males.

Table 21.2.9.3 Sex stereotype about being communal

Nature of stereotype				*Post-pubertal*	
				Adult	
Males stereotyped as more					
No significant difference					
Females stereotyped as more				**NORTH AMERICA** *United States*: Bakan 1966	

21.2.9.4 Sex Stereotype About Being in Control

Is one sex thought to be more in control than the other? As shown in Table 21.2.9.4, the one study located on this topic concluded that males were perceived to be in control to a greater extent than females.

Table 21.2.9.4 Sex stereotype about being in control

Nature of stereotype				*Post-pubertal*	
				Adult	
Males stereotyped as more				**EUROPE** *Netherlands*: Visser 1996:593 (undergrad)	
No significant difference					
Females stereotyped as more					

21.2.9.5 Sex Stereotype About Being Cooperative or Collaborative

Do people consider one sex to be more willing to work together for a common goal? Table 21.2.9.5 lists several studies finding that females are stereotyped as being more cooperative or collaborative.

Table 21.2.9.5 Sex stereotype about being cooperative or collaborative

Nature of stereotype			*Post-pubertal*		
			Adolescent	*Adult*	
Males stereotyped as more					
No significant difference					
Females stereotyped as more			**NORTH AMERICA** *United States*: Zarbatany et al. 1985 (cooperative)	**NORTH AMERICA** *United States*: Werner & LaRussa 1985 (cooperative, college); Cann & Siegbried 1990; Orbell et al. 1994 (cooperative); Hosoda & Stone 2000:1289 (cooperative, undergrad)	

21.2.9.6 Sex Stereotype About Discrimination

Do people stereotype one sex as unfairly judging certain categories of people? One study, cited in Table 21.2.9.6, concluded that people stereotype males as engaging in discrimination.

Table 21.2.9.6 Sex stereotype about discrimination

Nature of stereotype			*Post-pubertal*		
				Adult	
Males stereotyped as more				**NORTH AMERICA** *United States*: RS Baron et al. 1991 (college, discriminate on the basis of sex)	
No significant difference					
Females stereotyped as more					

21.2.9.7 Sex Stereotype About Being Dominant

Do people stereotype one sex as being more powerful and influential than the other? Two studies, listed in Table 21.2.9.7, found that males are more likely than females to be stereotyped as being dominant.

Table 21.2.9.7 Sex stereotype about being dominant

Nature of stereotype				*Post-pubertal*	
				Adult	
Males stereotyped as more				**NORTH AMERICA** *United States*: Ashmore et al. 1986 **INTERNATIONAL** *Multiple Countries*: JE Williams et al. 1999:519 (87%)	
No significant difference					
Females stereotyped as more					

21.2.9.8 Sex Stereotype About Being Family-Oriented

Is one sex thought to value their family over their career and other interests more than the other sex? Just one study on this topic was located. As shown in Table 21.2.9.8, females were stereotyped as being more family-oriented than males.

Table 21.2.9.8 Sex stereotype about being family-oriented

Nature of stereotype				*Post-pubertal*	
				Adult	
Males stereotyped as more					
No significant difference					
Females stereotyped as more				**EUROPE** *Netherlands*: Visser 1996:593 (undergrad)	

21.2.9.9 Sex Stereotype About Gossiping

Do people think one sex is more interested in discussing rumors about other people? Several studies have examined which sex is thought to gossip more. As shown in Table 21.2.9.9, this research has concluded that females are thought to gossip more than males.

21.2.9.10 Sex Stereotype About Being Nurturing

Is one sex thought to contribute more to the health and development of others? Table 21.2.9.10 shows that a number of studies have found that females are stereotyped as being more nurturing than are males.

Table 21.2.9.9 Sex stereotype about gossiping

Nature of stereotype			*Post-pubertal*		
				Adult	
Males stereotyped as more					
No significant difference					
Females stereotyped as more				**NORTH AMERICA** *United States*: Rysman 1977; Poveda 1975; de Munck et al. 2002:246* **OCEANIA** *Sri Lanka*: de Munck et al. 2002:246*	

Table 21.2.9.10 Sex stereotype about being nurturing

Nature of stereotype	*Pre-pubertal*		*Post-pubertal*		
		Child		*Adult*	
Males stereotyped as more					
No significant difference					
Females stereotyped as more		**NORTH AMERICA** *United States*: Birnbaum et al. 1980		**EUROPE** *Norway*: Storli & Sandseter 2015 (girls more nurturing, by 138 female teachers) **NORTH AMERICA** *United States*: Bem et al. 1976 (college); Eagly & Steffen 1984; M Coleman & Ganong 1985; Werner & LaRussa 1985 (giving); Fabes & Martin 1991; Karbon et al. 1992; Canetto et al. 1995 (elderly); Ray & Gold 1996 (college)	

21.2.9.11 Sex Stereotype About Being Obedient

Is one sex stereotyped as following orders more than the other? Table 21.2.9.11 reveals that studies of children, adolescents, or adults have all indicated that females tend to be stereotyped as being more obedient than males.

21.2.9.12 Sex Stereotype About Being Snobbish

Is either sex thought to be more concerned with high status? Table 21.2.9.12 indicates that the answer is mixed. One study found that research participants stereotyped females as snobbish, but the other study found that being snobbish was not associated with one sex more than the other.

Table 21.2.9.11 Sex stereotype about being obedient

Nature of stereotype	*Pre-pubertal*		*Post-pubertal*		
		Child	*Adolescent*	*Adult*	
Males stereotyped as more					
No significant difference					
Females stereotyped as more		**EUROPE** *Britain*: S Jones & Myhill 2004* (interviews)	**EUROPE** *Britain*: S Jones & Myhill 2004* (interviews)	**EUROPE** *Britain*: S Jones & Myhill 2004* (interviews) **NORTH AMERICA** *United States*: Luepton et al. 2001:19	

Table 21.2.9.12 Sex stereotype about being snobbish

Nature of stereotype			*Post-pubertal*		
				Adult	
Males stereotyped as more					
No significant difference				**NORTH AMERICA** *United States*: Werner & LaRussa 1985 (undergrad)	
Females stereotyped as more				**NORTH AMERICA** *United States*: Hosoda & Stone 2000:1289 (undergrad)	

21.2.9.13 Sex Stereotype About Being Sociable

People who are sociable have an unusually strong preference to spend time in the company of others. Table 21.2.9.13, shows that the evidence of a sex stereotype pertaining to sociability is somewhat mixed, but tends to favor females being so more than males.

21.2.9.14 Sex Stereotype About Social Intelligence

As noted earlier in this book, *social intelligence* basically has to do with the extent to which an individual is able to get along with others and to express oneself clearly in the company of others. As shown in Table 21.2.9.14, studies have found that females are perceived as having a higher social intelligence than are males.

Table 21.2.9.13 Sex stereotype about being sociable

Nature of stereotype				*Post-pubertal*	
				Adult	
Males stereotyped as more					
No significant difference				**NORTH AMERICA** *United States*: Werner & LaRussa 1985 (undergrad)	
Females stereotyped as more				**EUROPE** *Norway*: JE Williams & Best 1977 (undergrad); Scotland: M Bennett 2000:26 (undergrad, better in interpersonal relationships) **NORTH AMERICA** *United States*: Sherriffs & McKee 1957:453 (undergrad); M Gibbs et al. 1980 (prone to confide in same-sex others)	

Table 21.2.9.14 Sex stereotype about social intelligence

Nature of stereotype	*Pre-pubertal*		*Post-pubertal*		
		Child	*Adolescent*	*Adult*	
Males stereotyped as more					
No significant difference					
Females stereotyped as more		**EUROPE** *Finland*: Raty et al. 1999 (parents rating children) move	**EUROPE** *Finland*: Raty & Snellman 1992* (rated adolescents)	**ASIA** *Japan*: Azuma & Kashiwagi 1987 (rate other adults) **EUROPE** *Finland*: Raty & Snellman 1992* (rated other adults)	

21.2.9.15 Sex Stereotype About Being Submissive

Submissiveness has to do with being willing to obey others even if one is uncomfortable with the decision to do so. As shown in Table 21.2.9.15, all the available research findings indicate that submissiveness is more characteristic of females than of males.

21.2.9.16 Sex Stereotype About Being Tactful

Which sex is thought to be better at addressing sensitive issues? Research findings regarding sex stereotyping of tactfulness are summarized in Table 21.2.9.16. It indicates that females are stereotyped as being more tactful than are males.

Table 21.2.9.15 Sex stereotype about being submissive

Nature of stereotype				*Post-pubertal*	
				Adult	
Males stereotyped as more					
No significant difference					
Females stereotyped as more				**NORTH AMERICA** *United States*: Werner & LaRussa 1985 (college, submissiveness); Ashmore et al. 1986; Hosoda & Stone 2000:1289 (undergrad); Boyce & Herd 2003:373 **INTERNATIONAL** *Multiple Countries*: JE Williams & Best 1990 (25/25 countries); JE Williams et al. 1999:519 (84%)	

Table 21.2.9.16 Sex stereotype about being tactful

Nature of stereotype			*Post-pubertal*		
				Adult	
Males stereotyped as more					
No significant difference					
Females stereotyped as more				**NORTH AMERICA** *United States*: Sherriffs & McKee 1957:453 (undergrad); Werner & LaRussa 1985 (undergrad)	

21.2.9.17 Sex Stereotype About Being Talkative

Who's more talkative, men or women? Expressing an opinion in this regard is to offer a stereotype. As shown in Table 21.2.9.17, all the studies that have reported on sex stereotypes regarding talkativeness have concluded that females are more so than males.

21.2.9.18 Sex Stereotype About Being Victimized

Do people think one sex is more likely to become a victim? As indicated in Table 21.2.9.18, the two studies on this topic focused specifically on becoming a victim of sexual abuse. Both of these studies concluded that females were perceived as being more likely than males to be victims of sexual abuse.

Table 21.2.9.17 Sex stereotype about being talkative

Nature of stereotype				*Post-pubertal*	
				Adult	
Males stereotyped as more					
No significant difference					
Females stereotyped as more				**NORTH AMERICA** *United States*: Broverman et al. 1972 (talkative); Ruble 1983; Cowan & Hoffman 1986 (toddlers by adult raters); Hosoda & Stone 2000:1289 (talkative, undergrad); Luepton et al. 2001:19; Boyce & Herd 2003:373 (talkative) **INTERNATIONAL** *Multiple Countries*: JE Williams et al. 1999:519 (88%, talkative)	

Table 21.2.9.18 Sex stereotype about being victimized

Nature of stereotype			*Post-pubertal*	
				Adult
Males stereotyped as more				
No significant difference				
Females stereotyped as more				**NORTH AMERICA** *United States*: Broussard et al. 1991 (undergrad, sexual abuse); HD Smith et al. 1997 (sexual abuse)

21.2.9.19 Sex Stereotype About Being Assigned Custody of Children Post-Divorce

Do people stereotype one sex as being assigned custody of children following a divorce? Table 21.2.9.19 presents the only study located on this topic. It indicates that most people believe that females are more likely than males to be assigned custody of children following divorce.

21.2.10 Sex Stereotypes Regarding Sexuality

Some research having to do with sex stereotypes pertaining to human sexuality were located. Findings from these studies are summarized in the following five tables.

Table 21.2.9.19 Sex stereotype about being assigned custody of children post-divorce

Nature of stereotype			*Post-pubertal*		
				Adult	
Males stereotyped as more					
No significant difference					
Females stereotyped as more				**NORTH AMERICA** *United States*: CD Hoffman & Moon 2000	

21.2.10.1 Sex Stereotype About Being Sexy

Is one sex considered to be sexier than the other? One study asked research respondents which sex was the sexier. Table 21.2.10.1 shows that most respondents believed that this distinction went to females.

Table 21.2.10.1 Sex stereotype about being sexy

Nature of stereotype			*Post-pubertal*		
				Adult	
Males stereotyped as more					
No significant difference					
Females stereotyped as more				**INTERNATIONAL** *Multiple Countries*: JE Williams et al. 1999:519 (86%)	

21.2.10.2 Stereotype About Which Sex Has a Stronger Sex Drive

Beliefs about the strength of men's and women's sex drive may vary somewhat according to culture, although the availability of cross-cultural research is still quite limited. As shown in Table 21.2.10.2, citizens of the United States seem to predominantly believe that males have a stronger sex drive than do females. However, one study conducted in both the United States and in Sri Lanka concluded that in this latter country, females are stereotyped as having stronger sex drives.

21.2.10.3 Stereotype About Which Sex Initiates Sexual Activity

Closely related to the idea of a sex difference in sex drive (see directly above) is that of a sex difference in the initiation of sexual activity. As

shown in Table 21.2.10.3, all the research findings (notably limited to samples from the United States) have indicated that most people believe that males are more likely to initiate sexual activity than are females.

Table 21.2.10.2 Stereotype about which sex has a stronger sex drive

Nature of stereotype			*Post-pubertal*		
			Adolescent	*Adult*	
Males stereotyped as more			**NORTH AMERICA** *United States*: Zellman & Goodchilds 1983:55	**NORTH AMERICA** *United States*: Byrne 1977; Gross 1978; S Moore & Rosenthal 1993; LL Cohen & Shotland 1996; de Munck et al. 2002:242*; Impett & Peplau 2003	
No significant difference					
Females stereotyped as more				**OCEANIA** *Sri Lanka*: de Munck et al. 2002:242*	

Table 21.2.10.3 Stereotype about which sex initiates sexual activity

Nature of Difference			*Post-pubertal*		
				Adult	
Males stereotyped as more				**NORTH AMERICA** *United States*: N McCormick 1979 (expectancy, undergrad, dating persons); LJ Carroll et al. 1985 (normative); S Rose & Frieze 1993 (expectancy, undergrad, dating persons); PC Regan & Sprecher 1995 (normative)	
No significant difference					
Females stereotyped as more					

21.2.10.4 Sex Stereotype About Being Homosexual

One study sought to determine how sexual orientation is stereotyped regarding prevalence. Table 21.2.10.4 shows that the study concluded that most people believe that homosexuality is more common among males than among females.

Table 21.2.10.4 Sex stereotype about being homosexual

Nature of stereotype			*Post-pubertal*		
				Adult	
Males stereotyped as more				**NORTH AMERICA** *United States*: FY Wong et al. 1999	
No significant difference					
Females stereotyped as more					

21.2.10.5 Sex Stereotype About Being Sexually Promiscuous

A few studies have investigated sex stereotypes having to do with being sexually promiscuous and being likely to cheat on one's spouse. As one can see by viewing Table 21.2.10.5, the two studies conducted in the United States both concluded that males have both of these tendencies to a greater degree than females. However, in a study conducted in Sri Lanka, no significant sex differences were identified.

Table 21.2.10.5 Sex stereotype about being sexual promiscuous

Nature of stereotype			*Post-pubertal*		
				Adult	
Males stereotyped as more				**NORTH AMERICA** *United States*: LL Cohen & Shotland 1996 (promiscuity); de Munck et al. 2002:241* (likely to cheat on spouse)	
No significant difference				**OCEANIA** *Sri Lanka*: de Munck et al. 2002:241* (cheating on spouse)	
Females stereotyped as more					

21.2.11 Sex Stereotypes About Social Status

Considerable research has been published regarding sex stereotypes having to do with social status issues. The results of these studies are summarized below.

21.2.11.1 Sex Stereotype About Being More Demanding, Bossy, or Domineering

Do people think one sex is more likely to assert their will over others in an arrogant way? Table 21.2.11.1 shows that research participants believe males are more demanding, bossy, or domineering.

Table 21.2.11.1 Sex stereotype about being more, demanding, bossy, or domineering

Nature of stereotype				*Post-pubertal*	
				Adult	
Males stereotyped as more				**NORTH AMERICA** *United States*: Mehrabian 1969; C Kramer 1977 (demanding); Werner & LaRussa 1985 (college, bossy); Cann & Siegfried 1990 (domineering); Hosoda & Stone 2000:1289 (college)	
No significant difference					
Females stereotyped as more					

21.2.11.2 Sex Stereotype About Dominance and Leadership

As shown in Table 21.2.11.2, a considerable number of studies have been undertaken to assess sex stereotype regard which sex is more dominant or more likely to be a leader. One can see that the vast majority of studies have found males being stereotyped as possessing these traits more than females.

Table 21.2.11.2 Sex stereotype about dominance and leadership

Nature of stereotype	*Pre-pubertal*		*Post-pubertal*		
		Child		*Adult*	
Males stereotyped as more		**NORTH AMERICA** *United States*: S Smith 1939		**EUROPE** *Portugal*: Poeschel 2008:77; *Netherlands*: Visser 1996:593 (college) **NORTH AMERICA** *Canada*: CL Martin 1987:492; *United States*: Sherriffs & McKee 1957:453 (college); Broverman et al. 1972; B Rosen & Jerdee 1973; VE Schein 1973 (leader or manager, by both sexes); Lockheed & Hall 1976; RW Rice et al. 1977 (military cadets); Eagly & Wood 1982; V Brown & Geis 1984; Werner & LaRussa 1985 (college); W Wood & Karten 1986; OC Brenner et al. 1989 (better managers); Schein et al. 1989 (managers); Branscombe & Smith 1990; Pratto & Bargh 1991 (college); Dember et al. 1993; Felmlee 1994 (romantic partners); ME Heilman et al. 1995 (better	

(*Continued*)

Table 21.2.11.2 (Continued)

Nature of stereotype	*Pre-pubertal*		*Post-pubertal*		
		Child		*Adult*	
				managers); Chemers et al. 2000 (military cadets); Hosoda & Stone 2000:1289 (college); Boldy et al. 2001 (leader for military trainees by both sexes); Heilman 2001 (leader, by both sexes); VE Schein 2001 (managers); GN Powell et al. 2002 (managers); Willemsen 2002 (managers); Sczesny 2003 (managers); Lawless 2004; S Peters et al. 2004 (African American sample) **OVERVIEW** *Meta-Analysis*: Eagly & Karau 1991 (leadership & leadership competence)	
No significant difference				**NORTH AMERICA** *United States*: MS Morgan 2004 (military cadets)	
Females stereotyped as more					

21.2.11.3 Sex Stereotype About Sex Differences in Being a Better Leader

Do people believe that the members of one sex will be better leaders than those of the other sex? Table 21.2.11.3 presents three studies of sex stereotypes and leadership, all which found males were stereotyped as being a better leader.

Table 21.2.11.3 Sex stereotype about sex differences in being a better leader

Nature of stereotype	*Pre-pubertal*		*Post-pubertal*		
		Child		*Adult*	
Males stereotyped as more		**NORTH AMERICA** *United States*: Fuxloch 1930 (having leadership characteristic)		**NORTH AMERICA** *United States*: Bowman et al. 1965:28 (more fit for management & better at business affairs); Nieva & Gutek 1981; RW Rice et al. 1984 (college, military academy)	
No significant difference					
Females stereotyped as more					

21.2.11.4 Sex Stereotype About Being Hierarchically Oriented

Do people think one sex prefers being part of hierarchical organizations more than the other sex? According to the two studies presented in Table 21.2.11.4, research participants thought males are inclined to organize themselves into hierarchies than is the case for females. Females are thought to be more egalitarian in their organizational styles and interpersonal relationships.

Table 21.2.11.4 Sex stereotype about being hierarchically oriented

Nature of stereotype			*Post-pubertal*		
				Adult	
Males stereotyped as more				**NORTH AMERICA** *United States*: Rudman et al. 2001; Schmid Mast 2004 (college)	
No significant difference					
Females stereotyped as more					

21.2.11.5 Stereotype About Sex Differences in Earnings

Table 21.2.11.5 summarizes findings regarding which sex is stereotyped as receiving higher salaries. One can see that the findings all indicate that males are perceived as earning more than females.

Table 21.2.11.5 Stereotype about sex differences in earnings

Nature of Difference			*Post-pubertal*		
			Adolescent	*Adult*	
More among males			**NORTH AMERICA** *Canada*: TG Morrison, Bell et al. 1994 (N = 1,300)	**EUROPE** *Britain*: Fernham & Wilson 2011 (in various gender-neutral jobs, N = 294) **NORTH AMERICA** *Canada*: Goyder et al. 2003; *United States*: Eagly & Wood 1982; Eagly & Steffens 1984; LA Jackson & Grabski 1988; Biernat, Manis & Nelson 1991:Figure 6; Diekman & Eagly 2000; MJ Williams, Palurk & Spencer-Rogers 2010:111; Crawley 2014:Table 3 (college, within specific occupations)	
Not significant					
More among females					

21.2.11.6 Stereotype About Sex Differences in Being Willing to Work for Low Wages

Do people assume one sex will be more willing to work for low wages? Table 21.2.11.6 lists the two relevant studies that were found. It indicated that females were assumed to be more willing to work for low wages than were males.

Table 21.2.11.6 Stereotype about sex differences in being willing to work for low wages

Nature of stereotype			*Post-pubertal*		
				Adult	
Males stereotyped as more					
Not significant					
Females stereotyped as more				**NORTH AMERICA** *United States*: Rynes et al. 1985; Gerhart & Rynes 1991	

21.2.12 Sex Stereotypes About Occupations

Many sex stereotypes have to do with sex differences in occupations. The findings in this regard will now be examined.

As the findings from the following tables are reviewed, it is worth noting that stereotypes having to do with occupations come in three slightly different forms: likelihood, appropriateness, and appeal. *Likelihood stereotypes* involve research participants stating whether or not they believe that an occupation is mainly dominated by males or by females. *Appropriateness stereotypes* have to do with whether respondents believe a particular occupation is most appropriate for either males or females. In the case of *appeal stereotypes*, research participants state if they think a particular occupation will appeal primarily to males or to females. When the information from each study was obtained, the specific nature of each occupation-related stereotype is provided after each study.

Another point to make regarding the studies of sex stereotypes having to do with occupations is that many of the participants in these studies used young children as research participants (instead of adolescents or adults). Probably for this reason, most of the stereotypes assessed for research participants who were children are of the likelihood form. When occupation-related stereotypes involve adolescents and adults, the appropriateness of occupations for one or both sexes are usually provided.

21.2.12.1 Stereotype About the Suitability of Occupations for Either Sex

In a few studies of stereotyping, research participants were asked how suitable jobs were for both sexes (as opposed to being suitable for just one). As one can see in Table 21.2.12.1, all of these studies found that females envision a broader array of occupations as appropriate for either sex rather than just for one or the other.

Table 21.2.12.1 Stereotype about the suitability of occupations for either sex

Nature of Difference	*Pre-pubertal*		*Post-pubertal*		
		Child		*Adult*	
Broader range among males					
Not significant					
Broader range among females		**NORTH AMERICA** *United States*: Franken 1983; CJ Archer 1984		**NORTH AMERICA** *Canada*: TG Morrison, Bell et al. 1994 (N = 1,300)	

21.2.12.2 Stereotype About Sex Differences in Agentic vs. Communal Occupations

One study of ten different countries compared responses by males and females regarding their opinions about sex differences in people's choices of occupations. As shown in Table 21.2.12.2, the study concluded that in all ten countries, males were thought to gravitate more toward agentic lines of work, whereas females tend more toward communal occupations.

Table 21.2.12.2 Stereotype about sex differences in agentic vs. communal occupations

Nature of Difference			*Post-pubertal*		
				Adult	
Males stereotyped as more				**INTERNATIONAL** *Multiple Countries*: Froehlich, Olsson & Martiny 2020* (more agentic, 10 countries, N = 1,918)	
Not significant					
Females stereotyped as more				**INTERNATIONAL** *Multiple Countries*: Froehlich, Olsson & Martiny 2020* (more communal, 10 countries, N = 1,918)	

21.2.12.3 Stereotype About Sex Differences in Being an Architect

Do people expect a designer of buildings to be one particular sex? The only relevant study located is listed in Table 21.2.12.3. It indicated that architects were assumed to be males.

Table 21.2.12.3 Stereotype about sex differences in being an architect

Nature of stereotype			*Post-pubertal*		
			Adolescent		
Males stereotyped as more			**NORTH AMERICA** *United States*: Schlossberg & Goodman 1972 (likelihood, building designer)		
Not significant					
Females stereotyped as more					

21.2.12.4 Stereotype About Sex Differences in Being in the Arts or Humanities

Do people think one sex is more interested in creative expression through art and literature rather than the other? The two studies listed in Table 21.2.12.4 found that females were assumed to be more likely to be interested in the arts or humanities.

Table 21.2.12.4 Stereotype about sex differences in being in the arts or humanities

Nature of stereotype			*Post-pubertal*		
			Adolescent		
Males stereotyped as more					
Not significant					
Females stereotyped as more			**EUROPE** *Britain*: J Archer & Macrae 1991 (arts & humanities appeal more to females); J Whitehead 1996		

21.2.12.5 Stereotype About Sex Differences in Being a City Planner

Do people expect cities to be designed by members of one sex? As Table 21.2.12.5 indicates, people thought a city planner was a male occupation.

Table 21.2.12.5 Stereotype about sex differences in being a city planner

Nature of stereotype				*Post-pubertal*	*Wide age range*
				Adult	
Males stereotyped as more				**MIDDLE EAST** *Israel*: Mischel 1974* (city planning)	**NORTH AMERICA** *United States*: Mischel 1974* (city planning, adolescents & adults)
Not significant					
Females stereotyped as more					

21.2.12.6 Stereotype About Sex Differences in Being a Dietician

One study investigated sex stereotypes regarding sex differences in who is most likely to be a dietician. As shown in Table 21.2.12.6, it found that most people stereotyped dieticians as being females.

Table 21.2.12.6 Stereotype about sex differences in being a dietician

Nature of stereotype					*Wide age range*
Males stereotyped as more					
Not significant					
Females stereotyped as more					**NORTH AMERICA** *United States*: Mischel 1974 (dietician, adolescents & adults)

21.2.12.7 Stereotype About Sex Differences in Being an Electrician

Do people associate working with electricity and electrical appliances with a particular sex? Table 21.2.12.7 lists one study on sex stereotyping when it comes to being able to repair television sets. Males were thought to be more involved in this occupation.

Table 21.2.12.7 Stereotype about sex differences in being an electrician

Nature of stereotype	*Pre-pubertal*				
		Child			
Males stereotyped as more		**NORTH AMERICA** *United States*: Schlossberg & Goodman 1972 (repairing televisions, likelihood)			
Not significant					
Females stereotyped as more					

21.2.12.8 Stereotype About Sex Differences in Being a Fire Fighter

Do people expect firefighters to be a particular sex? The one relevant study is listed in Table 21.2.12.8. It indicated that children assumed that fire fighters would be males.

Table 21.2.12.8 Stereotype about sex differences in being a fire fighter

Nature of stereotype	*Pre-pubertal*				
		Child			
Males stereotyped as more		**NORTH AMERICA** *United States*: CS Garrett et al. 1977:510 (fire fighter)			
Not significant					
Females stereotyped as more					

21.2.12.9 Stereotype About Sex Differences in Being a Food Server at a Restaurant

Do people expect the person serving them their food to be a male or a female? Table 21.2.12.9 lists a study that found that children thought food servers in a restaurant would be females.

Table 21.2.12.9 Stereotype about sex differences in being a food server at a restaurant

Nature of stereotype	*Pre-pubertal*				
		Child			
Males stereotyped as more					
Not significant					
Females stereotyped as more		**NORTH AMERICA** *United States*: Schlossberg & Goodman 1972 (likelihood)			

21.2.12.10 Stereotype About Sex Differences in Being a Janitor

Is the occupation of janitor sex stereotyped? Table 21.2.12.10 presents the only study located on this matter. It indicted that among children, being a janitor was associated with being male.

Table 21.2.12.10 Stereotype about sex differences in being a janitor

Nature of stereotype	*Pre-pubertal*				
		Child			
Males stereotyped as more		**NORTH AMERICA** *United States*: CS Garrett et al. 1977:510 (janitor)			
Not significant					
Females stereotyped as more					

21.2.12.11 Stereotype About Sex Differences in Being a Lawyer

Two studies were located pertaining to sex stereotyping of lawyers, one of which was conducted in two different countries. As shown in Table 21.2.12.11, the findings agree that lawyers are stereotyped as being males.

Table 21.2.12.11 Stereotype about sex differences in being a lawyer

Nature of stereotype	*Pre-pubertal*		*Post-pubertal*		*Wide age range*
		Child		*Adult*	
Males stereotyped as more		**NORTH AMERICA** *United States*: CS Garrett et al. 1977:510 (lawyer)		**MIDDLE EAST** *Israel*: Mischel 1974*	**NORTH AMERICA** *United States*: Mischel 1974* (adolescents & adults)
Not significant					
Females stereotyped as more					

21.2.12.12 Stereotype About Sex Differences in Being a Librarian

Do people assume that a librarian will be of a certain sex? Table 21.2.12.12 indicates that at least among children, librarians are thought to be female.

21.2.12.13 Stereotype About Sex Differences in Being a Mechanic

Two studies investigated sex stereotyping regarding being a mechanic. Both studies, cited in Table 21.2.12.13, indicated that at least among children, auto mechanics were thought to be males.

Table 21.2.12.12 Stereotype about sex differences in being a librarian

Nature of stereotype	*Pre-pubertal*				
		Child			
Males stereotyped as more					
Not significant					
Females stereotyped as more		**NORTH AMERICA** *United States*: Schlossberg & Goodman 1972 (likelihood)			

Table 21.2.12.13 Stereotype about sex differences in being a mechanic

Nature of stereotype	*Pre-pubertal*				
		Child			
Males stereotyped as more		**NORTH AMERICA** *United States*: Schlossberg & Goodman 1972 (auto mechanic); CS Garrett et al. 1977:510 (car mechanic)			
Not significant					
Females stereotyped as more					

21.2.12.14 Stereotype About Sex Differences in Being a Nurse

Are nurses subjected to sex stereotypes? Table 21.2.12.14 cites the only study located concerning this matter. It suggests that children assume that nurses will be female.

Table 21.2.12.14 Stereotype about sex differences in being a nurse

Nature of stereotype	*Pre-pubertal*				
		Child			
Males stereotyped as more					
Not significant					
Females stereotyped as more		**NORTH AMERICA** *United States*: Schlossberg & Goodman 1972 (likelihood)			

21.2.12.15 Stereotype About Sex Differences in Being a Pilot

Do children stereotype the sex of airline pilots? According to Table 21.2.12.15, the only relevant study concluded that pilots are males.

Table 21.2.12.15 Stereotype about sex differences in being a pilot

Nature of stereotype	*Pre-pubertal*				
		Child			
Males stereotyped as more		**NORTH AMERICA** *United States*: CS Garrett et al. 1977:510 (airline pilot)			
Not significant					
Females stereotyped as more					

21.2.12.16 Stereotype About Sex Differences in Being a Physician

Are medical doctors subjected to sex stereotyping? The lone study located on this topic is listed in Table 21.2.12.16. It indicated that people assumed that a physician would be male.

Table 21.2.12.16 Stereotype about sex differences in being a physician

Nature of stereotype	*Pre-pubertal*				
		Child			
Males stereotyped as more		**NORTH AMERICA** *United States*: CS Garrett et al. 1977:510 (choosing to be a doctor)			
Not significant					
Females stereotyped as more					

21.2.12.17 Stereotype About Sex Differences in Being a Plumber

Is the occupation of being a plumber assumed to be more appropriate for one particular sex? According to the study listed in Table 21.2.12.17, children assume that plumbing is most appropriate for males.

Table 21.2.12.17 Stereotype about sex differences in being a plumber

Nature of stereotype	*Pre-pubertal*				
		Child			
Males stereotyped as more		**NORTH AMERICA** *United States*: CS Garrett et al. 1977:510 (plumber)			
Not significant					
Females stereotyped as more					

Table 21.2.12.18 Stereotype about sex differences in being a scientist

Nature of stereotype	*Pre-pubertal*		*Post-pubertal*		
		Child	*Adolescent*	*Adult*	
Males stereotyped as more		**NORTH AMERICA** *Canada*: Chambers 1983 (likelihood); Farland-Smith 2009 (likelihood); *United States*: Fitch et al. 1993 (likelihood)	**NORTH AMERICA** *United States*: Steffens et al. 2010 (likelihood); Fralick et al. 2009 (likelihood)	**EUROPE** *Britain*: A Kelly 1985 (appropriateness) **NORTH AMERICA** *United States*: Kleinman 1998 (likelihood); Milford & Tippett 2013 (college, likelihood) **INTERNATIONAL** *Multiple Countries*: Nosek et al. 2009 (likelihood)	
Not significant					
Females stereotyped as more					

21.2.12.18 Stereotype About Sex Differences in Being a Scientist

One of the most studied occupational sex stereotypes is that of a scientist. Results from several studies on this topic are displayed in Table 21.2.12.18, all which have found that people expect scientists to be males.

21.2.12.19 Stereotype About Sex Differences in Being a Schoolteacher

Are school teachers stereotyped as being of a certain sex? The one pertinent study on this matter is listed in Table 21.2.12.19. It indicated that primary schoolteachers are thought to be female.

Table 21.2.12.19 Stereotype about sex differences in being a schoolteacher

Nature of stereotype					*Wide age range*
Males stereotyped as more					
Not significant					
Females stereotyped as more					**NORTH AMERICA** *United States*: Mischel 1974 (primary education, adolescents & adults)

21.2.12.20 Stereotype About Sex Differences in Being a Seamstress

Are people who earn a living by sewing clothes thought to be a particular sex? The one study addressing this question is presented in Table 21.2.12.20. One can see that at least among children, women are stereotyped as being seamstresses more than males.

Table 21.2.12.20 Stereotype about sex differences in being a seamstress

Nature of stereotype	*Pre-pubertal*				
		Child			
Males stereotyped as more					
Not significant					
Females stereotyped as more		**NORTH AMERICA** *United States*: CS Garrett et al. 1977:510 (seamstress/sewing machine operator)			

21.2.12.21 Stereotype About Sex Differences in Being Truck Driver

Is there a sex stereotype about people who drive a truck for a living? The only study examining sex stereotypes about who is more likely to be truck drivers is presented in Table 21.2.12.21. It found that children believed that truck drivers would be male.

Table 21.2.12.21 Stereotype about sex differences in being a truck driver

Nature of stereotype	*Pre-pubertal*				
		Child			
Males stereotyped as more		**NORTH AMERICA** *United States*: CS Garrett et al. 1977:510 (truck driver)			
Not significant					
Females stereotyped as more					

22 Attitudes and Actions toward Others According to Their Sex

The preceding chapter pertained to sex stereotypes. In the present chapter, research findings are examined having to do with people's expectations and behavior toward others based on whether the person with whom they are interacting is a male or a female.

22.1 Judgments and Assessments

People obviously make judgments about others based on which sex they happen to be. This section provided a summary of findings regarding these judgments.

22.1.1 Judgments Concerning Someone's Sex

Some beliefs and judgments about males and females do not fit well into the category of stereotype. The results of research surrounding these beliefs and judgments are reviewed below.

22.1.1.1 Correctly Judging Someone's Gender Based on Writing Style

If you were given a typed essay and asked to guess whether the essay's writer was a male or a female, how accurate would you be? Some studies have empirically addressed this question. Table 22.1.1.1 shows that, in all of these studies, judges were able to guess the sex of the writer significantly above chance levels.

22.1.1.2 Social Acceptability of Opposite-Sex Activities

According to at least three studies, shown in Table 22.1.1.2, people are generally more accepting or approving of females engaging in activities that are considered typical of the opposite sex than they are of males doing so. In other words, girls behaving like "tomboys" is more acceptable to most people than boys behaving like "sissies."

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Table 22.1.1.1 Correctly judging someone's gender based on writing style

Nature of difference			*Post-pubertal*		*Wide age range*
				Adult	
Above chance accuracy				**NORTH AMERICA** *United States*: PT Young 1931*; Tenwolde 1934; Goodenough 1945; D Lester et al. 1979 **OCEANIA** *New Zealand*: Janssen & Murachver 2005	**EUROPE** *Britain*: J Hartley 1991:143; *France*: Binet 1906 **NORTH AMERICA** *United States*: Downey 1910; Kinder 1926; Newhall 1926; ME Broom et al. 1929; PT Young 1931*; P Eisenberg 1938; WC Middleton 1938; McCullough 1987
Chance level of accuracy					
Below chance accuracy					

Table 22.1.1.2 Social acceptability of opposite-sex activities

Nature of difference	*Pre-pubertal*				
		Child			
More acceptable for males					
Not significant					
More acceptable for females		**NORTH AMERICA** *United States*: Fagot 1977; R Shell & Eisenberg 1990; KJ Zucker et al. 1995			

22.1.1.3 Blame for Domestic Violence Committed Against Women

A few studies have compared men and women with respect to which sex they believed was more blameworthy with respect to instances of domestic violence (committed by others, not by themselves). As shown in Table 22.1.1.3, all of these studies found that both sexes were more likely to blame the opposite sex (i.e., females blame males and males blame females) more than their own sex for instances of domestic violence.

22.1.1.4 Importance of Offspring's Career Development

One survey was undertaken in which parents were asked to rate the importance of career development as a consideration in rearing their children. Table 22.1.1.4 shows that both mothers and fathers rated this factor as more important for their sons than for their daughters.

Table 22.1.1.3 Blame for domestic violence committed against women

Nature of difference				*Post-pubertal*	
				Adult	
Same sex more blameworthy					
Not significant					
Opposite sex more blameworthy				**NORTH AMERICA** *United States*: M Pierce & Harris 1993 (undergrad); RJ Harris & Cook 1994 (undergrad); Schuller et al. 1994; Locke & Richman 1999 (undergrad)	

Table 22.1.1.4 Importance of offspring's career development

Nature of difference				*Post-pubertal*	
				Adult	
Son's career development considered more important				**OCEANIA** *Australia*: Farnill 1986 (by both parents)	
Not significant					
Daughter's career development considered more important					

22.1.1.5 Intelligibility of a Speaker's Voice

In a couple of studies, the ability to clearly hear and understand speakers was assessed. As shown in Table 22.1.1.5, one study found that both sexes were able to understand male voices better, whereas the other study concluded that there were differences depending on the sex of the listener.

Table 22.1.1.5 Intelligibility of a speaker's voice

Nature of difference			*Post-pubertal*	
			Adult	
Male voices considered more intelligible			**EUROPE** *Italy*: Maffei et al. 2012 (by both sexes) **NORTH AMERICA** *Canada*: Ellis, Reynolds et al. 1996* (by female listeners)	
No significant difference				
Female voices considered more intelligible			**NORTH AMERICA** *Canada*: Ellis, Reynolds et al. 1996* (by male listeners)	

22.1.1.6 Perception of Clothing in Sexual Terms

One study asked research participants to rate the sexiness of men's and women's clothes. Table 22.1.1.6 shows that more people of both sexes concluded that women's clothing was sexier.

Table 22.1.1.6 Perception of clothing in sexual terms

Nature of difference			*Post-pubertal*		
			Adolescent		
Male clothing perceived as more					
Not significant					
Female clothing perceived as more			**NORTH AMERICA** *United States*: Zellman & Goodchilds 1983 (by both sexes)		

22.1.1.7 Sex of "False Name of Famous People" Effect

The "false name of famous people" effect occurs when people erroneously judge names as being those of someone famous, when in fact the name was contrived by the researchers. As shown in Table 22.1.1.7, the available studies all indicated that this effect is more likely to occur with the names of males than with the names of females.

Table 22.1.1.7 Sex of "false name of famous people" effect

Nature of difference			*Post-pubertal*		
				Adult	
More among male names				**EUROPE** *Germany*: Buchner & Wippich 1996; Buchner et al. 2000; Steffens et al. 2004 **NORTH AMERICA** *United States*: Banaji & Greenwald 1995	
Not significant					
More among female names					

22.1.1.8 Interpretation of Emotional Expression Based on the Individual's Presumed Gender

In one experiment, adults were shown pictures of infants with emotion-filled expressions. As shown in Table 22.1.1.8, the experiment indicated that if the individuals were told that the photo was of a baby boy, they were more likely to report that the expression was one of anger than of

fear. The opposite pattern occurred if research participants were told that the photo was of a baby girl.

Table 22.1.1.8 Interpretation of emotional expression based on the individual's presumed gender

Nature of difference	*Pre-pubertal*				
	Infant/toddler				
Males seen as angrier/less fearful	**NORTH AMERICA** *United States*: Condry & Condry 1976 (adult interpreters)				
No significant difference					
Females seen as angrier/ less fearful					

22.1.2 Assessment of Others According to Their Gender

Some research has been undertaken to determine if an individual's sex is related to how he or she is assessed. The findings from this research are summarized below.

22.1.2.1 Evaluation of Parental Intelligence by an Offspring

Some studies have sought to determine whether offspring perceive a difference in the psychometric intelligence of their mothers and fathers. Psychometric intelligence (or simply intelligence) refers to the ability to cognitively absorb information from one's environment and use that information to effectively guide one's future actions. Table 22.1.2.1 shows that there were either no significant differences in the assessments of mothers and fathers regarding intelligence or fathers were believed to have higher intelligence than mothers.

Table 22.1.2.1 Evaluation of parental intelligence by an offspring

Nature of difference			*Post-pubertal*		
				Adult	
Father rated higher				**EUROPE** *Britain*: Furnham & Gasson 1998 (parental estimate of IQ of their children); Petrides et al. 2004 (undergrad) **NORTH AMERICA** *United States*: H Hogan 1978 (undergrad); Beloff 1992 (undergrad)	
No significant difference				**EUROPE** *Britain*: Furnham et al. 1999 (young); Furnham et al. 2002 (young) **OCEANIA** *New Zealand*: Byrd & Stacey 1993 (undergrad)	
Mother rated higher					

22.1.2.2 Evaluation of Offspring's Intelligence by a Parent

In a few studies, parents have been asked to rate the intelligence of their sons and daughters. Table 22.1.2.2 indicates that parents perceive their sons to be more intelligent on average than they perceive their daughters.

Table 22.1.2.2 Evaluation of offspring's intelligence by a parent

Nature of difference					*Wide age range*
Son rated higher					**EUROPE** *Britain*: Furnham & Gasson 1998; Furnham et al. 2002 **LATIN/CARIBBEAN AMERICA** *Argentina*: Furnham & Chamorro-Premuzic 2005 (college, both sexes rating their fathers) **OCEANIA** *Australia*: Furnham & Petrides 2004
No significant difference					
Daughter rated higher					

22.1.2.3 Evaluation of Sex Difference in Student Academic Ability

Two studies of teachers' assessments of their students' academic abilities according to sex were located. As shown in Table 22.1.2.3, one study of grade school teachers did not perceive any significant sex difference in the academic abilities of their students, while a study of high school teachers concluded that the average female student was thought to have greater academic ability than the average male student.

Table 22.1.2.3 Evaluation of sex difference in student academic ability

Nature of difference	*Pre-pubertal*		*Post-pubertal*		
		Child	*Adolescent*		
Male rated higher					
No significant difference		**NORTH AMERICA** *United States*: Jussim & Eccles 1995 (by teachers)			
Female rated higher			**NORTH AMERICA** *United States*: Wright & Houck 1995 (high school teacher rating)		

22.1.2.4 Evaluation of Another's Facial Attractiveness

Several studies have explored sex differences in facial attractiveness, including the types of features that males or females possess that elicit increased or decreased attractiveness assessments. Table 22.1.2.4 shows that findings have been somewhat mixed. Among infants, no significant sex differences were found. For adolescents and adults, on the other hand, facial attractiveness in females was rated higher than for males.

Table 22.1.2.4 Evaluation of another's facial attractiveness

Nature of difference			*Post-pubertal*		
			Adolescent	*Adult*	
Males more facially attractive					
Not significant				**NORTH AMERICA** *United States*: Hildebrandt & Fitzgerald 1983 (attractiveness of male & female infants as judged by adults)	
Females more facially attractive			**EUROPE** *Sweden*: Intons-Peterson 1988:67-69* **NORTH AMERICA** *United States*: Intons-Peterson 1988:67-69*; L Ellis & Das 2011:348 (based on ratings from yearbook photographs)	**EUROPE** *Britain*: Furnham & Radley 1989 (young, females give higher ratings by both sexes in terms of physical attractiveness); Mehu et al. 2008:110 **NORTH AMERICA** *United States*: Hammes 1964 (undergrad, evaluating pleasantness/unpleasantness); Bruce et al. 1993; O'Toole et al. 1998; Oliver-Rodriguez et al. 1999:179 (ratings by both sexes)	

22.1.2.5 Evaluation of Another's Overall Physical Attractiveness

Table 22.1.2.5 provides a summary of studies undertaken to assess sex differences in average ratings regarding physical attractiveness overall (in other words, not limited to the face, as in the preceding table). It is worth mentioning in this regard that at least one research team asserted that "there is no objective difference in attractiveness between the genders" (Gentile, Grabe et al. 2009:35). While one can quibble over the word *objective* in the context of physical attractiveness, it usually means as rated-by-others rather than being self-rated. One can see that ratings by others consistently favor females, at least for overall physical attractiveness. This is despite evidence that self-rated physical attractiveness indicated that sex differences in self-ratings have been quite inconsistent (see Chapter 13).

Table 22.1.2.5 Evaluation of another's overall physical attractiveness

Nature of difference			*Post-pubertal*		*Wide age range*
				Adult	
Males more attractive overall					
Not significant					
Females more attractive overall				**EUROPE** *Britain*: BT Jones et al. 2003:1072 (undergrad, rated by both sexes); Mehu et al. 2008:110 **NORTH AMERICA** *United States*: Sarason et al. 1986 (undergrad, rated by others); Diener et al. 1995 (undergrad, rated by others); Oliver-Rodrigues et al. 1999:179; Andreoni & Petrie 2008:78	**OVERVIEW** *Meta-Analysis*: Feingold & Mazzella 1998:192

22.1.2.6 Evaluation of Female Body Attractiveness

As noted elsewhere in this chapter, physical attractiveness is more important for female mate preferences than for male mate preferences. Research has indicated that the two main criteria used in assessing the physical attractiveness of different bodies are BMI (a measure of fatness) and overall shape (usually assessed in terms of what is known as the waste-to-hip ratio) (Tovee & Comelissen 2001). (Parenthetically, the attractiveness of male bodies, at least when unclothed, appears to include BMI, WHR, along with penis size – Mautz, Wong et al. 2013.)

The available research on sex differences in assessments given of the attractiveness of female bodies by both males and females is shown in Table 22.1.2.6. One can see that some studies have found males gave higher ratings to slightly higher BMI models than did females, while the remaining studies reported no significant sex differences in people's assessments of female body attractiveness.

22.1.2.7 Relationship between Physical Attractiveness Assessment and Skin Color

In one study among blacks, physical attractiveness was assessed for people with varying skin color. Table 22.1.2.7 shows that this study indicated that lighter skin color increased attractiveness ratings of females more than it affected ratings of males.

Table 22.1.2.6 Evaluation of female body attractiveness

Nature of difference			*Post-pubertal*		
			Adolescent	*Adult*	
Males give higher ratings to heavier body shapes			**NORTH AMERICA** *United States*: LD Cohn et al. 1987; LR Jones, Fries & Danish 2007 (N = 384)	**NORTH AMERICA** *United States*: Fallon & Rozin 1985	
Not significant				**EUROPE** *Britain*: Tovee & Comelissen 2001 (undergrad); Tovee et al. 2002 (undergrad) **INTERNATIONAL** *Multiple Countries*: Swami & Tovee 2005 (N = 682)	
Females give higher ratings to heavier body shapes					

Table 22.1.2.7 Relationship between physical attractiveness assessment and skin color

Nature of difference			*Post-pubertal*		
				Adult	
Stronger for males					
Not significant					
Stronger for females				**NORTH AMERICA** *United States*: ME Hill 2002 (more negatively assessed, undergrad, among blacks)	

22.1.2.8 Evaluation of Job Applicants Based on Sex

A few studies were located pertaining to sex differences in the evaluation of job applicants based on their sex. A typical design of these studies involved presenting a group of research participants with job applicants in which male-typical names (John, Robert) and female-typical names (e.g., Mary, Jane) were substituted. As shown in Table 22.1.2.8, most of these studies have indicated that male job applicants received higher ratings than did female job applicants.

22.1.2.9 Evaluation of Employee by Supervisor/Employer

Quite a number of studies have been undertaken to determine if men or women receive higher ratings by their supervisors or employers regarding

their work performance. As one can see in Table 22.1.2.9, findings have been quite mixed although most of studies have either concluded that there is no significant sex difference in ratings received or that females are usually more highly rated than males.

Table 22.1.2.8 Evaluation of job applicants based on sex

Nature of difference			*Post-pubertal*		
				Adult	
Males considered better				**NORTH AMERICA** *United States*: Heneman 1977 (experiment); Zikmund et al. 1978 (experiment in academia); Bronstein et al. 1986 (in academia); Steinpreis et al. 1999 (experiment using altered CVs, both for male and for female judges)	
No significant difference					
Females considered better				**NORTH AMERICA** *United States*: Branscombe & Smith 1990 (experimental choices of hypothetical applicants)	

Table 22.1.2.9 Evaluation of employee by supervisor/employer

Nature of difference			*Post-pubertal*		
				Adult	
Males receive higher ratings				**MIDDLE EAST** *Israel*: Pazy & Oron 2001:698* (among military officers, overall ratings, N = 3,014) **NORTH AMERICA** *United States*: McKee & Sherriffs 1957; Woehr & Roch 1996; Heilman & Haynes 2005 (quality of work rated higher, male-typical work)	
No significant difference				**NORTH AMERICA** *United States*: FS Hall & Hall 1976; RD Arvey et al. 1977; N Schmitt & Lappin 1980; Pulakos & Wexley 1983; LH Peters et al. 1984*; Grams & Schwab 1985; LF Shore & Thorton 1986 (manufacturing); Griffeth & Bedeian 1989 (accountants); Pulakos et al. 1989; M Johnson & Helgeson 2002 (banking industry); Tang 1996:141 (recommended raises) **OCEANIA** *Australia*: Pirri et al. 1995 (experimental) **OVERVIEW** *Meta-Analysis*: Joshi, Son & Roh 2014 (d = .04, M>F)	
Females receive higher ratings				**MIDDLE EAST** *Israel*: Pazy & Oron 2001* (among military officers, in areas where females were well represented, N = 3.014) **NORTH AMERICA** *United States*: Hamner et al. 1974; KM Bartol & Butterfield 1976; M London & Poplawski 1976; WH Mobley 1982 (wholesalers); LH Peters et al. 1984* (adult retail sales staff); Eagly & Mladinic 1989; Eagly et al. 1991; PR Sackett et al. 1991 (when workforce proportions favored women, businesses); Haddock & Zanna 1994; Skowronski & Lawrence 2001 (adult & adolescent except as soldiers where males rate males more favorably) **OVERVIEW** *Meta-Analysis*: Mackey, Roth 2019 (d = .10)	

22.1.2.10 Evaluation of the Trustworthiness of Others

A few studies have sought to determine which sex is considered more trustworthy. As shown in Table 22.1.2.10, the findings have been inconsistent.

Table 22.1.2.10 Evaluation of the trustworthiness of others

Nature of difference			*Post-pubertal*		
				Adult	
Males rated more trustworthy				**NORTH AMERICA** *United States*: Garbarino & Strahilevitz 2004 (by online shoppers); Midha 2012 (online experiment)	
No significant difference					
Females rated more trustworthy				**NORTH AMERICA** *United States*: Kosfeld et al. 2005; Buchen et al. 2008 (experiment); T Beck et al. 2013	

22.1.2.11 Evaluation of Other's Leadership Ability

Seven studies in which people were asked to rate others in terms of their leadership abilities compared the average ratings given to each sex. As one can see in Table 22.1.2.11, two of the studies found males receiving higher ratings, three studies found females receiving higher ratings, and two studies reported no significant sex differences.

Table 22.1.2.11 Evaluation of other's leadership ability

Nature of difference			*Post-pubertal*		
				Adult	
Males rated higher				**NORTH AMERICA** *United States*: Bowman et al. 1965; Rousell 1974 (as school supervisors)	
No significant difference				**NORTH AMERICA** *United States*: Day & Stogaill 1972 (by subordinates); Bartol & Wortman 1975 (hospital supervisors)	
Females rated higher				**EUROPE** *Germany*: Sczesny et al. 2006 **NORTH AMERICA** *United States*: Branscombe & Smith 1990; Pratto & Bargh 1991	

22.1.2.12 Evaluation of Other's Work Competency

A few studies were located pertaining to people's satisfaction with the attention and treatment they received from physicians of both sexes.

Table 22.1.2.12 shows that most of these studies indicated that female physicians received higher ratings than did their male counterparts.

Table 22.1.2.12 Evaluation of other's work competency

Nature of difference			*Post-pubertal*		
				Adult	
Males rated higher					
No significant difference				**NORTH AMERICA** *United States*: LA Anderson & Zimmerman 1993 (patient satisfaction with physicians)	
Females rated higher				**NORTH AMERICA** *United States*: Linn et al. 1984 (patient satisfaction with physicians); Bertakis et al. 1995 (patient satisfaction with physicians); Bernzwieg et al. 1997 (patient satisfaction with physicians)	

22.1.2.13 Evaluation of the Quality of Writing According to the Presumed Sex of the Writer

Several experimental studies have given male and female raters (such as teachers) samples of writing (such as a term paper) supposedly written by "Johnny" as opposed to "Suzy" and asked them to rate the quality of the writing or the accuracy of the information contained within the writing sample. These studies have specifically manipulated the supposed sex of the "writer" so as to ensure that any average differences in ratings only reflects "biases" by the raters.

As shown in Table 22.1.2.13, the results have been mixed with respect to any rater biases. When biases have been found, they tend to be in the direction of males being given higher ratings for writing on "masculine topics" (such as law and city planning), whereas females receive higher ratings for writing on "feminine topics" (such as dietetics).

22.1.2.14 Quality of Manuscripts According to the Presumed Sex of the Writer

Among social/behavioral scientists who served as manuscript reviewers for various professional journals, male and female reviewers were sent manuscripts in which the supposed authors were either two male coauthors or two female coauthors. The supposed authorship of these manuscripts was in fact randomly assigned by those conducting the experiment. Table 22.1.2.14 shows that the study obtained mixed findings. On the one hand, recommendations by the male reviewers regarding acceptance/rejection were unrelated to the presumed sex of the writer.

Female reviewers, on the other hand, were much more likely to recommend acceptance of manuscripts supposedly authored by females than the same manuscripts that were supposedly authored by males.

Table 22.1.2.13 Evaluation of the quality of writing according to the presumed sex of the writer

Nature of difference			*Post-pubertal*		
			Adolescent	*Adult*	
Males receive higher ratings			**NORTH AMERICA** *United States*: HN Mischel 1974* (law & city planning)	**NORTH AMERICA** *United States*: PA Goldberg 1968* (experiment, law & city planning, female evaluators); Pheterson et al. 1971 (artistic works); Etaugh & Sanders 1974 (artistic works); HN Mischel 1974* (city planning); Paludi & Bauer 1983; Paludi & Strayer 1984; Paludi & Strayer 1985 (experiment)	
No significant difference			**NORTH AMERICA** *United States*: HN Mischel 1974* (city planning)	**NORTH AMERICA** *United States*: PA Goldberg 1968* (education & dietetics, female evaluators); HN Mischel 1974* (primary education, dietetics, city planning & law); H Levinson et al. 1975	
Females receive higher ratings			**NORTH AMERICA** *United States*: HN Mischel 1974* (dietetics & primary education)	**NORTH AMERICA** *United States*: HN Mischel 1974* (dietetics)	

Table 22.1.2.14 Quality of manuscripts according to the presumed sex of the writer

Nature of difference			*Post-pubertal*		
				Adult	
Supposed male writers given higher ratings					
No significant Difference				**NORTH AMERICA** *United States*: ME Lloyd 1990* (social science, male reviewers)	
Supposed female writers given higher ratings				**NORTH AMERICA** *United States*: ME Lloyd 1990* (social science, female reviewers)	

22.1.2.15 Voting Preferences According to the Sex of the Political Candidate

The studies that have sought to determine if voters are more likely to favor male or female political candidates (with equal qualifications) are summarized in Table 22.1.2.15. It indicates that the evidence has not been consistent, although a slightly larger number of studies suggest that male candidates are preferred.

Table 22.1.2.15 Voting preferences according to the sex of the political candidate

Nature of difference					*Wide age range*
Males preferred					**MIDDLE EAST** *Israel*: Lobel et al. 2000* (by Jewish and Arab early adolescent males) **NORTH AMERICA** *United States*: Sigelman et al. 1986* (male voters), RL Fox & Smith 1998 (by both sexes); KJ Flannelly 2002 (by both sexes)
No significant difference					**NORTH AMERICA** *United States*: R Darcy et al. 1994; Sigelman et al. 1986* (female voters)
Females preferred					**MIDDLE EAST** *Israel*: Lobel et al. 2000* (by Jewish and Arab early adolescent females)

22.1.3 Assessments of People's Voices

Some research has evaluated people's impressions of voices with respect to the sex of the speaker. Findings are summarized below.

22.1.3.1 Perceived Honesty of Voice

In one study, both sexes were asked to rate the degree to which various recorded voices sounded honest. As shown in Table 22.1.3.1, it indicated that the voices of females received higher ratings than did those of males.

Table 22.1.3.1 Perceived honesty of voice

Nature of difference			*Post-pubertal*		
				Adult	
More among males					
Not significant					
More among females				**NORTH AMERICA** *United States*: KA Robinson et al. 1998 (undergrad, by both sexes; experiment)	

22.1.3.2 Perceived Infant-Likeness of Voice

Three studies have asked adults of both sexes to rate the degree to which people's voices resemble those of infants. As shown in Table 22.1.3.2, all three studies concluded that female voices sounded more infant-like than did male voices.

Table 22.1.3.2 Perceived infant-likeness of voice

Nature of difference			*Post-pubertal*		
				Adult	
More among males					
Not significant					
More among females				**NORTH AMERICA** *United States*: McArthur & Apatow 1984 (young adult "perceivers"); Montepare & Zebrowitz-McArthur 1986 (young adult "perceivers")	

22.1.3.3 Pleasantness of Voice

A few studies have sought to determine if the voices of male or female infants were considered more pleasant sounding to adults. As shown in Table 22.1.3.3, all of these studies concluded that the voices of males were considered more pleasant.

Table 22.1.3.3 Pleasantness of voice

Nature of difference	*Pre-pubertal*				
	Infant/toddler				
More among males	**NORTH AMERICA** *Canada*: Beaumont & Bloom 1993 (infant); K Bloom et al. 1993 (infant); K Bloom et al. 1999 (infant); *United States*: K Bloom & Lo 1990 (infant)				
Not significant					
More among females					

22.1.4 Accepting or Approving of Attitudes by Others

A relatively small group of studies have investigated people's accepting or approving attitudes toward others based on the gender of the other person. Findings from these studies are reviewed below.

22.1.4.1 Attitude toward the Use of Violence to Settle Disputes

Is it acceptable to resort to violence in order to settle disagreements? Table 22.1.4.1 shows that most studies indicate that males are more likely than females to answer affirmatively.

Table 22.1.4.1 Attitude toward the use of violence to settle disputes

Nature of difference			*Post-pubertal*		
			Adolescent		
More approval or acceptability among males			**MIDDLE EAST** *Israel*: Sherer & Karnieli-Miller 2004:103 **NORTH AMERICA** *United States*: Huesmann et al. 1992; Arbona et al. 1999; JB Funk et al. 1999		
Not significant			**NORTH AMERICA** *United States*: Mosher & Danoff-Burg 2005 (undergrad, acceptability of interpersonal violence)		
More approval or acceptability among females					

22.1.4.2 Normative Beliefs Regarding Sex-Appropriate Physical Discipline

Two studies were located on sex differences in the appropriateness of using physical discipline with one sex more than with the other. Table 22.1.4.2 shows that according to both studies, both sexes believed that males were more likely to deserve physical discipline or punishment than were females.

Table 22.1.4.2 Normative beliefs about sex-appropriate physical discipline

Nature of Normative Belief					*Wide age range*
Considered more appropriate for males					**NORTH AMERICA** *United States*: Zussman 1978; MA Barnett et al. 1996 (by both sexes)
No significant difference					
Considered more appropriate for females					

22.1.4.3 Approval of a Double Standard in Attitudes Toward Premarital Sex

The so-called "double standard" refers to the tendency to consider premarital sex more acceptable for males than for females. Studies of sex differences in subscribing to this sex-biased standard is shown in Table 22.1.4.3. As one can see, most studies have found more people expressing acceptability attitudes toward premarital sex for males than for females.

22.1.4.4 Attitude toward Love as a Criterion for Choosing Mates

How important is love when deciding who one will marry? Table 22.1.4.4 shows that no significant sex differences were found in the ratings given to this question.

22.1.4.5 Attitudes toward Having Sex without Love

The studies that were located regarding sex differences in attitudes toward having sex without being in love or committed are shown in Table 22.1.4.5. They indicate that males have more favorable attitudes in this regard than do females.

22.1.4.6 Attitudes toward Refraining from Sex before Marriage

Which sex is more likely to disapprove of having sexual intercourse before marriage? One can see by viewing Table 22.1.4.6 that the available evidence suggests that females are more likely to express disapproval than males.

22.1.4.7 Attitudes toward the Permanence of Marriage

One study was located regarding people's beliefs that marriage should be for life regardless of how well the relationship ended up being. As shown in Table 22.1.4.7, the results indicated that males supported the belief in the permanence of marriage more than did females.

22.1.4.8 Approval/Acceptability of Smoking According to the Sex of the Smoker

Table 22.1.4.8 shows that three studies were undertaken to determine people's attitudes toward males or females being smokers of cigarettes. One can see that all three agreed that both sexes were more approving (or at least accepting) of smoking by males than by females.

Table 22.1.4.3 Approval of a double standard in attitudes toward premarital sex

Nature of difference			*Post-pubertal*		*Wide age range*
			Adolescent	*Adult*	
More approval or acceptability for males			**AFRICA** *Nigeria*: Rani et al. 2003 **ASIA** *Malaysia*: Zulkifli & Low 2000; *Thailand*: Isarabhakdi 1999	**ASIA** *China*: Cui & Liang 2001 (undergrad); Zhao 2002 (undergrad, premarital sex); *Russia*: Sprecher & Hatfield 1996* (undergrad) **MIDDLE EAST** *Iran*: Shapurian & Hojat 1985 (undergrad) **NORTH AMERICA** *United States*: Garcia & Derfel 1983 (permissive attitude about being promiscuous); Sprecher et al. 1987; Lottes 1993 (permissive attitudes, undergrad); Laumann et al. 1994 (permissive attitudes); Sprecher & Hatfield 1996* (undergrad); Trudel 2002 (permissive attitudes, among married couples); Marks & Fraley 2005; Jonason & Fisher 2009:155	**NORTH AMERICA** *United States*: TW Smith 1992:209 (adolescents & adults, both sexes expressing more accepting attitudes) **OVERVIEW** *Meta-Analysis*: Wells & Twenge 2005:256 (meta-analysis, 1955 through 1989)
Not significant				**ASIA** *Japan*: Sprecher & Hatfield 1996* (undergrad) **EUROPE** *Scotland*: Sheeran, Spears et al. 1996 (age 20) **NORTH AMERICA** *United States*: Sprecher et al. 1988 (undergrad); Sprecher 1989 (undergrad); Buss, Shackelford et al. 2001:496 (undergrad, premarital sex)	
More approval or acceptability for females					

Table 22.1.4.4 Attitude toward having love as a criterion for choosing mates

Nature of difference				*Post-pubertal*	
				Adult	
Males express more approval					
Not significant				**NORTH AMERICA** *United States*: Buss, Shackelford et al. 2001:496 (undergrad)	
Females express more approval					

Table 22.1.4.5 Attitudes toward having sex without love

Nature of difference				*Post-pubertal*	
				Adult	
More approval or acceptability among males				**EUROPE** Britain: HJ Eysenck 1976:62 (engaging in an orgy); *Norway*: Kennair et al. 2009:Table 3 (undergrad) **NORTH AMERICA** *United States*: Greengross & Miller 2011:Table 1:190 (uncommitted sex, undergrad, N = 200M + 200F) **OVERVIEW** *Literature Review*: Basow 1992:103 (d = 1.34)	
Not significant					
More approval or acceptability among females					

Table 22.1.4.6 Attitudes toward refraining from sex before marriage

Nature of difference			*Post-pubertal*		
			Adolescent	*Adult*	
Males more approving					
Not significant					
Females more approving			**MIDDLE EAST** Israel: Shulman & Scharf 2000	**EUROPE** *Britain*: HJ Eysenck 1976:62 **NORTH AMERICA** *United States*: Thornton & Young-DeMorco 2001:1022	

Table 22.1.4.7 Attitudes toward the permanence of marriage

Nature of difference			*Post-pubertal*		
				Adult	
Males more approving				**NORTH AMERICA** *United States*: Thornton & Young-DeMorco 2001:1020	
Not significant					
Females more approving					

Table 22.1.4.8 Approval/acceptability of smoking according to the sex of the smoker

Nature of difference			*Post-pubertal*		
			Adolescent		
More acceptable for males			**NORTH AMERICA** *United States*: Elkind 1985 (by classmates in high school); Waldron 1991 (by parents); Royce et al. 1997 (experience less pressure to quit)		
No significant difference					
More acceptable for females					

22.1.4.9 Value/Worthiness of Males and Females

A few studies have been undertaken to determine if one sex is valued more than the other. As shown in Table 22.1.4.9, most of these studies have concluded that both male and female respondents consider females to be of greater value than males. Perhaps, it is noteworthy that the only two exceptional studies were conducted in the 1940s and 1950s, while the remaining studies were carried out in the 1980s and 1990s.

22.1.4.10 Sex Bias in Time Devoted to Child Rearing

A couple of studies were conducted to determine if adult males or females were biased as far as raising their children in terms of time devoted to child rearing. Table 22.1.4.10 shows that both studies concluded that males spent more time rearing male offspring than female offspring, but that women did not bias their rearing on the basis of the sex of the offspring.

Table 22.1.4.9 Value/worthiness of males and females

Nature of difference			*Post-pubertal*		*Wide age range*
				Adult	
Males valued more				**NORTH AMERICA** *United States*: Roper 1946	**NORTH AMERICA** *United States*: McKee & Sherriffs 1957 (by both sexes)
Not significant					
Females valued more				**NORTH AMERICA** *Canada*: Eagly et al. 1991 (undergrad, attitudes toward women more positive by both sexes); *United States*: Eagly & Mladinic 1989 (undergrad, attitudes toward women more positive by both sexes); Eagly & Mladinic 1994 (undergrad, attitudes toward women more positive by both sexes)	

Table 22.1.4.10 Sex bias in time devoted to child rearing

Nature of difference			*Post-pubertal*		
				Adult	
More time devoted to males				**NORTH AMERICA** *United States*: Fagot & Leinbach 1987 (married couples); M Siegal 1987 (married couples)	
Not significant					
More time devoted to females					

22.1.4.11 Attractiveness Assessments Regarding People Who Are Overweight

Body weight appears to have a substantial bearing on physical attractiveness ratings. As shown in Table 22.1.4.11, a few studies have indicated that the attractiveness of females is more negatively influenced by being overweight than is the case for males.

22.1.4.12 Beliefs About the Appropriateness of Science as a Major

In one study, adults were asked to rate the appropriateness of science as a major for both sexes. As shown in Table 22.1.4.12, it found ratings for males being higher than ratings for females.

Table 22.1.4.11 Attractiveness assessments regarding people who are overweight

Nature of difference				*Post-pubertal*	
				Adult	
Male attractiveness is diminished more					
Not significant					
Female attractiveness is diminished more				**EUROPE** *Britain*: M Harris et al. 1982 (young, judges of both sexes); Furnham & Radley 1989 (young, judges) **NORTH AMERICA** *United States*: Tiggemann & Rothblum 1988* **OCEANIA** *Australia*: Tiggemann & Rothblum 1988*	

Table 22.1.4.12 Beliefs about the appropriateness of science as a major

Nature of Stereotype				*Post-pubertal*	
				Adult	
More appropriate for males				**NORTH AMERICA** *United States*: MG Jones et al. 2000 (more appropriate for males)	
No significant difference					
More appropriate for females					

22.1.5 Preference According to Parent's Gender

Numerous studies have sought evidence of one sex being preferred (or sometimes actually chosen) over the other sex under a variety of circumstances. The findings from these studies are reviewed below.

22.1.5.1 Parental Preference Regarding the Sex of Their Offspring

Many studies have investigated parental preferences regarding the sex of a prospective child. Table 22.1.5.1 indicates that in most parts of the world, boys are preferred by most parents over girls. This seems to be especially true regarding a couple's first child, particularly if they only plan to have one child.

At least one research team asserted that parental preferences for boys over girls was universal (Downey et al. 1994:37). The summary of findings presented in the table suggests that except in Asian countries, a substantial number of studies have found prospective parents either expressing no preference or stating that they would prefer to have a girl rather than a boy.

Table 22.1.5.1 Parental preference regarding the sex of their offspring

Nature of difference	*Post-pubertal*		*Wide age range*
		Adult	
Males (sons) preferred more		**AFRICA** *Ghana*: Adongo et al. 1998:31 (by married couples) **NORTH AMERICA** *United States*: Winsston 1931 (undergrad); Clare & Kiser 1951; Dinitz et al. 1954; Markle & Nam 1971; CC Peterson & Peterson 1973 (as first or only child by both mother and father); Rent & Rent 1977; Chung et al. 1974 **OCEANIA** *Philippines*: Stinner & Mader 1975:183* (for first born)	**AFRICA** *Egypt*: Gadalla et al. 1985; Aly & Shields 1991; Inhorn 1994* (rural); Inhorn 1996; *Ghana*: Salada 1984; *Moracco*: Obermeyer 1999; *Nigeria*: Okore 1977; Oruboloye 1987; *Sierra Leone*: M McClulloch 1964; EK Campbell 1991 (by males); *Tunisia*: Beaujot 1988 **ASIA** *Bangladesh*: D'Souza & Chen 1980; Ahmed 1981; Hossain & Glass 1988; Chowdury et al. 1993 (by fathers); M Rahman & DaVanzo 1993; *China*: Arnold & Zhaoxiang 1986; Li & Cooney 1993; Wen 1993; Zeng et al. 1993; Coale & Banister 1994; J Lee et al. 1994 (in the 19th Century); Li & Cooney 1993; Tu 1991; Poston et al. 1997; *India*: Ramanamma & Bambawale 1980 (first birth); Das Gupta 1987; Koenig & Foo 1992; Nath & Land 1994 (by couples); F Arnold et al. 1998; *Malaysia*: Pong 1994; *Nepal*: Niraula & Morgan 1996; Koolwal 2007; *Pakistan*: Sather 1987; *South Korea*: CB Park 1983; F Arnold 1985; Malhi 1993; CB Park & Cho 1995; Poston et al. 1997; Larsen et al. 1998; M Graham et al. 1998; *Vietnam*: Dang 1995; Haughton & Haughton 1995; Le et al. 2001; *Multiple Asian Countries*: Das Gupta 1999; Croll 2000 **EUROPE** *Britain*: Gervai et al. 1995:119* (fathers); *Hungary*: Gervai et al. 1995:119*; *Multiple European Countries*: M Mills & Begall 2010 **NORTH AMERICA** *United States*: Coombs et al. 1975 (by fathers); LW Hoffman 1975 (sex-ratio if they were to have at least three children); Gray & Morgan 1976 (by mothers who only plan to have one child); L Hoffman 1977 (by fathers); Moeschl et al. 1978 (by both mother & father); Pebley & Westoff 1982 (for first-born); Gilroy & Steinbacher 1983; Fagot & Leinbach 1987 (fathers); Krishnan 1987 (by mothers intending to have just one child); Siegal 1987 (fathers); Pooler 1991* (by prospective fathers); Steinbacher & Ericsson 1994; Steinbacher & Gilroy 1996 **OCEANIA** *Australia*: Birdsell 1972:355 (19th Century, aborigines at the time of European settlement); *Philippines*: Stinner & Mader 1975 (Muslims) **INTERNATIONAL** *Multiple Countries*: Chu & Yu 1998* (by men)
Not significant		**OCEANIA** *Philippines*: Stinner & Mader 1975:183* (regardless of birth order)	**AFRICA** *Egypt*: Inhorn 1994* (urban) **EUROPE** *Netherlands*: Veldkamp Marktonderzoek 1996; Netherlands Institute for Public Opinion and Market Research 1997; *Germany*: Brockmann 2001* (West Germany) **MIDDLE EAST** *Israel*: Chu & Yu 1998* (by women) **NORTH AMERICA** *United States*: NE Williamson 1976
Females (daughters) preferred more			**EUROPE** *East Germany*: Brockmann 2001* **LATIN/CARIBBEAN AMERICA** *Jamaica*: C Sargent & Harris 1992; *Multiple Latin American Countries*: Chu & Yu 1998* (by women) **NORTH AMERICA** *United States*: Clare & Kiser 1951 (by mothers); Walkind & Zajicek 1981 (by prospective mothers as their first child); Hammer & McFerran 1988 (by mothers); Pooler 1991* (by prospective mothers); Stattin & Klackenberg-Larson 1991 (by prospective mothers as the first child)

22.1.5.2 Choice of Social Interactants, Same versus Opposite Sex

Substantial research has sought to determine if youngsters chose to socially interact with members of their own sex or with the opposite sex. The findings are summarized in Table 22.1.5.2a. One can see that all the evidence has concluded that, at least before reaching puberty, males have been found to socialize with other males to a greater degree than females choose to interact with other females.

Table 22.1.5.2a Choice of social interactants, same versus opposite sex

Nature of difference	*Pre-pubertal*				
	Infant/toddler	*Child*			
Same sex chosen more	**EUROPE** *Switzerland*: Chevaleva-Janovskajo 1927 (both sexes interact with same-sex peers more) **NORTH AMERICA** *Canada*: La Freniere et al. 1984; *United States*: Maccoby & Jacklin 1987	**AFRICA** *Kenya*: Harkness & Super 1985 **LATIN/CARIBBEAN AMERICA** *Brazil*: de Guzman et al. 2004 **NORTH AMERICA** *United States*: Parten 1933b; EH Green 1933a (both sexes interact with same-sex peers, preschool); Parten 1933b (both sexes interact with same-sex peers more, preschool); McCandless & Hoyt 1961; AH Clark et al. 1969; Serbin et al. 1977; Maccoby 1980; Goldman 1981; T Field 1982; Phinney & Rotheram 1982; Pitcher & Schultz 1983; La Freniere et al. 1984 (researchers' observations); Lederberg et al. 1986; Lockheed 1986 (sociometric ratings); Feiring & Lewis 1987; Belle 1989; Hines & Kaufman 1994; JA Graham et al. 1998 (expressed preferences); Boyatzis et al. 1999 (researchers' observations)			
Not significant					
Opposite sex chosen more					

One study was conducted among rhesus macaques based on direct observation. Table 22.1.5.2b shows that it too concluded that same-sex preferences were exhibited by both sexes, but that the tendency was stronger in the case of males.

22.1.5.3 Choice of Playmates (Specific Sex Chosen)

As documented in the tables above, at least before puberty, both sexes tend to prefer to socially interact with their own sex rather than with the

opposite sex. Nonetheless, a few studies have sought to answer a slightly different question: Regardless of one's own sex, which sex is chosen more often as a playmate? In Table 22.1.5.3a, one can see that boys are chosen more than girls.

Table 22.1.5.2b Choice of social interactants, same versus opposite sex

Nature of difference	*Pre-pubertal*				
		Child			
Same sex chosen more		**PRIMATE** *Rhesus Macaque*: Nieuwenhuijsen et al. 1988:362			
Not significant					
Opposite sex chosen more					

Table 22.1.5.3a Choice of playmates (specific sex chosen)

Nature of difference	*Pre-pubertal*				
	Infant/toddler	*Child*			
Males chosen more	**NORTH AMERICA** *United States*: Koch 1944; Abel & Sahinkaya 1962	**NORTH AMERICA** *United States*: Kohlberg 1966:119			
Not significant					
Females chosen more					

The tendency to choose one sex over the other as playmates has also been investigated in a couple of studies of monkeys. Table 22.1.5.3b shows that, as with humans, males seem to be chosen more often than females (regardless of the chooser's sex).

22.1.5.4 Conspecific (versus Non-Conspecific) Preferences According to Gender

A few studies have given rats an opportunity to associate with a member of their own species (or strain) as opposed to a member of a closely related species (or strain). Table 22.1.5.4 indicates that female rats had stronger conspecific preferences than did males. In other words, when given a choice between their own species (or strain) and a closely related species (or strain), females were more prone to choose their own than were males.

Table 22.1.5.3b Choice of playmates (specific sex chosen)

Nature of difference			*Post-pubertal*		
			Adolescent		
Males chosen more			**PRIMATE** *Japanese Macaques*: Azuma 1974; Nakamichi 1989		
Not significant					
Females chosen more					

Table 22.1.5.4 Conspecific (versus non-conspecific) preferences according to gender among non-humans

Nature of difference			*Post-pubertal*		
				Adult	
Males preferred more					
No significant difference					
Females preferred more				**RODENT** *Rat*: Eliasson & Meyerson 1981; Vega Matuszczyk & Larsson 1993; Vega Matuszczyk et al. 1994; HH Lopez et al. 1999:180	

22.1.5.5 Preference for Displaying Gender Dominance

A few studies have sought to determine if people prefer dominating types of behavior being displayed by one gender more than by the other. While dominance displays are generally frowned upon, Table 22.1.5.5 suggests that most adults prefer to see such displays exhibited by males rather than by females.

Table 22.1.5.5 Preference for displaying gender dominance

Nature of difference			*Post-pubertal*		
				Adult	
Prefer that it comes from males				**NORTH AMERICA** *United States*: Schein 1973 (prefer males); Schein 1975 (prefer males); Brenner et al. 1989 (males prefer males); CL Copeland et al. 1995; Rudman 1998; Schein 2001 (males prefer males)	
No significant Difference					
Prefer that it comes from females					

22.1.5.6 Preference for the Voice of Others Relative to Their Sex

Several studies have examined voice preferences. Table 22.1.5.6 indicates that the ratings given to people's voices in terms of pleasantness have resulted in male voices receiving higher average ratings than female voices.

Table 22.1.5.6 Preference for the voice of others relative to their sex

Nature of difference	*Pre-pubertal*			*Post-pubertal*	
	Infant/toddler			*Adult*	
Male voices preferred	**NORTH AMERICA** *United States*: Masataka & Bloom 1994 (adult raters)			**NORTH AMERICA** *United States*: Pittam 1987* **OCEANIA** *Australia*: Pittam 1987*	
No significant Difference					
Female voices preferred					

22.1.5.7 Persuasiveness of a Person's Voice Based on Their Sex

One study sought to determine of a male voice or a female voice, both reading from the same script, was considered more persuasive. As shown in Table 22.1.5.7, the study concluded that the voices of females were considered more persuasive.

Table 22.1.5.7 Persuasiveness of a person's voice based on their sex

Nature of difference			*Post-pubertal*	
				Adult
Male voice more				
No significant difference				
Female voice more				**NORTH AMERICA** *United States*: Batestone & Tuomi 1981 (young)

22.1.5.8 Preference for Written Information According the Sex of the Author

A couple of experiments were conducted in which a sample of people (of both sexes) were asked to read and evaluate the quality of written documents. The names of the supposed authors were changed in order to make it clear that it is either a male or female. As shown in Table 22.1.5.8, both of

these experiments concluded that the reports supposedly written by males were given higher average ratings than were those written by females.

Table 22.1.5.8 Preference for written information according to the sex of the author

Nature of difference			*Post-pubertal*		
				Adult	
Documents by males rated higher				**NORTH AMERICA** *United States*: PA Goldberg 1968 (experiment); Paludi & Strayer 1985 (experiment)	
No significant difference					
Documents by females rated higher					

22.1.5.9 Preference for the Sex of One's Supervisor/Manager/Leader

A few studies have sought to determine if one sex is preferred over the other in terms of being a supervisor, manager, leaders, or bosses. By examining Table 22.1.5.9, one can see that, with a few exceptions, to the extent that individuals of either sex have a preference (which many do not), males are usually preferred over females.

Table 22.1.5.9 Preference for the sex of one's supervisor/manager/leader

Nature of difference			*Post-pubertal*		*Wide age range*
				Adult	
Males preferred				**NORTH AMERICA** *United States*: Schein 1975 (by both sexes); Brenner et al. 1989 (by males); Covin & Brush 1991:407 (by both sexes); RL Fox & Smith 1998 (political candidate, by both sexes); Schein 2001 (by males); KJ Flannelly 2002 (political candidate, by both sexes); Elsesser & Lever 2011 (55% had no preference, but 67% of those who had a preference preferred males)	**NORTH AMERICA** *United States*: Osborn & Vicars 1976 (managers); Dubno 1985 (by both sexes); Sutton & Moore 1985 (by both sexes); Liden 1985 (explained by more experience of male managers)
Not significant					
Females preferred				**NORTH AMERICA** *United States*: RJ Simon & Landis 1989 (by females); Javidan et al. 1995 (preference for emulating as role model)	

22.1.5.10 Preference for the Sex of One's Physician or Psychotherapist

Three studies asked people if they preferred consulting with a male or a female physician or psychotherapist more. Table 22.1.5.10 shows that all three of these studies concluded that male physicians and psychotherapists were preferred more.

Table 22.1.5.10 Preference for the sex of one's physician or psychotherapist

Nature of difference			*Post-pubertal*		*Wide age range*
				Adult	
Males preferred				**NORTH AMERICA** *United States*: Stamler et al. 1991 (psychotherapist); JA Hall et al. 1994b (physician in general)	**NORTH AMERICA** *United States*: Chesler 1971 (psychotherapist)
Not significant					
Females preferred					

22.1.5.11 Preference for the Sex of Nurses Providing Treatment/Care

Table 22.1.5.11 shows that one study was located that sought to determine whether male or female nurses were preferred by people receiving nursing care. It reveals that both sexes preferred female nurses, with the tendency being especially pronounced among female respondents.

Table 22.1.5.11 Preference for the sex of nurses providing treatment/care

Nature of difference			*Post-pubertal*		
				Adult	
Males preferred more					
No significant difference					
Females preferred more				**OCEANIA** *Australia*: Chur-Hansen 2002	

22.1.5.12 Preference for Employees According to Sex

In a few studies, prospective employers have been asked if they would prefer to fill a job opening with a male or a female employee. Along similar lines, a few experiments have been conducted in which employers have been show identical resumes of individuals with only the name changed (i.e., either an obviously male name or an obviously female name) to see if employers

exhibit a preference. As one can see by viewing Table 22.1.5.12, most of both types of studies have concluded that employers prefer males over females as employees.

Table 22.1.5.12 Preference for employees according to sex

Nature of difference			*Post-pubertal*		
				Adult	
Males preferred more				**NORTH AMERICA** *United States*: Dipboye et al. 1977 (management position); Heneman 1977 (experiment); Zikmund et al. 1978 (experiment with identical resumes except for the names); TF Cash & Kilcullen 1985 (management position); Bronstein et al. 1986 (experiment with names on resumes altered); Drogosz & Levy 1996	
No significant difference					
Females preferred more				**ASIA** *China*: Chiu & Babcock 2002	

22.1.5.13 Preference for Male Body Odor

Body odors vary a great deal. Some of this variation is associated with each sex. The odor that has been studied most frequently regarding sex differences in preferences is androsterone, a sometimes musky/sometimes slightly sweet-smelling hormone that is produced more in males than in females. As one can see in Table 22.1.5.13a, studies have found that, on average, males find the smell of androsterone more pleasant (or less unpleasant) than in the case for females.

Table 22.1.5.13a Preference for male body odor

Nature of difference			*Post-pubertal*		*Wide age range*
				Adult	
More pleasant for males				**EUROPE** *Britain*: NM Griffiths & Patterson 1970 (androsterone, less unpleasant); *Netherlands*: Koelega 1980 (androsterone)	**INTERNATIONAL** *Multiple Countries*: Wysocki & Gilbert 1989 (androsterone)
Not significant					
More pleasant for females					

One study of sex differences in preferences for the body odor of males among rats was located. As shown in Table 22.1.5.13b, the study indicated that females exhibited a greater preference for this odor than did males.

Table 22.1.5.13b Preference for male body odor among non-humans

Nature of difference				*Post-pubertal*	
				Adult	
More among males					
Not significant					
More among females				**RODENT** *Rat*: J Bakker et al. 1996 (bedding soiled by males)	

22.1.5.14 Preference for Female Odor

Using T-shirts worn by females at different phases in their menstrual cycle, one study investigated sex differences in preference for female body odor was located. As shown in Table 22.1.5.14a, the study indicated that males exhibited a stronger preference for female odors overall than did females.

Table 22.1.5.14a Preference for female odor

Nature of difference				*Post-pubertal*	
				Adult	
More among males				**EUROPE** *Finland:* Kuukasjarvi, Ericksson et al. 2004	
Not significant					
More among females					

Research on preference for female odors have also been conducted among rats. Table 22.1.5.14b shows that the findings were somewhat mixed, with males preferring the odors of females more in one study, but no sex-significant difference in the remaining study.

22.1.6 Empirical Judgments/Predictions

Considerable research has sought to determine if sex differences exist in various types of empirical judgments that people make about the present, the past, or future events. The results of these studies are summarized in the subsection below.

Table 22.1.5.14b Preference for female odor

Nature of difference				*Post-pubertal*	
				Adult	
More among males				**RODENT** *Rat*: J Bakker et al. 1996 (bedding soiled by females)	
Not significant				**RODENT** *Rat*: Xiao et al. 2004 (sexually active animals)	
More among females					

22.1.6.1 Accuracy in Assessing the Emotional (or Mental) States of Others

A great deal of research has been undertaken to assess sex differences in the ability to accurately quickly assess the emotional expressions of others (usually by presenting research participants with photographs of people with various facial expressions). Individuals who are particularly deficient in this regard are said to be *alexithymia*. By examining Table 22.1.6.1a, one can see that the majority of studies among infants, toddlers, and pre-pubertal children have concluded that there are no significant sex differences. When differences have been found, they favor females.

Table 22.1.6.1a Accuracy in assessing the emotional (or mental) states of others before puberty

Nature of difference	*Pre-pubertal*	
	Infant/toddler	*Child*
More among males		
Not significant	**NORTH AMERICA** *United States*: Young-Browne et al. 1977 (toddler, facial expression); Sherrod 1979 (toddler, facial expression); EM Daly et al. 1980 (toddler, facial expressions)	**EUROPE** *Spain*: Azurmendi et al. 2005 (age 5, emotional expressions) **NORTH AMERICA** *United States*: WE Walton 1936 (N = 693); Feshbach & Roe 1968 (report of how story character feels); Feshbach & Feshbach 1969 (report of how story character feels); Rothenberg 1970 (verbal report of how story character feels, N = 108, F>M); Staffieri & Bassett 1970 (older, from posed photo expressions); Borke 1971 (N = 20); Gitter et al. 1971 (preschool, N = 80); Hebda et al. 1972 (N = 31); ML Hamilton 1973 (facial expressions from posed photos); F Deutsch 1975 (preschool, N = 32); Kurdek & Rogdom 1975 (N = 167, M>F); Levine & Hoffman 1975 (report of how story character feels); Eiland & Richardson 1976 (facial expressions); Abramovitch 1977; Buck 1977; Mood et al. 1978; FL Gove & Keating

(*Continued*)

Table 22.1.6.1a (Continued)

Nature of difference	*Pre-pubertal*	
	Infant/toddler	*Child*
		1979; Barden et al. 1980; Hughes et al. 1981; TM Field & Walden 1982; Morency & Krauss 1982; Brody & Harrison 1984; Grimshaw et al. 2004 (emotional expressions)
More among females		**EUROPE** *Netherlands*: van Beek & Dubas 2008:44 **NORTH AMERICA** *United States*: Borke 1973 (preschool, faces depicting story characters N = 576); Chandler et al. 1978; R Rosenthal et al. 1979; Blanck et al. 1981; Happe 1995 (children with autism) **NORTH AMERICA** *United States*: Dimitrovsky 1964; Rosenthal et al. 1979*; Y Dunn et al. 1991 (emotional expressions); Thorne 1993; J Brown & Dunn 1996 (ages 3-6, emotional expressions); J Parker 1999 **INTERNATIONAL** *Multiple Countries*: Borke 1973

Table 22.1.6.1b summarizes studies of sex differences in the accuracy of judging the emotional states of others following the onset of puberty. This table provides some inconsistent evidence, but suggests that if sex differences exist, it favors females being more accurate than males.

22.1.6.2 Decoding Another's Facial Expressions Based on Sex of the Emitter

Some research has compared males and females regarding their abilities to decode (correctly interpret) the facial expressions of others. As shown in Table 22.1.6.2, there appear to be no discernable sex differences prior to puberty, but females seem to surpass males in their tendency to emit recognizable facial expressions.

22.1.6.3 Visual Recognition of Faces of Both Sexes

Several studies have compared people's abilities to recognize faces of both sexes ones they've seen before after photographs have been substantially pixilated. As shown in Table 22.1.6.3, two of the studies concluded that male faces remain more recognizable after being pixilated to a high degree than was the case for female faces. However, a third study reached the opposite conclusion.

Table 22.1.6.1b Accuracy in assessing the emotional states of others after puberty

Nature of difference	*Post-pubertal*		*Wide age range*
	Adolescent	*Adult*	
More among males		**NORTH AMERICA** *United States*: Toner & Gates 1985 (angry expressions); HL Wagner, MacDonald, & Manstead 1986 (angry expressions); Rotter & Rotter 1988 (angry expressions)	
Not significant	**NORTH AMERICA** *United States*: Dickey & Knower 1941 (from posed photograph expressions)	**ASIA** *Japan*: Sawada et al. 2014 (speed in detecting angry expressions) **EUROPE** *Britain*: H Wagner et al. 1986; Rahman et al. 2004* (facial expressions) **MIDDLE EAST** *Iran*: Boloorizadeh & Tojari 2013:1373 **NORTH AMERICA** *Canada*: Hampson, Van Anders & Mullin 2006:409* (depicting happiness, undergrad, N = 31M + 31F); *United States*: JS Coleman 1949 (facial expressions of emotions); R Buck et al. 1972; A Gitter et al. 1972b; RW Buck 1974; Fujita et al. 1980* (posed expressions); Kirouac & Dore 1985; HL Wagner et al. 1986; Duhaney & McKelvie 1993; Wagner et al. 1993 (angry expressions); KJ Klein & Hodges 2001* (undergrad, when both sexes are paid for accurate judgments); **OCEANIA** *Australia*: LM Williams, Barton et al. 2005:Table 1 (N = 20M + 20F, F>M)	**INTERNATIONAL** *Multiple Countries*: Merten 2005* (ages 11-78, 2/13 countries, N = 42,638, internet sample) **OVERVIEW** *Meta-Analysis*: T Graham & Ickes 1997 (overall, but results depend on measure used); Ickes et al. 2000* (overall, but results depend on measure used)
More among females	**EUROPE** *Netherlands*: van Beek & Dubas 2008:44 **NORTH AMERICA** *United States*: JA Hall & Halberstadt 1981	**ASIA** *Japan*: Miura 1993; Biehl et al. 1997* (facial expressions) **EUROPE** *Belgium*: Campanella et al. 2004 (happy faces); *Britain*: Kleck & Nuessle 1968 (females pay more attention to nonverbal cues in conversation); Ligge 1974 (facial expressions of emotion); Baron-Cohen et al. 1997 (among autistics); Rahman et al.	**NORTH AMERICA** *United States*: Kirouac & Dore 1985; Firth et al. 1986 (non-verbal cues); HL Wagner et al. 1986 (non-verbal cues); Howicki & Hartigan 1988; Costanzo & Archer 1989 (non-verbal cues); Mufson & Nowicki 1991 (decoding

(*Continued*)

Table 22.1.6.1b (Continued)

Nature of difference	*Post-pubertal*		*Wide age range*
	Adolescent	*Adult*	
		2004* (recognizing a person's emotional state from facial expressions); *Finland*: Mattila et al. 2006 (N = 8,028); *Germany*: Schirmer & Kotz 2003 (a person's emotional state from speech inflections); Lambrecht, Kreifelts & Wildgruber 2014:Figures 3 & 4 (recognizing non-verbal emotions); *Italy*: Brunori et al. 1979; Lavadas, Umilta & Ricci-Bitti 1980 (N = 12M + 12F); *Netherlands*: Scholten et al. 2005 (especially negative emotions; schizophrenics); *Norway*: Thayer & Johnsen 2000 (undergrad); *Sweden*: Thayer & Johnsen 2000 (facial emotions); Proverbio et al. 2007 (expressions of infants) **NORTH AMERICA** Canada: Goos & Silverman 2002 (accuracy for most but not all emotional expressions); Hampson, Van Anders & Mullin 2006:409* (neutral faces & faces depicting anger, disgust, fear, and sadness, undergrad, N = 31M + 31F); *United States*: Jenness 1932 (facial expressions); Dusenbury & Knower 1939 (young); Fay & Middleton 1941 (young); Pfaff 1954 (young); PK Levy 1964 (undergrad, facial expressions of emotion); Geer 1965 (fear); H Leventhal & Mace 1970 (humor); Dienstbier & Munter 1971; S Weitz 1972; Cupchik 1973 (undergrad, facial expressions of emotions); Cupchik & Leventhal 1974; W Griffitt et al. 1974; M Zuckerman et al. 1975 (undergrad, facial expressions of emotion); M Zuckerman et al. 1976 (facial expressions of emotion); ML Hoffman 1977; De Paulo et al. 1978 (females pay more attention to nonverbal cues in conversations); Hall 1978 (facial expression of emotion); Rosenthal & DePaulo 1979; Rosenthal et al. 1979*; Fujita et al. 1980 (decoding posed, but not spontaneous, emotional expressions of others); Zuckerman et al. 1980; Blanck et al. 1981;	gestures); Gur et al. 1992 (facial expressions) **INTERNATIONAL** *Multiple Countries*: Merten 2005* (ages 11-78, 11/13 countries, N = 42,638, internet sample); Kirkland et al. 2013 (studies in ten countries) **OVERVIEW** *Literature Review*: JA Hall 1978; Eisenberg & Lennon 1983 (at least self-rated accuracy); Basow 1992:103 (d = .43); AE Thompson & Voyer 2014:Table 1; *Meta-Analysis*: H Hall 1984 (d = .43); McClure 2000:441 (d = .18, mostly in adults, small differences in children & adolescents); Ickes 2000 (self-rated); McClure 2000 (multiple ages); Levant, Hall & Williams 2009

			D Gallagher & Shuntick 1981 (undergrad, facial expressions of emotions); Safer 1981; Natale et al. 1983 (photographs of faces); Heilbrun 1984 (non-verbal cues); Babchuk, Hames & Thompson 1985:96 (undergrad, of infant facial expressions, N = 40); Camras 1985; Kombos & Fournet 1985 (young, non-verbal cues); Rotter & Rotter 1988 (undergrad);LJ Simon et al. 1990 (young, non-verbal cues); Keeley-Dyreson et al. 1991 (non-verbal cues); Mufson & Nowicki 1991 (accuracy at decoding emotional expressions); Wagner et al. 1993 (young); Bernieri et al. 1994 (assessing personalities); Nowicki & Duke 1994; Ambady et al. 1995 (non-verbal cues); Bouhuys et al. 1995 (schematic drawings of faces); Biehl et al. 1997* (facial expressions); Baron-Cohen et al. 1997 (by viewing the eye-regions); Katsikitis et al. 1997 (undergrad); RD Lane, Schrest & Ridel 1998; Grunwald et al. 1999 (emotional language); JA Hall et al. 2000 (nonverbal cues); KJ Klein & Hodges 2001* (undergrad, under normal self-motivation); R Campbell et al. 2002 (facial emotions); Killgore & Cupp 2002 (videotaped faces); Larkin et al. 2002 (decode expressions of disgust); JA Hall & Matsumoto 2004:Table 2 (undergrad, N = 67M + 27F); Montagne et al. 2005 (accuracy, for some but not all emotional expressions); MA Williams & Mattingley 2006 (speed of detecting angry expressions); DV Becker et al. 2007; Hoffmann et al. 2010 (accuracy)	

Table 22.1.6.2 Decoding another's facial expressions based on sex of the emitter

Nature of difference	*Pre-pubertal*		*Post-pubertal*		
	Infant/toddler	*Child*		*Adult*	
Male expressions were more accurately decoded					
Not significant	**NORTH AMERICA** *United States*: T Field 1982	**NORTH AMERICA** *United States*: Yarczower & Daruns 1982			
Female expressions were more accurately decoded		**NORTH AMERICA** *United States*: R Buck 1975; R Buck 1977		**NORTH AMERICA** *United States*: R Buck et al. 1972; R. Buck et al. 1974; Fujita et al. 1980; Gallagher & Shuntich 1981	

Table 22.1.6.3 Visual recognition of faces of both sexes

Nature of difference			*Post-pubertal*		
				Adult	
More among males				**ASIA** *Japan*: Yamaguchi et al. 1995* (of the faces of both sexes) **EUROPE** *Italy*: Cellerino et al. 2004* (of the faces of both sexes)	
Not significant					
More among females				**EUROPE** *Sweden*: C Lewin & Herlitz 2002:124 (female faces more frequently recognized by both sexes, but especially by women)	

22.1.6.4 Offspring's Expectations Regarding Parental Reactions to an Offspring's Negative Emotional Behaviors

Parents usually do not react favorably toward negative emotional behavior by offspring. Table 22.1.6.4 shows that most studies have found this to be truer for female offspring than for male offspring.

22.1.6.5 Accuracy in Describing One's Self

In two studies, research participants were asked to provide an assessment of basic bodily features such as height and weight. Later, they were objectively measured regarding these features. As shown in Table 22.1.6.5, both

Table 22.1.6.4 Offspring's expectations regarding parental reactions to an offspring's emotional behaviors

Nature of difference	*Pre-pubertal*		*Post-pubertal*		
		Child	*Adolescent*	*Adult*	
Males expect more negative reactions		**EUROPE** *Sweden*: Sorbring et al. 2003 (expecting physical punishment for bad behavior)			
No significant difference					
Females expect more negative reactions		**NORTH AMERICA** *United States*: Fuchs & Thelen 1988 (from behaving aggressively)	**NORTH AMERICA** *United States*: Perry et al. 1989 (from behaving aggressively)	**EUROPE** *Britain*: A Campbell & Muncer 1987 (from expressing anger)	

studies found that males provided more accurate assessments than was the case for females.

Table 22.1.6.5 Accuracy in describing one's self

Nature of difference			*Post-pubertal*		
			Adolescent	*Adult*	
More among males			**EUROPE** *France*: Legleye et al. 2014 (weight & height)	**EUROPE** *Germany*: Glaesmer & Brahler 2002 (weight)	
Not significant					
More among females					

22.1.6.6 Attributing Fear to Story Characters

In a few studies, individuals were read or listen to a story, after which they were asked to describe the amount of fear they thought the main character in the story felt. Table 22.1.6.6 shows that in all cases, females attributed greater fear to the characters than did the males.

22.1.6.7 Assessment of One's Own Driving Ability

One study compared the sexes regarding how they rated their driving skill after consuming alcohol. As shown in Table 22.1.6.7, males rate their ability higher than did females.

Table 22.1.6.6 Attributing fear to story characters

Nature of difference	*Pre-pubertal*				
		Child			
More among males					
Not significant					
More among females		**NORTH AMERICA** *United States*: Feshbach & Roe 1968 (attribute more fear to stories); Brody & Carter 1982 (attribute fear to stories); M Lewis & Michalson 1983 (attribute more fear to stories); Brody 1984 (attribute fear to stories)			

Table 22.1.6.7 Assessment of one's own driving ability

Nature of difference			*Post-pubertal*		
				Adult	
More among males				**NORTH AMERICA** *Canada*: Svenson et al. 1994:399 (undergrad, after drinking, self-report)	
Not significant					
More among females					

22.1.6.8 Risk Assessment

A number of studies have asked males and females to estimate the probability of illness or injuries due to various activities or public policies either to themselves or to people more generally. As shown in Table 22.1.6.8, nearly all of these studies have concluded that females provide higher risk estimates than males for the same activities or policies.

22.1.6.9 Expecting Aggression Following Drug Use

In a couple of studies, researchers assessed the extent to which people expected themselves to be aggressive after consuming alcohol. Table 22.1.6.9 reveals that males expected to be or feel more aggressive after alcohol consumption more than did males.

22.1.6.10 Expecting Alcohol to Have Calming or Relaxing Effects

One study asked undergraduate students to rate the extent to which alcohol has calming or relaxing effects. In Table 22.1.6.10, one can see that males gave higher ratings than did females.

Table 22.1.6.8 Risk assessment

Nature of difference	*Pre-pubertal*		*Post-pubertal*		
		Child		*Adult*	
Higher among males					
Not significant					
Higher among females		**EUROPE** *France*: Granié 2007 (risk to pedestrians, N = 130M + 148F) **MIDDLE EAST** *Turkey*: Demirhan 2003 (various sports) **NORTH AMERICA** *Canada*: Hillier & Morrongiello 1998; BA Morrongiello & Rennie 1998; BA Morrongiello et al. 2000		**EUROPE** *Netherlands*: Gutteling & Wiegman 1993 (soil contamination risks, 513); *Sweden*: Filipsson, Ljunggren & Oberg 2014 (risk from local environmental contamination) **NORTH AMERICA** *United States*: CJ Brody 1984 (risk from nuclear power); Steger & Witt 1989 (environmental risks); Gwartney-Gibbs & Lach 1991 (risk of nuclear war); DeJoy 1992 (perceive risks to be higher when driving); Stern, Dietz & Kalof 1993 (undergrad, N = 349); J Flynn, Slovic & Mertz 1994 (N = 1,489); Finucane, Slovic et al. 2000 (wide range of risk, N = 1,204); CR Harris et al. 2003 (rating risky activities)	

Table 22.1.6.9 Expecting aggression following drug use

Nature of difference			*Post-pubertal*		
				Adult	
More among males				**NORTH AMERICA** *United States*: Brown et al. 1980 (from alcohol); Leigh 1987 (from alcohol consumption)	
Not significant					
More among females					

Table 22.1.6.10 Expecting alcohol to have calming or relaxing effects

Nature of difference			*Post-pubertal*		
				Adult	
More among males				**NORTH AMERICA** *United States*: Lo & Globetti 2000:27 (undergrad)	
Not significant					
More among females					

22.1.6.11 Expecting Alcohol to Make Members of the Opposite Sex More Sexually Receptive

A couple of studies asked males and females to estimate whether the consumption of alcohol would make members of the opposite sex more sexually receptive. One can see in Table 22.1.6.11 that both studies concluded that males expressed such a belief to a greater degree than did females.

Table 22.1.6.11 Expecting alcohol to make members of the opposite sex more sexually receptive

Nature of difference			*Post-pubertal*		
			Adolescent	*Adult*	
More among males			**NORTH AMERICA** *United States*: Derman & Cooper 1994 (older)	**NORTH AMERICA** *United States*: Borjesson & Dunn 2001	
Not significant					
More among females					

22.1.6.12 Expecting to Succeed Academically

In several studies, research participants have been asked whether they expected to be academically successful in various academic subjects. One can see in Table 22.1.6.12 that males expect greater success in areas such as math and science, while females expect to be more successful in writing.

Table 22.1.6.12 Expecting to succeed academically

Nature of difference	*Pre-pubertal*		*Post-pubertal*		
		Child	*Adolescent*		
More among males		**NORTH AMERICA** *United States*: JL Meece & Jones 1996 (in math & science, 5-6 graders, N = 213)	**NORTH AMERICA** *United States*: BJ Zimmerman & Martinez-Pons 1990 (in math & science); Anderman & Young 1994 (in math & science, middle schoolers); Pajares 1996 (in math & science) **OVERVIEW** *Meta-Analysis*: Whitley 1997 (in computer science)		
Not significant					
More among females		**NORTH AMERICA** *United States*: Pajares & Valinante 1997 (in writing, 5th graders)	**NORTH AMERICA** *United States*: Pajares & Valinante 2001 (in writing)		

22.1.6.13 Overestimating Future Grades

A couple of studies compared the final grade estimates made by college students with the actual grades they were awarded. Table 22.1.6.13 indicates that males gave overly high estimates for some courses compared to females, while there were no significant sex differences for other courses.

Table 22.1.6.13 Overestimating future grades

Nature of difference				*Post-pubertal*	
				Adult	
More among males				**EUROPE** *Germany*: Hannover 1991* (undergrad, in math) **NORTH AMERICA** *United States*: Beyer 1999* (undergrad, introduction to psychology course)	
Not significant				**EUROPE** *Germany*: Hannover 1991* (undergrad, in German language course) **NORTH AMERICA** *United States*: Beyer 1999* (undergrad, social psychology and computer science course)	
More among females					

22.1.6.14 Expecting to Pay for Dates

In two studies, college students were asked if males or females were expected to (or more likely to) pay for dates with the opposite sex. Table 22.1.6.14 shows that both sexes agreed that males were expected to do so more than were females.

Table 22.1.6.14 Expecting to pay for dates

Nature of difference			*Post-pubertal*		
				Adult	
More among males				**NORTH AMERICA** *United States*: S Rose & Frieze 1989 (undergrad); Laner & Ventrone 2000 (undergrad)	
Not significant					
More among females					

22.1.6.15 Expecting to Restrain Sexual Advances by the Opposite Sex

One study asked both sexes which sex is most likely to restrain sexual advances by the opposite sex during dating situations. In Table 22.1.6.15, one can see that females were more likely to be expected to do so than were males.

Table 22.1.6.15 Expecting to restrain sexual advances by the opposite sex

Nature of difference			*Post-pubertal*		
				Adult	
More among males					
Not significant					
More among females				**NORTH AMERICA** *United States*: S Rose & Frieze 1989 (undergrad, from sexual advances during dating)	

22.1.6.16 Assessing the Attractiveness of Females

A couple of studies showed undergraduates a set of pictures of females and asked both males and females to provide ratings of their physical attractiveness. One can see in Table 22.1.6.16 that males gave the pictures higher average ratings than did females.

Table 22.1.6.16 Assessing the attractiveness of females

Nature of difference			*Post-pubertal*		
				Adult	
Males gave higher ratings				**NORTH AMERICA** *United States*: Abbey 1982 (undergrad, assessing females); Abbey et al. 1987 (undergrad, assessing females)	
Not significant					
Females gave higher ratings					

22.1.6.17 Assessing Sexual Interest by Others

A few studies have sought to assess sex differences in ratings given by members of the opposite sex regarding the degree to which they might be interested in establishing a sexual relationship. Table 22.1.6.17 shows that the research suggests that males are more likely than females to over-estimate (or give higher estimates) of such interest.

Table 22.1.6.17 Assessing sexual interest by others

Nature of difference			*Post-pubertal*		
			Adolescent	*Adult*	
More among males			**NORTH AMERICA** *United States*: Haselton & Buss 2000 (mean age = 18, N = 217)	**NORTH AMERICA** *United States*: Abbey 1982 (undergrad, interpreting friendliness as flirtation)	
Not significant					
More among females					

22.1.6.18 Assessing a Dating Partner's Commitment to a Long-Term Relationship

One study assessed sex differences in the willingness to make a long-term commitment to a dating relationship among dating couples. Table 22.1.6.18 shows that females believed that people they were dating were more willing to make a long-term commitment than was the case for males.

Table 22.1.6.18 Assessing a dating partner's commitment to a long-term relationship

Nature of difference			*Post-pubertal*		
			Adolescent		
More among males					
Not significant					
More among females			**NORTH AMERICA** *United States*: Haselton & Buss 2000 (mean age = 18, N = 217)		

22.1.6.19 Salary Expectations

Several studies have asked research participants to estimate what salary they expect to receive when they begin their careers. Some related studies have asked participants what salary they would consider "fair" if they were to be employed in a particular line of work. One can see in Table 22.1.6.19, that in all but one case, males expect to receive higher salaries on average than do females. Also, the estimates of a "fair" wage for performing a particular job were higher for males than for females.

Table 22.1.6.19 Salary expectations

Nature of difference			*Post-pubertal*		
			Adolescent	*Adult*	
Males expect more			**NORTH AMERICA** *United States*: Callahan-Levy & Messe 1979 (proposed self-payment for work)	**NORTH AMERICA** *Canada*: Desmarais & Curtis 1997 (undergrad, expected earnings); Montmarquette et al. 2002:55 (undergrad, after graduation); *United States*: B Major & Konar 1984 (expected earnings); Major, McFarlin & Gagnin 1984; TP Summers 1988 (undergrad, expected earnings); BM Martin 1989 (expected earnings); Subich et al. 1989; HL Smith & Powel 1990 (undergrad); Jackson, Gardner & Sullivan 1992 (expected earnings); Kaman & Hartel 1994 (expected earnings); KE Sumner & Brown 1996:831 (college graduates); JT Jost 1997:Table 1 (experiment involving proposed self-payment for work); Antecol & Kuhn 2000 (young, expected starting pay); Pelham & Hetts 2001 (proposed self-payment for work); TM Heckert, Droste et al. 2002 (undergrad, expected earnings); Hogue & Yoder 2003 (proposed self-payment for work); JR Walker 2006 (undergrad, business majors, in their first job); Lips & Lawson 2009 (undergrad, expected earnings, N = 229)	
Not significant					
Females expect more				**NORTH AMERICA** *United States*: Charles & Luoh 2003:567 (after obtaining a undergraduate degree)	

22.1.6.20 Expecting to Be the Object of Employment Discrimination

One study asked men and women if they expected to be discriminated against regarding their attempts to get employed. Table 22.1.6.20 shows that females surpassed males in this regard.

Table 22.1.6.20 Expecting to be the object of employment discrimination

Nature of difference				*Post-pubertal*	
				Adult	
More among males					
Not significant					
More among females				**NORTH AMERICA** *United States*: Orazem et al. 2003 (young)	

22.1.6.21 Noticing Sex Differences in Behavior

One study investigated the possibility that males and females might differ in their tendency to notice sex differences in behavior. Table 22.1.6.21 reveals that females noticed more differences than did males.

Table 22.1.6.21 Noticing sex differences in behavior

Nature of difference				*Post-pubertal*	
				Adult	
More among males					
Not significant					
More among females				**NORTH AMERICA** *United States*: Zell, Struickhouser et al. 2016	

22.1.6.22 Time Estimation Accuracy

Some research has sought to determine if there is a sex differences in accuracy of time estimations. As shown in Table 22.1.6.22, all the available studies indicate that there are no significant differences in this regard.

22.2 Responses by Others Relative to the Recipient's Sex

Many studies have examined how people respond to others based on the sex of the individual with whom they are interacting. Some of the main groups of responders who have been considered are parents and teachers. Results from these studies are presented in this section.

Table 22.1.6.22 Time estimation accuracy

Nature of difference			*Post-pubertal*		*Wide age range*
				Adult	
More among males					
Not significant				**NORTH AMERICA** *United States*: Block et al. 2000 (short time intervals)	**EUROPE** *Spain*: P Botella et al. 2001 (time interval between two stimuli); Esinosa-Fernandez et al. 2003 (short time intervals)
More among females					

22.2.1 Parental-Offspring Interactions

Interactions between parents and offspring, depending on the offspring's sex, have been studied under various conditions. Results are summarized below.

22.2.1.1 Recipient of Parental Nurturing Behavior According to the Offspring's Sex

Nurturing by parents can obviously take many forms, including the amount of time spent with offspring, thereby helping to ensure that their needs and wants are being satisfied. To measure nurturing, researchers usually employ direct observation by a trained observer, such as a child psychologist working in a daycare center.

As can be seen in Table 22.2.1.1a, studies related to infants have been mixed, with about half of them indicating that male infants receive more attention, especially by the mother. In the case of toddler-aged offspring, all the evidence points toward males receiving more attention.

Studies of attention given to offspring, at least by the mother, depending on the sex of the offspring are summarized in Table 22.2.1.1b for non-humans. In the case of both infants and toddlers, research of non-human primates has consistently indicated that male offspring receive more attention than do female offspring.

22.2.1.2 Recipient of Parental Affection According to the Offspring's Sex

Attention given to offspring can be either affectionate or of a disciplinary form. As shown in Table 22.2.1.2, just two relevant studies were located and their findings were not consistent regarding parents providing more affection toward offspring based on the sex of the offspring.

Table 22.2.1.1a Recipient of parental nurturing behavior according to offspring sex

Nature of difference	*Pre-pubertal*				
	Infant	*toddler*			
Males receive more	**ASIA** *Bangladesh*: Lindenbaum 1977; Chen et al. 1981 (diligent parental care); *India*: S Singh et al. 1962; BD Miller 1981 **LATIN/CARIBBEAN AMERICA** *Mexico*: KG Dewey 1983 (diligent parental care) **NORTH AMERICA** *United States*: Moss 1967:22 (time spent by mother stimulating or holding infant); Osofsky & Connors 1979 (mother's taking the initiative to interact with infant)	**ASIA** *Bangladesh*: D'Souza & Chen 1980; Bairagi 1986 (during a famine); *India*: Kielman & Taylor 1983:148 **EUROPE** *Germany*: Keller & Zach 2002* (time spent by father) **MIDDLE EAST** *Israel*: Gewirtz & Gewirtz 1968 (time spent by father) **NORTH AMERICA** *United States*: Rebelsky & Hanks 1971 (vocalization with toddler); Lamb 1977 (vocalization with toddler); Crouter & Crowley 1990 (by father)			
Not significant	**AFRICA** *Tanzania*: Sellen 1998 (Datoga pastoralists) **NORTH AMERICA** *United States*: MR Gunnar & Donahue 1980 (6, 9, & 12 months olds, responsiveness of mother)				
Females receive more	**NORTH AMERICA** *United States*: Clarke-Stewart & Hevey 1981 (infants, by mothers); Lindahl & Heimann 1997 (infants, by mothers)	**EUROPE** *Germany*: Keller & Zach 2002* (time spent by mother) **NORTH AMERICA** *United States*: Moss 1967 (vocalizing with toddler); S Goldberg & Lewis 1969 (vocalizing with toddler); EB Thoman et al. 1972 (vocalizing with toddler)			

Table 22.2.1.1b Recipient of parental nurturing behavior according to offspring sex among non-humans

Nature of difference	*Pre-pubertal*				
	Infant	*toddler*			
Males receive more	**PRIMATE** *Baboon*: TE Rowell 1968 (mother's attentiveness to infant); Mori 1979 (mother's attentiveness to infant); *Bonnet Macaque*: Simonds 1974 (mother's attentiveness to infant); *Rhesus Macaque*: Breuggeman 1973 (mother's attentiveness to infant)	**PRIMATE** *Rhesus Macaque*: GD Mitchell 1968 (play with the mother)			
Not significant					
Females receive more					

Table 22.2.1.2 Recipient of parental affection according to offspring sex

Nature of difference	*Pre-pubertal*				
	Infant/toddler	*Child*			
Males receive more	**NORTH AMERICA** *United States*: Droppleman & Schaefer 1963 (toddlers)				
Not significant					
Males receive more		**NORTH AMERICA** *United States*: MA Barnett et al. 1980 (based on recollections of college students)			

22.2.1.3 Being Breast-Fed as an Infant According to Offspring Sex

Quite a few studies have been undertaken to determine if male or female offspring are breast-fed more or for greater lengths of time. As shown in Table 22.2.1.3a, the evidence is quite mixed with regard to studies of sex differences among humans.

In the case of non-human species, some studies were located on sex differences in the time mothers spent breastfeeding offspring. The time when mothers no longer allow offspring to breastfeed can also be considered the time when they are *weaned*.

One can see in Table 22.2.1.3b that most of the findings from these studies indicate that males were breast-fed for longer durations (or weaned at later ages) than were female offspring. Nonetheless, exceptions have been reported.

Table 22.2.1.3a Being breast-fed as an infant according to offspring sex

Nature of difference	*Citations*
Male offspring fed more often or longer	**AFRICA** *Egypt*: Makinson 1986 **ASIA** *China*: MJ Miller, Dong et al. 2020 (weaned later) **EUROPE** *Britain*: Power & Matthews 1997 (only slight difference, mainly in the upper classes) **MIDDLE EAST** *Jordan*: Deeb 1987 (in a low income urban neighborhood) **NORTH AMERICA** *United States*: Thoman et al. 1972
No significant difference	**AFRICA** *Egypt*: Nasser et al. 1988; *Malawi*: Taha et al. 2005:e170; *Tanzania*: Sellen et al. 2000:358 (infants, Datooga pastoralists) **ASIA** *India*: Premrajan & Srinivasan 1991; *Vietnam*: IE Swenson 1993; National Committee for Population and Family Planning 1999 **EUROPE** *Germany*: Buyken, Karaolis-Danckert et al. 2008:Table 1; *Italy*: Faldella et al. 1999:24 (extent of breast feeding); *Netherlands*: Tollenaar, Beijers et al. 2011:Table 1 (both sexes breast fed and average of 5 months) **MIDDLE EAST** *Jordan*: Jain & Bongaarts 1981; Akin et al. 1986; Rutstein 1984
Female offspring fed more often or longer	**EUROPE** *Britain*: S Scott & Duncan 1999 **NORTH AMERICA** *United States*: Goldberg & Lewis 1969:29

Table 22.2.1.3b Being breast-fed as an infant according to offspring sex among non-humans

Nature of difference	*Citations*
Male offspring fed more often or longer	**PRIMATE** *Chimpanzee*: Boesch 1997* (sons of high dominance mothers); Fahy, Richards et al. 2014:639 (weaned about 6 months later) **PROBOSID** *African Elephant*: PC Lee & Moss 1999:113 **RODENT** *Gerbil*: MM Clark et al. 1990 **UNGULATE** *Deer*: Clutton-Brock et al. 1981 (mothers allowed young juveniles to suckle); *Goat*: Pickering 1983 (mothers allowed young juveniles to suckle)
No significant difference	**PRIMATE** *Chimpanzee*: Lonsdorf, Markham, Heintz et al. 2014:Figure 5 (suckling, infant)
Female offspring fed more often or longer	**DELPHINID** *Dolphin*: Evancitas, Kao et al. 2017 (weaned later) **PRIMATE** *Chimpanzee*: Boesch 1997* (daughters of low dominance mothers); Hiraiwa-Hasegawa 1990 (suckle longer); *Japanese Macaque*: Eaton, Johnson et al. 1985 (weaned later)

22.2.1.4 Receiving Food/Nutrition Other Than Breast Milk

Research has been undertaken in several under-developed countries to determine if there is a sex difference in children receiving adequate nutrition (the opposite of malnutrition). As shown in Table 22.2.1.4a, the findings have been mixed in childhood, although the research focused on

infants and toddlers have all indicated that boys are more likely to receive adequate food and nutrition than are girls.

Table 22.2.1.4a Receiving food/nutrition other than breast milk

Nature of difference	*Pre-pubertal*				
	Infant/toddler	*Child*			
Males receive more food	**AFRICA** *Egypt*: Makinson 1986; SD Lane 1992 (toddler, rural) **ASIA** *Bangladesh*: D'Souza & Chen 1980 (infant); Bairagi 1986 (during a famine); *India*: Kielman & Taylor 1983:148 (infant); Behrman 1988 (toddler) **MIDDLE EAST** *Gaza Strip*: Schoenbanu et al. 1995	**ASIA** *Bangladesh*: L Chen et al. 1981 (rural); Bairagi 1986 (during a famine); *India*: Sen & Sengupta 1983; Das Gupta 1987 (Punjab province); *Tibet*: N Levine 1987			
Not significant		**AFRICA** *Multiple Sub-Sahara Countries*: Svedberg 1990 (F>M); Klasen 1996 (M>F)			
Females receive more food		**AFRICA** *South Africa*: Quinn et al. 1995; Madise & Mpoma 1997 (Malawi tribe); *Multiple Sub-Sahara Countries*: Wamani et al. 2007 (children under age 5, especially in low social status families)			

One study of chimpanzees was conducted regarding sex differences in the amount of food given to offspring by their mothers (other than breastfeeding). Table 22.2.1.4b shows that the study concluded that sons receive more food on average than do daughters.

Table 22.2.1.4b Receiving food/nutrition other than breast milk among non-humans

Nature of difference	*Pre-pubertal*				
		Child			
Males receive more food		**PRIMATE** *Chimpanzee*: AE Pasey 1983 (by mothers, post weaning)			
Not significant					
Females receive more food					

22.2.1.5 Health Care Provided to Offspring According to the Offspring's Sex

Research has sought to determine if male or female offspring are more likely to receive medical care. According to most studies, summarized in Table 22.2.1.5, parents are more likely to seek medical care for their male offspring than for their female offspring.

Table 22.2.1.5 Health care provided to offspring

Nature of difference	*Pre-pubertal*				
	Infant/toddler	*Child*			
Male offspring receive more	**AFRICA** *Egypt*: Yount 2003a; Yount 2003b **ASIA** *Bangladesh*: Chen et al. 1981 (diligent parental care) **LATIN/CARIBBEAN AMERICA** *Mexico*: KG Dewey 1983 (diligent parental care)	**AFRICA** *Egypt*: Tekce 1990; El-Mougi et al. 1991; Lane & Meleis 1991 (physician or private clinic versus home or public clinic); SD Lane 1992 (physician or private clinic versus home or public clinic); Morsy 1993 **ASIA** *India*: Wyon & Gordon 1971; Kynch & Sen 1983			
No significant difference		**ASIA** *Vietnam*: General Statistical Office 2000 (vaccination)			
Female offspring receive more					

22.2.1.6 Sex Receiving the Greatest Social Attention by Parents

Some studies have sought to determine which sex is given the greatest amount of social attention by parents. In Table 22.2.1.6, one can see that findings have been inconsistent, and may depend in part on the age of the offspring and with the social issues being addressed.

Table 22.2.1.6b shows the results of studies of the attention paid to their offspring by mothers among non-humans. A study of rhesus macaques indicated that mothers of sons visually gazed at their newborn offspring longer than did the mothers of daughters. In one study of chimpanzees, high-ranking mothers were observed providing more extensive care to their male infants than to their female infants. However, no significant sex differences in their tendencies to care for offspring were found among low-ranking mothers.

Table 22.2.1.6 Sex receiving the greatest social attention by parents

Nature of Difference	*Pre-Pubertal*		*Post-Pubertal*		
	Infant/toddler	*Child*	*Adolescent*		
Males receive more	**NORTH AMERICA** *United States*: RJ Tasch 1952 (rough and tumble play with father); HA Moss 1967 (holding time by mothers); Thoman et al. 1972* (physical stimulation by mother); Radke-Yarrow & Kochanska 1990 (toddler, parents dealing with anger issues)	**NORTH AMERICA** *United States*: Stevenson & Baker 1987 (regarding school activities)			
Not significant			**NORTH AMERICA** *United States*: C Muller 1998		
Females receive more	**NORTH AMERICA** *United States*: Thoman et al. 1972* (verbal stimulation by mother)				

Table 22.2.1.6b Sex receiving greatest overall attention by parents among non-humans

Nature of difference	*Pre-pubertal*				
		Child			
Males receive more	**PRIMATE** *Rhesus Macaque*: Dettmer, Kaburu et al. 2016 (recipient of mother's gaze)	**PRIMATE** *Chimpanzee*: C Boesch 1997* (by high dominance mothers)			
Not significant		**PRIMATE** *Chimpanzee*: C Boesch 1997* (by low dominance mothers, daughters>sons)			
Females receive more					

22.2.1.7 Parental Expectations Depending on the Sex of the Offspring

In one study, parents were asked to rate their expectations regarding their offspring's future computer skills. As shown in Table 22.2.1.7, it revealed no significant differences in this regard.

Table 22.2.1.7 Parental expectations depending on the sex of the offspring

Nature of difference					*Wide age range*
More among males					
Not significant					**EUROPE** *Germany*: Dickhauser & Stiensmeier-Pelster 2003 (regarding computer skills)
More among females					

22.2.1.8 Parental Response to Sissy/Tomboy Behavior in Offspring According to the Offspring's Sex

Two studies reported on parental responses to their children exhibiting behavior that was considered contrary to their sex (i.e., boys exhibiting sissy behavior or girls exhibiting tomboy behavior). As shown in Table 22.2.1.8, both studies concluded that parents were more upset or negatively concerned about such behavior by boys than by such behavior by girls.

Table 22.2.1.8 Parental response to sissy/tomboy behavior in offspring

Nature of difference	*Pre-pubertal*				
		Child			
More negative to sissy behavior by boys		**NORTH AMERICA** *United States*: Lansky 1967; Fling & Manosevitz 1972			
Not significant					
More negative to Tomboy behavior by girls					

22.2.1.9 Inspecting and Licking the Anal-Genital Area of Youngsters According to the Offspring's Sex

Studies of both primates and rodents have concluded that mothers are more likely to inspect or lick the genital region of her male infants than the same region of female infants. However, as shown in Table 22.2.1.9, one experiment revealed that when the odor of the pups was masked in rats, the sex difference disappeared. No comparable studies of humans were located.

22.2.1.10 Parental Play with Offspring According to the Offspring's Sex

Playful behavior appears to be unique to mammals. A few studies have sought to determine if adults (predominantly parents) play more with male than with female offspring. Table 22.2.1.10a shows that most studies have

indicated that playing with youngsters is more common for male toddlers than for female toddlers.

Table 22.2.1.9 Inspecting and licking the anal-genital area of youngsters among non-humans

Nature of difference	*Pre-pubertal*				
	Infant/toddler				
Males receive more	**MUSTELID** *Ferret*: MJ Baum et al. 1996 **PRIMATE** *Bonnet Macaque*: Simonds 1974 (mothers inspect the genitals); *Rhesus Macaque*: A Tartabini 1991 (captivity, by mothers) **RODENT** *Gerbil*: CL Moore & Morelli 1979 (neonates, maternal licking); MM Clark et al. 1989 (neonates, maternal licking); *Rat*: Moore & Power 1986 (maternal licking); Power & Moore 1986* (among offspring of non-prenatally stressed moms); CL Moore & Morelli 1979 (mothers lick the anogenital region); CL Moore 1981 (mothers lick the anogenital region); CL Moore 1982* (by mothers under control conditions)				
Not significant	**RODENT** *Rat*: CL Moore 1982* (by mother when scent was masked); Power & Moore 1986* (among offspring of prenatally stressed moms); Melniczek & Ward 1994				
Females receive more					

Table 22.2.1.10a Parental play with offspring

Nature of difference	*Pre-pubertal*				
	Infant/toddler	*Child*			
Males receive more	**NORTH AMERICA** *United States*: Fagot 1974:556 (toddler, parents joined in); Lewis & Weinraub 1979 (toddler, roughhousing, by father); Clarke-Stewart & Hevey 1981 (rough-and-tumble, by fathers); Jacklin et al. 1984 (toddler, roughhousing); Shields & Sparling 1993 (roughhousing, by fathers)	**NORTH AMERICA** *United States*: Tasch 1952 (rough-and-tumble play); Tauber 1979*			
Not significant					
Females receive more		**NORTH AMERICA** *United States*: Tauber 1979* (social play)			

Table 22.2.1.10b pertains to playing with offspring by parents among a sample of rhesus macaques. As one can see, it indicated that mothers spent more time playing with male children than with female children.

Table 22.2.1.10b Parental play with offspring among non-humans

Nature of difference	*Pre-pubertal*				
		Child			
Males receive more		**PRIMATE** *Rhesus Macaque*: Tartabini 1991 (living in captivity, by mother)			
Not significant					
Females receive more					

22.2.1.11 Parental Monitoring Offspring According to the Offspring's Sex

The degree to which adults (usually parents) attempt to control and discipline youngsters (usually offspring) according to the sex of the offspring has been investigated by several studies. Overall, Table 22.2.1.11 shows that the results have been mixed. Some of the inconsistencies may involve the sex of the parent as well as the sex of the offspring.

Table 22.2.1.11 Parental monitoring offspring according to offspring's sex

Nature of difference	*Pre-pubertal*		*Post-pubertal*		
	Infant/toddler	*Child*	*Adolescent*		
Males receive more		**ASIA** *China*: Berndt et al. 1993 (young, controlling behavior by father) **NORTH AMERICA** *United States*: Sears et al. 1957 (parent report)	**NORTH AMERICA** *United States*: M Siegal 1987 (controlling behavior by father); WA Collins & Russell 1991 (controlling behavior by father); SA Hill & Sprague 1999:496 (emphasizing obedient behavior)		
Not significant					
Females receive more	**NORTH AMERICA** *United States*: Fagot 1974:556 (toddler, criticized or corrected more)	**EUROPE** *Sweden*: Brembeck 1992 (mothers stricter with daughters than sons) **NORTH AMERICA** *United States*: Kagan & Freeman 1970:511; Morrongiello & Dawber 2000 (mother's behavior toward risky playground behavior)	**NORTH AMERICA** *United States*: Bronfenbrenner 1961 (control by mother); Rankin & Kern 1994; Zhou & Bankston 2001 (among Vietnamese immigrants); N Lopez 2003 **OCEANIA** *Philippines*: Upadhyay & Hindin 2006:573; Upadhyay & Hindin 2007:183		

22.2.1.12 Physical Punishment by Parents According to the Offspring's Sex

Table 22.2.1.12a summarizes findings regarding whether male offspring or female offspring are more likely to be physically punished by one or both parents. One can see that nearly all of these studies suggest that the majority of studies have revealed that boys are physically punished more often and more harshly than girls are by their parents.

Research findings on sex differences in physical punishment by parents among non-human primates appear in Table 22.2.1.12b. One can see that the evidence is quite mixed, perhaps depending on the specific species involved.

22.2.1.13 Verbal Discipline by Parents or Adult Guardians According to the Offspring's Sex

In one study, the amount of verbal discipline administered to boys and to girls by their parents was assessed. Table 22.2.1.13 shows that the findings indicated that girls received more verbal discipline than did boys.

22.2.1.14 Positive Attention Given to Children by Parents According to the Offspring's Sex

Positive attention by parents included smiles, praise, and gentile assistance directed toward their children. One can see in Table 22.2.1.14, all but one of these studies concluded that daughters received more positive attention than sons.

22.2.1.15 Parent-Offspring Relationships According to the Offspring's Sex

In one study, the favorability of parent-offspring relationships was assessed for fathers. As shown in Table 22.2.1.15a, son-father relationships were considered better than daughter-father relationships.

One study of primates was located in which sex differences in the frequencies of contacts between mothers. Table 22.2.1.15b shows that the study indicated that mothers have more contact with daughters than with sons.

22.2.1.16 Tenor of Parent-Offspring Discussions According to the Offspring's Sex

The tenor of discussions refers to their overall positive (friendly) vs. negative (stern or punitive) nature. As shown in Table 22.2.1.16, these studies have concluded that verbal interactions with young daughters tend to be more friendly/less stern than those with young sons.

Table 22.2.1.12a Physical punishment by parents according to offspring sex

Nature of difference	*Pre-pubertal*		*Post-pubertal*		*Wide age range*
	Infant/toddler	*Child*	*Adolescent*		
Males receive more	**NORTH AMERICA** *United States*: Droppleman & Shaefer 1963 (toddlers); Snow et al. 1983 (by father); Smetana 1990; Clearfield & Nelson 2006 (to infants, by mothers)	**ASIA** *India*: Malhi & Ray 2004 (24.8%M vs. 16.1%F, self-report); *South Korea*: Chun 1989 **LATIN/CARIBBEAN AMERICA** *Mexico*: Bronstein 1984; *Puerto Rico*: Landy 1959 **NORTH AMERICA** *United States*: White House Conference 1936 (spanked); Tasch 1952 (by father); Sears et al. 1957 (parent report); Siegelman 1965; Hoffman & Saltzstein 1967; Serbin et al. 1973 (at school); Margolin & Patterson 1975 (by parents); JH Block 1976a (parents); Lefkowitz et al. 1978; Donnelly 1981; Mulhern & Passman 1981; Wauchope & Straus 1990; E Cummings et al. 1994b (physically beaten or injured by parents); Knutson 1995 (physically abused or injured by parents); Eisenberg et al. 1996; R Pinkerton 1996; Webster-Stratton 1996 (by mothers, conduct disorder); JR Smith & Brooks-Gunn 1997 (harsh); MA Straus et al. 1997:766 (spanked more, by both parents); RD Day et al. 1998; Deater-Deckard et al. 1998 (by mothers for disobedience); A Mahoney et al. 2000 (parental reports) **OCEANIA** *New Zealand*: Ritchie & Ritchie 1981	**NORTH AMERICA** *United States*: Bronfenbrenner 1961 (discipline by father); Crittenden et al. 1994 (early adolescent, physically punished or injured by parents); Starrels 1994:157		**OVERVIEW** *Meta-Analysis*: Lytton & Romney 1991 (primarily pre-pubertal offspring)
Not significant	**NORTH AMERICA** *United States*: Koblinsky et al. 1997 (toddler, low-income black mothers)				
Females receive more					

Table 22.2.1.12b Physical punishment by parents according to offspring sex among non-humans

Nature of difference	*Pre-pubertal*				
	Infant/toddler				
Males receive more	**PRIMATE** *Pigtail Macaque*: GD Jensen 1966 (disciplined by mother's biting); GD Jensen et al. 1967 (toddler, punitiveness by mother); G Mitchell & Brandt 1970 (toddler)				
Not significant					
Females receive more	**PRIMATE** *Bonnet Macaque*: Silk et al. 1981 (toddler); *Japanese Macaque*: Eaton, Johnson et al. 1985 (toddler); *Toque Macaque*: Dittus 1977 (toddler)				

Table 22.2.1.13 Verbal discipline by parents or adult guardians

Nature of difference	*Pre-pubertal*				
	Infant/toddler				
Males receive more					
Not significant					
Females receive more	**NORTH AMERICA** *United States*: Smetana 1989 (toddler)				

Table 22.2.1.14 Positive attention given to children by parents according to offspring sex

Nature of difference	*Pre-pubertal*				
	Infant/toddler				
Males receive more					
Not significant	**NORTH AMERICA** *United States*: HA Moss 1967 (attention given by mothers)				
Females receive more	**NORTH AMERICA** *United States*: M Lewis 1972 (infants are comforted more by parents after a disappointing experience); LB Murphy & Moriarty 1976 (attention given by mothers); RD Parke & O'Leary 1976 (attention by both parents); Gunnar-Von Gnechten 1978 (helped by mother while solving a puzzle)				

Table 22.2.1.15a Parent-offspring relationships according to offspring sex

Nature of difference			*Post-pubertal*		
			Adolescent		
More for male offspring			**MIDDLE EAST** *Israel*: Elizur et al. 2007:434 (favorable interaction between father-son compared to father-daughter)		
Not significant					
More for female offspring					

Table 22.2.1.15b Parent-offspring relationships according to offspring sex among non-humans

Nature of difference	*Pre-pubertal*				
		Child			
More for male offspring					
Not significant					
More for female offspring		**PRIMATE** *Japanese Macaque*: Nakamichi 1989 (more frequent contact between mother-offspring, N = 14M + 6F)			

Table 22.2.1.16 Tenor of parent-offspring discussions according to the offspring's sex

Nature of difference	*Pre-pubertal*				
	Infant/toddler	*Child*			
Discussions more friendly/less stern with males (sons)					
Not significant					
Discussions more friendly/less stern with females (daughters)	**NORTH AMERICA** *United States*: RP Klein & Durfee 1978 (more positive/friendly communication)	**NORTH AMERICA** *United States*: Cherry & Lewis 1976 (mothers verbally interacted more with daughters than with sons); Malatesta et al. 1989 (mother expressed more positive affect to daughters than to sons); Parnell 1992 (mother expressed more positive affect to daughters than sons)			

22.2.1.17 Parent-Offspring Conflict

One study compared males and females with respect to their having conflicts with their parents. Table 22.2.1.17 shows there appeared to be greater conflict with adolescent boys than with adolescent girls.

Table 22.2.1.17 Parent-offspring conflict according to offspring sex

Nature of difference			*Post-pubertal*		
			Adolescent		
More among males			**ASIA** *Russia*: Knyazev 2004:315		
Not significant					
More among females					

22.2.1.18 Positive Attention Given to Children by Non-Parent Adult According to Offspring Sex

In two experiments, adult research participants were asked to provide care to an infant who they were told were either a baby boy or a baby girl. The youngsters were in fact the sex opposite to what participants were told to be the case but dressed to appear as such. As shown in Table 22.2.1.18, both of these so-called *Baby-X experiments* revealed that adults tended to give more positive attention to infants they thought were girls than to those they thought were boys.

Table 22.2.1.18 Positive attention given to children by non-parent adult according to offspring sex

Nature of difference	*Pre-pubertal*				
	Infant/toddler				
Males receive more					
Not significant					
Females receive more	**NORTH AMERICA** *United States*: J Will et al. 1976 (complements and smiles from adults in Baby X experiment); Frisch 1977 (complements and smiles from adults in Baby X experiment)				

22.2.1.19 Toys Offered to Children by Parents or Other Adults According to Offspring Sex

Some studies have been conducted in which researchers have sought to determine the extent to which parents or other adults offer children

sex-typical toys. As shown in Table 22.2.1.19, all studies have concluded that most adults offer children sex-typical toys.

Table 22.2.1.19 Toys offered to children by parents or other adults according to offspring sex

Nature of difference	*Pre-pubertal*				
	Infant/toddler				
Sex-typical	**NORTH AMERICA** *Canada*: Pomerleau et al. 1990* (sons given more sports equipment, tools & vehicles; daughters given more dolls & furniture, by parents); *United States*: Seavey et al. 1975; J Will et al. 1976 (by women); Frisch 1977 (experiment); C Smith & Lloyd 1977 (by women); NJ Bell & Carver 1980 (by expectant mothers when interacting with a baby); Sidorowicx & Lunney 1980 (in an experiment)				
Not significant					
Sex-atypical					

22.2.1.20 Encouragement of Children by Parents According to Offspring Sex

One study compared the treatment of children by caregivers and found sex differences. As indicated in Table 22.2.1.20, boys were more likely to be encouraged to rough-and-tumble play while baby girls were encouraged to play more with dolls.

Table 22.2.1.20 Encouragement of children by parents according to offspring sex

Nature of difference	*Pre-pubertal*				
	Infant/toddler	*Child*			
Males receive more	**NORTH AMERICA** *United States*: JH Block 1976* (regarding rough and tumble play, by female caregiver)	**NORTH AMERICA** *United States*: Fredricks & Eccles 2005 (to participate in sports, by parents)			
Not significant					
Females receive more	**NORTH AMERICA** *United States*: JH Block 1976* (regarding play with dolls, by female caregiver)				

22.2.1.21 Parental Influence on Dating and Mating Decision Making According to Offspring Sex

Several studies that have sought to determine if parents influence the dating and mate choices of one sex more than the other. As shown in Table 22.2.1.21, all the studies have concluded that parents exercise more influence on such decision making by daughters than by sons.

Table 22.2.1.21 Parental influence on dating and mating decision making according to offspring sex

Nature of difference			*Post-pubertal*		
			Adolescent		
Males influenced more					
Not significant					
Females influenced more			**NORTH AMERICA** *Canada*: TD Fisher 1993; *United States*: Moss & Robson 1968 (dating); Newcomer & Udry 1984 (by mothers); JE Brown & Mann 1990; C Flanagan 1990; Holmbeck & O'Donnell 1991; Fuligni & Eccles 1993 (young); JE Jacobs et al. 1993 (young); Werner-Wilson 1998 (on attitudes)		

22.2.1.22 Parental Stress in Relationship to the Sex of the Offspring

Two studies were located having to do with parental stress associated with providing child care relative to the sex of the offspring involved. Table 22.2.1.22 shows that both studies indicated that male offspring were associated with more stress than were female offspring.

Table 22.2.1.22 Parental stress in relationship to the sex of the offspring

Nature of difference	*Pre-pubertal*				
	Infant/toddler	*Child*			
Males associated with more parental stress	**MIDDLE EAST** *Israel*: Scher & Sharabany 2005 (to mothers)	**NORTH AMERICA** *United States*: Cabrera et al. 2000 (caregiving, by parents)			
Not significant					
Females associated with more parental stress					

22.2.1.23 Parental Supervision of Offspring According to Offspring Sex

Research concerning the extent to which parents supervise their children usually relies on self-reports of parents or direct observations of parents in a laboratory situation. As one can see in Table 22.2.1.23, these studies have all indicated that female offspring are supervised to a greater extent than are male offspring.

22.2.1.24 Mother's Retrieval of Offspring According to the Offspring's Sex

A study was undertaken among Japanese macaques to determine if mothers were more likely to retrieve male or female offspring who had strayed from her immediate vicinity. Table 22.2.1.24 shows that this study concluded that among offspring who were in the age range of a human toddler, mothers were more likely to retrieve male offspring than female offspring, but that for somewhat older children, there were no significant differences.

22.2.1.25 Recipient of Freedom by Parents in Choosing an Occupation According to Offspring Sex

In a study, researchers sought to determine if males or females were given more freedom in choosing their occupation in three different countries. As one can see in Table 22.2.1.25, males were found to be given more freedom than females in all three countries.

22.2.2 Parent-Offspring Relationships

Quite a number of studies have sought to determine if there are sex differences in how parents and offspring interact with one another. Most of these studies are based on reports by parents or on retrospective accounts of the offspring.

22.2.2.1 Parent-Offspring Discussions in General According to the Offspring's Sex

Several studies were located pertaining to conversations between parents and offspring, with a focus on parental input. Table 22.2.2.1 shows that the evidence is inconsistent regarding any significant sex differences in the information being conveyed to sons as opposed to daughters.

Table 22.2.1.23 Parental supervision of offspring according to offspring sex

Nature of difference	*Pre-pubertal*		*Post-pubertal*		
	Infant/toddler	*Child*	*Adolescent*		
Males supervised more					
Not significant					
Females supervised more	**NORTH AMERICA** *Canada*: Morrongiello & Dawber 1999; *United States*: Newson & Newson 1968; Fagot 1974:556; Saegert & Hart 1976 (toddler); Fagot 1978	**NORTH AMERICA** *United States*: J Clausen 1968; Newson & Newson 1968; Newson & Newson 1976; Saegert & Hart 1976; JH Block 1983; Brody 1993	**EUROPE** *Sweden*: R Svensson 2003 **NORTH AMERICA** *United States*: Olver et al. 1989; Small & Luster 1994 (reports by offspring); JE Kim et al. 1999; J Newsome et al. 2015:Table 1 **OCEANIA** *Philippines*: Hindin et al. 2005:311 (stricter with girls, offspring report) **INTERNATIONAL** *Multiple Countries*: Steketee, Junger & Junger-Tax 2013:Table 1		

Table 22.2.1.24 Mother's retrieval of offspring according to offspring's sex among non-humans

Nature of difference	*Pre-pubertal*				
	Infant/toddler	*Child*			
Males retrieved more	**PRIMATE** *Japanese Macaque*: Eaton, Johnson et al. 1985*				
Not significant		**PRIMATE** *Japanese Macaque*: Eaton, Johnson et al. 1985*			
Females retrieved more					

Table 22.2.1.25 Recipient of freedom by parents in choosing an occupation according to offspring sex

Nature of difference					*Wide age range*
Males receive more					**ASIA** *Japan*: RJ Smith et al. 1963* **NORTH AMERICA** *United States*: RJ Smith 1963* **OCEANIA** *Philippines*: RJ Smith 1963*
Not significant					
Males receive more					

Table 22.2.2.1 Parent-offspring discussions in general according to the offspring's sex

Nature of difference	*Pre-pubertal*				
	Infant/toddler	*Child*			
More with males (sons)	**NORTH AMERICA** *Canada*: Laflamme et al. 2002* (9-month-olds, number of words spoken by both parents); *United States*: Kruper & Uzgiris 1987 (infants, information provided by both parents); O'Brien & Nagle 1987 (toddler, spoken information provide by both parents); Ahl et al. 2013				
Not significant	**NORTH AMERICA** *Canada*: Laflamme et al. 2002*				

(*Continued*)

Table 22.2.2.1 (Continued)

Nature of difference	*Pre-pubertal*				
	Infant/toddler	*Child*			
	(15-month-olds, number of words spoken by both parents)				
More with females (daughters)	**NORTH AMERICA** *United States*: Goldberg & Lewis 1969:29 (by mothers); Moss et al. 1969; Cherry & Lewis 1976 (ask more questions of 2-year-olds by mothers); Tauber 1979 (by mothers); Power 1981; Korman & Lewis 2001 (by both parents); Clearfield & Nelson 2006 (toward infants by both parents)	**NORTH AMERICA** *United States*: Stoneman & Brody 1981 (by mothers); Reese et al. 1996 (reminiscing)			

22.2.2.2 *Parent-Offspring Discussions of Emotions According to the Offspring's Sex*

Research surrounding parental communication with offspring concerning emotions has provided somewhat mixed findings with respect to any overall sex differences in the offspring involved. As shown in Table 22.2.2.2, most discussions of emotions occur between parents and daughters than between parents and sons. The main exceptions involve discussions having to do with anger, which are more often directed toward boys than toward girls.

Table 22.2.2.2 Parent-offspring discussions of emotions according to the offspring's sex

Nature of difference	*Pre-pubertal*				
	Infant/toddler	*Child*			
Discussed more with males (sons)	**NORTH AMERICA** *United States*: Fivush 1989* (anger by toddler, mothers); Fivush 1991* (anger by toddler, mothers)	**NORTH AMERICA** *United States*: Fivush 1989* (anger); Fivush 1991* (anger); S Adams et al. 1995* (anger-related words); Fivush et al. 2000* (anger-related words)			
Not significant		**NORTH AMERICA** *United States*: J Dunn et al. 1991; Denham et al. 1994			
Discussed more with females (daughters)	**NORTH AMERICA** *United States*: JH Block 1979 (daughters were encouraged to be more emotionally expressive by parents); J Dunn et al. 1987 (mothers use more emotion-laden words); Fivush 1989* (sadness, by	**NORTH AMERICA** *United States*: MA Barnett et al. 1980 (with mothers, recollections by college students); Birnbaum & Croll 1984; Fuchs & Thelen 1988; Fivush 1989 (mother-offspring discussions of emotions); Fivush 1989* (sadness and happiness-related			

(*Continued*)

Table 22.2.2.2 (Continued)

Nature of difference	*Pre-pubertal*				
	Infant/toddler	*Child*			
	mothers); Malatesta et al. 1989 (positive emotional feelings from mothers); Fivush 1991* (sadness) by mother); Kuebli & Fivush 1992 (both parents); Zahn-Waxler et al. 1993 (with mothers); S Adams et al. 1995 (sadness); Kuebli et al. 1995 (toddler, mothers); Reese et al. 1996 (with both parents); Fivush et al. 2000 (sad events, toddler, both parents)	words); Fivush 1991* (sadness); Kuebli & Fivush 1992 (talks with both parents); Zahn-Waxler et al. 1993 (mother-offspring discussions of emotions); S Adams et al. 1995* (happiness-related words); Kuebli et al. 1995; Fivush et al. 1996 (elaboration about their past); Reese et al. 1996; Flannagan & Perese 1998 (by mothers); Fivush 1998 (elaboration about their past); Fivush & Buckner 2000 (sadness-related words); Fivush et al. 2000* (mother-offspring discussions of negative emotions and happiness-related words); Garside & Klimes-Dougan 2002 (father-offspring discussions of sadness); Garside & Klimes-Dougan 2002:124 (parents tolerate/encourage expression of sad emotions); Fivush et al. 2003 (past emotional experiences, by mothers)			

22.2.2.3 Parent-Offspring Discussions of Sexuality According to the Offspring's Sex

Table 22.2.2.3 summarizes findings having to do with parent-offspring discussions of sexuality. As one can see, all the available evidence indicated that these discussions are more extensive with daughters than with sons.

22.2.3 Other Parent-Offspring Factors

Sex differences in one or both parents are compared to their offspring have been explored in several studies. Results are summarized in the following tables.

22.2.3.1 Variety of Names Given to Offspring

One study investigated variations in the naming of children by their parents. As shown in Table 22.2.3.1, the study indicated that a wider variety of names were given to daughters than to sons.

Table 22.2.2.3 Parent-offspring discussions of sexuality according to the offspring's sex

Nature of difference	*Pre-pubertal*		*Post-pubertal*		
		Child	*Adolescent*		
More with males (sons)					
No significant difference					
More with females (daughters)		**NORTH AMERICA** *United States*: Nolin & Petersen 1992 (sexual morality, especially by mothers)	**NORTH AMERICA** *United States*: DeLamater 1989 (sexual morality, especially mothers); du Bois-Raymond & Ravesloot 1996 (sexual morality, especially mothers); Lefkowitz et al. 2002:230 (mother-offspring discussion of sex) **EUROPE** *Sweden*: Haggstrom-Nordan et al. 2002:291		

Table 22.2.3.1 Variety of names given to offspring

Nature of difference					*Wide age range*
Male names more varied					
Not significant					
Female names more varied					**NORTH AMERICA** *United States*: T Anderson 1985

22.2.3.2 Offspring's Identification with Parents

In two studies, individuals were asked which parent they were most likely to emulate (use as a role model). One can see in Table 22.2.3.2 that both studies indicated that males were more likely to identify their fathers than females were likely to identify their mothers.

22.2.3.3 Divorce According to Sex of Offspring

Some research has sought to determine if the sex of the offspring is related to the probability of parents getting divorced. According to Table 22.2.3.3, the evidence is mixed between studies finding no significant differences and ones indicating that parents of daughters were more likely to divorce than parents of sons.

Table 22.2.3.2 Offspring's identification with parents

Nature of difference			*Post-pubertal*		
				Adult	
Offspring use same-sex parent as main role model				**NORTH AMERICA** *United States*: Starrels 1994; AJ Walker 1999	
Not significant					
Offspring use opposite-sex parent as main role model					

Table 22.2.3.3 Divorce according to sex of offspring

Nature of difference					*Wide age range*
Parents with sons more likely to divorce					
Not significant					**EUROPE** *Switzerland*: Diekmann & Schmidheiny 2001 **OCEANIA** *Australia*: Bracher et al. 1993 **INTERNATIONAL** *Multiple Countries*: Diekmann & Schmidheiny 2004
Parents with daughters more likely to divorce					**ASIA** *India*: Bose & South 2003 **NORTH AMERICA** *United States*: P Glick 1988; SP Morgan et al. 1988

22.2.3.4 Death Following the Death of a Parent

One study investigated the death of male and female infants within a short time following the death of the infants' mothers. As shown in Table 22.2.3.4, the study found no significant sex difference in this regard.

Table 22.2.3.4 Death following the death of a parent

Nature of difference	*Pre-pubertal*				
	Infant/toddler				
Males more likely to die sooner					
Not significant	**LATIN/CARIBBEAN AMERICA** *Paraguay*: K Hill & Hurtado 1996 (Ache tribe)				
Females more likely to die sooner					

22.2.4 Teacher-Student Relationships

A limited amount of research has been conducted on how teachers and students interact based on the sex of the students. Results of these studies are summarized below.

22.2.4.1 Teacher Attention Given to Students

A study of the amount of time teachers give to their students according to the sex of the student was located. Table 22.2.4.1 shows that the sex of the teacher as well as the student seem to matter. Specifically, the study indicated that male teachers gave more attention (both positive and otherwise) to male students, while there was no significant sex-of-teacher effect in the case of female teachers.

Table 22.2.4.1 Teacher attention given to students

Nature of difference					*Wide age range*
Male students receive more					**EUROPE** *Germany*: Sternglanz & Lyberger-Ficek 1977* (by male teachers)
Not significant					**EUROPE** *Germany*: Sternglanz & Lyberger-Ficek 1977* (by female teachers)
Female students receive more					

22.2.4.2 Teacher Provides Support for Students

One study investigated sex difference among students in receiving praise or other forms of support from their teachers. Table 22.2.4.2 shows that the study indicated that females received more support than did males.

Table 22.2.4.2 Teacher provides support for students

Nature of difference					*Wide age range*
Males receive more					
Not significant					
Females receive more					**NORTH AMERICA** *United States*: Fyrman & Buhrmester 1992:111 (child & adolescent, student self-report)

22.2.4.3 Teacher Provides Discipline for Students

Table 22.2.4.3 summarizes one study of discipline administered to students based on the students' sex. It indicates that more discipline was given to males than to females.

Table 22.2.4.3 Teacher discipline for students

Nature of difference					*Wide age range*
Males receive more					**NORTH AMERICA** *United States*: Fyrman & Buhrmester 1992:111 (child & adolescent, student self-report)
Not significant					
Females receive more					

22.2.4.4 Teacher Expectations Regarding Academic Performance

In one study, high school teachers were asked which sex they expected to do better academically. One can see in Table 22.2.4.4 that it concluded that teachers had higher expectations of males than of females.

Table 22.2.4.4 Teacher expectations regarding academic performance

Nature of difference			*Post-pubertal*		
			Adolescent		
Males expected to do better			**NORTH AMERICA** *United States*: T Good et al. 1973		
Not significant					
Females expected to do better					

22.2.4.5 Congenial Student-Teacher Relationships

One study assessed sex differences in how well students and teachers got along with one another. As shown in Table 22.2.4.5, the study concluded that female adolescents had more congenial relationships with their teachers than did male adolescents.

22.2.5 Behavior Based on the Sex of the Individual with Whom One Interacts

Sometimes males and females exhibit different behaviors toward others based on the sex of those with whom they are interacting. The results of research on this topic are reviewed below.

Table 22.2.4.5 Congenial student-teacher relationships

Nature of difference			*Post-pubertal*		
			Adolescent		
Males receive more					
Not significant					
Females receive more			**EUROPE** *Belgium*: Van de Gaer et al. 2006		

22.2.5.1 Aggression towards Others Based on Their Sex

In one experimental game, researchers sought to determine if individuals would behave more aggressively toward an opponent depending on the opponent's sex. Table 22.2.5.1 shows that both sexes were more aggressive against a male opponent than a female opponent.

Table 22.2.5.1 Aggression towards others based on their sex

Nature of difference				*Post-pubertal*	
				Adult	
More toward males				**NORTH AMERICA** *United States*: Borden 1975 (experimental game, both sexes behave more aggressively toward male opponents)	
Not significant					
More toward emales					

22.2.5.2 Being the Central Character in Jokes

One study sought to determine if there were sex differences in being the butt of jokes that people tell. Table 22.2.5.2 shows that the study concluded that males were more often central characters in the jokes than were females, regardless of who was telling the joke.

Table 22.2.5.2 Being a central character in jokes

Nature of difference				*Post-pubertal*	
				Adult	
More toward males				**NORTH AMERICA** *United States*: C Mitchell 1978 (undergrad, in most of 1,100 different jokes)	
Not significant					
More toward emales					

22.2.5.3 Communication Behavior According to the Recipient's Sex

In one study, communication by mothers toward their newborn offspring were investigated. In Table 22.2.5.3a, one can see that mothers communicated more with baby girls than with baby boys.

Table 22.2.5.3a Communication behavior according to the recipient's sex

Nature of difference	*Pre-pubertal*				
	Infant/toddler				
Vocalize more to the opposite sex					
Not significant					
Vocalize more to the same sex	**NORTH AMERICA** *United States*: LJ Harris 1977 (by mothers to offspring)				

Table 22.2.5.3b shows that an investigation into vocal communication by zebra finches concluded that males vocalized more in the presence of females than in the presence of other males. Females, on the other hand, did not discriminate. The limited research on primates (including humans) suggests that animals of both sexes gesture more with females than they do with males.

Table 22.2.5.3b Communication behavior according to the recipient's sex among non-humans

Nature of difference			*Post-pubertal*	
				Adult
Vocalize more to the opposite sex				**BIRD** *Zebra Finch*: Vicario et al. 2001* (during courtship)
Not significant				**BIRD** *Zebra Finch*: Vicario et al. 2001* (females call to both sexes equally)
Vocalize more to the same sex				**PRIMATE** *Ringtail Lemur*: SB Christopher & Gelini 1977 (jaw thrusting behavior)

22.2.5.4 Emotional Feelings toward Others Based on Their Sex

Two studies were located that compared the sexes regarding being the recipients of emotional feelings by women. Table 22.2.5.4 shows that both studies concluded that women had stronger feelings toward males than toward other females, at least in the case of feeling fear and anger.

Table 22.2.5.4 Emotional feelings toward others based on their sex

Nature of difference			*Post-pubertal*		
				Adult	
Stronger toward men				**NORTH AMERICA** *United States*: Brody 1993 (among women, fearful feelings toward men); Brody et al. 1995 (among women, angry feelings toward men)	
Not significant					
Stronger toward women					

22.2.5.5 Being Sought for Emotional Support

As shown in Table 22.2.5.5, a few studies have investigated possible sex differences in being sought for emotional support. All the studies agreed that both sexes tend to seek emotional support from females more than from males.

Table 22.2.5.5 Being sought for emotional support

Nature of difference			*Post-pubertal*		
				Adult	
Males sought out more					
Not significant					
Females sought out more				**NORTH AMERICA** *United States*: Buhrke & Fuqua 1987; Aukett et al. 1988; Flaherty & Richman 1989; Barbee et al. 1990	

22.2.5.6 Imitating/Modeling According to the Recipient's Sex

Two studies of imitating behavior of an adult by children were found that assessed the sex of the adult being imitated. Table 22.2.5.6 shows that both studies indicated that both boys and girls were equally prone to model adults of their own sex.

22.2.5.7 Skin Conductivity Responses to Others Based on Their Sex

In two studies, changes in skin conductivity (as measured by the Galvanic skin response, GSR) were measured when they were in close proximity to someone else. Table 22.2.5.7 shows that both studies found that when people (of either sex) were in the presence of males, their GSR responses were stronger than when in the presence of females.

Table 22.2.5.6 Imitating/modeling according to the recipient's sex

Nature of difference	*Pre-pubertal*				
		Child			
Males imitate more					
Not significant		**NORTH AMERICA** *United States*: JC Masters et al. 1979 (imitate adults of same sex); Perry & Bussey 1979 (imitate adults of same sex)			
Females imitate more					

Table 22.2.5.7 Skin conductivity responses to others based on their sex

Nature of difference					*Wide age range*
More intense response to males					**NORTH AMERICA** *United States*: WL Donovan & Leavitt 1980; Mazurski et al. 1996
Not significant					
More intense response to females					

22.2.5.8 Personal Space Given to Others Based on Their Sex

A few studies compared the amount of space given to individuals of both sexes by others. Table 22.2.5.8 shows that all of these studies concluded that males were given more personal space than were females.

Table 22.2.5.8 Personal space given to others based on their sex

Nature of difference	*Pre-pubertal*		*Post-pubertal*		*Wide age range*
		Child		*Adult*	
More space given to males		**MIDDLE EAST** *Israel*: Lomranz et al. 1975*		**NORTH AMERICA** *United States*: K Bailey et al. 1972 (during conversations between the sexes)	**NORTH AMERICA** *United States*: Willis 1966 (during conversations)
Not significant					
More space given to females					

22.2.5.9 Being Told About the Inner Feelings of Others

Some research has sought to determine which sex is most likely to be the recipient of information about other people's inner feelings. As shown in Table 22.2.5.9, all of these studies concluded that for all feelings (with the possible exception of anger) both sexes tend to reveal their inner feelings to females than to males.

Table 22.2.5.9 Being told about the inner feelings of others

Nature of difference			*Post-pubertal*		
				Adult	
More reported to males					
Not significant					
More reported to females				**NORTH AMERICA** *United States*: Aries 1976; Dosser et al. 1983 (all feelings except anger); Blier & Blier-Wilson 1989 (all feelings except anger) **OVERVIEW** *Literature Review*: Winstead & Griffin 2001 (both sexes divulge more personal information to females)	

22.2.5.10 Giving in to Temper Tantrums Based on Sex

One study asked mothers if they were more likely to give in to temper tantrums by their children. As shown in Table 22.2.5.10, the study indicated that mothers were more likely to give into the demands of boys than girls.

Table 22.2.5.10 Giving in to temper tantrums based on sex

Nature of difference	*Pre-pubertal*				
		Child			
Giving in more to males		**NORTH AMERICA** *United States*: Radke-Yarrow & Kochanska 1990 (by mother)			
Not significant					
Giving in more to females					

22.2.5.11 Neutering a Pet Based on Sex

Two studies were located that sought to determine if male or female pets were more likely to be neutered. As shown in Table 22.2.5.11, both studies concluded that females are more often neutered.

Table 22.2.5.11 Neutering a pet based on sex among non-humans

Nature of difference					*Wide age range*
Males neutered more					
Not significant					
Females neutered more					**LATIN/CARIBBEAN AMERICA** *Bahamas*: Fielding & Mather 2001 **OCEANIA** *Australia*: Blackshaw & Day 1994

22.2.5.12 Being the Recipients of Touch

Some research has been conducted on people's being the recipients of tactile contact by others. As shown in Table 22.2.5.12, the evidence for infants and toddlers is somewhat mixed, but for adults, all studies indicated that females are touched by others more than are males.

Table 22.2.5.12 Being the recipients of touch

Nature of difference	*Pre-pubertal*		*Post-pubertal*		
	Infant/toddler			*Adult*	
Males receive more	**NORTH AMERICA** *United States*: M Lewis 1972				
Not significant					
Females receive more	**NORTH AMERICA** *United States*: Kagan & Lewis 1965; Clay 1968 (by mothers)			**EUROPE** *Britain*: Jourard 1966 (self-reports, by father); Jourard & Rubin 1968 (self-reports, by father) **NORTH AMERICA** *United States*: Henley 1977	

22.2.6 Health Institutional Responses Based on Sex of the Patient

Studies of how health institutions (including individual physicians and other healthcare workers) respond differently to male and female patients have been extensively reported. Findings are summarized in the following tables.

22.2.6.1 Provide Medical Care in General

Many studies of sex differences in the receipt of medical care, usually for specific types of ill-health conditions, have been published. As shown in

Table 22.2.6.1, findings of sex differences have been mixed, with age possibly being a factor. In the case of toddlers and children, boys seem to receive more medical attention. However, by adulthood, findings are inconsistent, at least in the United States.

22.2.6.2 Provide Drug Abuse Treatment

Findings from studies of sex differences in people seeking treatment for drug abuse (including treatment for alcohol and nicotine addiction) are summarized in Table 22.2.6.2. One can see in Table 22.2.6.2 that sex differences may depend upon the type of drugs involved. For males, alcohol abuse appears to be a greater concern, while for females, it could be cigarette smoking.

22.2.6.3 Provide Experimental Medical Treatment

One study compared the sexes regarding being participants in experimental medical treatment for symptoms of acute coronary disease. Table 22.2.6.3 shows that the study indicated that more males than females participated.

22.2.6.4 Provide Inpatient Treatment (as Opposed to Outpatient Treatment)

Table 22.2.6.4 shows that one study compared the sexes regarding the receipt of inpatient treatment for depression (as opposed to outpatient treatment). One can see that the study indicated that more males received inpatient treatment than did females.

22.2.6.5 Provide Surgical Treatment for Coronary Heart Disease

Numerous studies have investigated sex differences in providing treatment to people who have some form of heart disease. As shown in Table 22.2.6.5, most of these studies have concluded that men are more likely than women to receive revascularization as well as other "aggressive" surgical treatments.

22.2.6.6 Complications Associated with Coronary Heart Disease Surgery

According to several studies, there may be sex differences in the likelihood of patients experiencing complications with surgical treatment for coronary heart disease. As shown in Table 22.2.6.6, all of the located studies found these complications to be more common among females. This could help to explain why the preceding table reported that males appear to be more likely to receive CHD surgery.

Table 22.2.6.1 Provide medical care in general

Nature of difference	*Pre-pubertal*		*Post-pubertal*	*Wide age range*
	Infant/toddler	*Child*	*Adult*	
Males receive more	**MIDDLE EAST** *Egypt*: Yount 1999* (toddler, treated for diarrhea)	**AFRICA** *Egypt*: Langsten & Hill 1995; Yount 1999* (full vaccination); *Kenya*: Cronk 1989:423* (among the Mukogodo tribe); *Morocco*: Arnold 1992; Obermeyer & Cardenas 1997 (full vaccination) **INTERNATIONAL** *Multiple Developing Countries*: Timaeus et al. 1998 (full vaccination)	**ASIA** *India*: Nirmalan et al. 2003 (surgery for cataract sufferers) **MIDDLE EAST** *Israel*: Gottlieb et al. 2000* (for myocardial infarction) **NORTH AMERICA** *United States*: IK Broverman et al. 1970; Mendelsohn 1981; Tobin et al. 1987 (heart disease patients); Katz et al. 1994 (more advanced treatment for arthritis patients) **INTERNATIONAL** *Multiple Countries*: Doyal et al. 2003	**NORTH AMERICA** *United States*: KJ Armitage et al. 1979; B Bernstein & Kane 1981; Council on Ethical & Judicial Affairs 1991; Hariz & Hariz 2000 (more advanced treatment for Parkinson's disease patients)
Not significant		**AFRICA** *Kenya*: Cronk 1989:423* (among broader Kenyan population)	**MIDDLE EAST** *Israel*: Gottlieb et al. 2000* (when age adjusted)	
Females receive more			**NORTH AMERICA** *United States*: PJ Bush & Osterweis 1978 (given a prescription); Mellinger & Balter 1981 (prescribed psychotropic medications); Verbrugge & Steiner 1981 (recommended follow up visits); Cafferata et al. 1983 (prescribed psychotropic medications); Rossiter 1983 (given a prescription); Svarstad 1983 (given a prescription); Verbrugge 1985:161 (prescribed psychotropic medications)	

Table 22.2.6.2 Providing drug abuse treatment

Nature of difference			*Post-pubertal*	
				Adult
Males provided more				**NORTH AMERICA** *United States*: Emrick 1994 (obtained alcohol abuse treatment, 94%M); Vannicelli 1984 (obtained alcohol abuse treatment, 92%M)
Not significant				
Females provided more				**OVERVIEW** *Literature Review*: Toneatto 1992 (obtained stop smoking treatment)

Table 22.2.6.3 Provide experimental medical treatment

Nature of difference			*Post-pubertal*	
				Adult
Males receive more				**NORTH AMERICA** *United States*: PY Lee et al. 2001 (random trials of acute coronary symptoms, elderly)
Not significant				
Females receive more				

Table 22.2.6.4 Provide inpatient treatment (as opposed to outpatient treatment)

Nature of difference			*Post-pubertal*	
				Adult
More among males				**EUROPE** *Denmark*: Kessing 2005 (for depression diagnosis)
Not significant				
More among females				

Table 22.2.6.5 Provide surgical treatment for coronary heart disease

Nature of difference			*Post-pubertal*	
				Adult
Males receive more				**EUROPE** *Britain*: Petticrew et al. 1993 (more invasive cardiac operations); M Shaw et al. 2004; *Netherlands*: Roeters vanLennep 2000; *Sweden*: Dellborg & Swedberg 1993 (more advanced treatment) **NORTH AMERICA** *Canada*: D'Hoore et al. 1994;

(*Continued*)

Table 22.2.6.5 (Continued)

Nature of difference			*Post-pubertal*		
				Adult	
				Jagal et al. 1994; *United States*: Gillum 1987; Pashos & McNeil 1990 (elderly); Ayanian & Epstein 1991 (CHD patients); Steingart et al. 1991 (coronary artery bypass graft surgery); Bickell et al.1992 (elderly, revascularization); Krumholz et al. 1992 (more invasive cardiac operations); C Maynard et al. 1992 (revascularization); Udvarhelyi et al. 1992 (elderly, revascularization & bypass grafting); Pashos et al. 1993 (revascularization); M Funk & Griffey 1994; Kostis et al. 1994 (elderly, revascularization); Beery 1995; MR Bell et al. 1995; Giles et al. 1995* (elderly, angioplasty, revascularization, catheterization, and bypass grafting); Patrick et al. 1995; Bergelson & Tommaso 1996; Giacomini 1996 (coronary bypasses); Kudenchuk et al. 1996 (more intense treatment for acute myocardial infarction); C Maynard et al. 1996; McLaughlin et al. 1996 (more intense treatment for acute myocardial infarction); PH Stone et al. 1996 (more intense treatment for acute myocardial infarction); Weintraub et al. 1996 (elderly, revascularization); Yarzebski et al. 1996 (more intense treatment for acute myocardial infarction); Riuz & Verbrugge 1997 (heart disease patients); S Weitzman et al. 1997 (more intense treatment for acute myocardial infarction); Chandra et al. 1998 (revascularization); Canto et al. 2000 (elderly, reperfusion therapy); BM Crawford et al. 2000; Gan et al. 2000 (revascularization); Gottlieb et al. 2000; Gan et al. 2000 (more intense treatment for acute myocardial infarction); Kilaru et al. 2000; Ramani et al. 2000; American Heart Association 2001; Bowling et al. 2001; RE Watson 2001; Bertoni et al. 2003:1057 (artery bypass grafting, stent replacement & catheterization, after controlling for other demographics); Harrold et al. 2003 (artery bypass grafting); Rathore et al. 2003 (elderly, revascularization especially after bypass surgery); Chauhan et al. 2005:102 (stenting, 4,278M vs. 1,908F); Kucher et al. 2005 (prophylaxis surgery); Lanaky et al. 2005 (percutaneous coronary intervention); Vaccarino et al. 2005 (more intense treatment for acute myocardial infarction); SC Smith at 2006 (percutaneous coronary intervention)	
Not significant				**EUROPE** *Britain*: AK Sullivan et al. 1994 (revascularization) **NORTH AMERICA** *Canada*: Naylor & Levinton 1993 (revascularization); *United States*: Bickell et al. 1992 (when the risk of death from CHD are equal); DB Mark et al. 1994 (coronary angiography); Giles et al. 1995* (elderly, angioplasty, after controlling for race, age & comorbidity risks); Leape et al. 1999 (revascularization); Ghali et al. 2002 (revascularization)	
Females receive more					

Table 22.2.6.6 Complications associated with coronary heart disease surgery

Nature of difference				*Post-pubertal*	
				Adult	
More among males					
Not significant					
More among females				**NORTH AMERICA** *United States*: ED Peterson et al. 2001; Fernanddes et al. 2003; Iakovou et al. 2003; Farouque et al. 2004; Chauhan et al. 2005:102 (vascular complications); Lansky et al. 2005; Razakjr et al. 2005; CA Thompson et al. 2006	

22.2.6.7 Time Waiting for Coronary Heart Disease Surgery

In one study, males and females were compared regarding the amount of time spent waiting for heart surgery. Table 22.2.6.7 shows that no significant sex difference was found.

Table 22.2.6.7 Time waiting for coronary heart disease surgery

Nature of difference			*Post-pubertal*	
			Adult	
Longer among males				
Not significant			**EUROPE** *Sweden*: Bengtson et al. 2000 (coronary revascularization surgery)	
Longer among females				

22.2.6.8 Provide an Organ Transplant

A few studies have sought to determine if there are sex differences in being the recipient of an organ transplantation. Table 22.2.6.8 shows that males appear to be more frequent recipients of kidney transplants than females.

22.2.6.9 Provide a Sentinel Lymph Node Biopsy

Sentinel lymph node biopsies are surgical procedures performed to determine if certain cancers have spread beyond a primary tumor site. As shown in Table 22.2.6.9, there appear to be no significant sex differences in the frequency of this medical procedure.

Table 22.2.6.8 Provide an organ transplant

Nature of difference			*Post-pubertal*		
				Adult	
More among males				**EUROPE** *Switzerland*: Thiel et al. 2005 (kidney) **NORTH AMERICA** *Canada*: DE Schaubel et al. 2000 (kidney); *United States*: Bloembergen et al. 1996 (kidney); Kayler et al. 2002 (kidney donated by a spouse)	
Not significant					
More among females					

Table 22.2.6.9 Provide a sentinel lymph node biopsy

Nature of difference			*Post-pubertal*		*Wide age range*
				Adult	
More among males					
Not significant				**NORTH AMERICA** *United States*: Essner et al. 1999; Gershenwald et al. 1999; McMasters et al. 2001; Chao et al. 2002; Chao et al. 2004; McMasters et al. 2004; Scoggins et al. 2006	**OVERVIEW** *Literature Review*: Clary et al. 2001
More among females					

22.2.6.10 Methods Used for Screening for Colorectal Cancer

Colorectal cancer is one of the most prevalent forms of cancer. Several studies have compared the sexes regarding the method most often used to screen for colorectal cancer. As shown in Table 22.2.6.10, most studies have found that endoscopy is more often used with males, while fecal occult blood test (FOBT) is used more often with females.

22.2.6.11 Take Symptoms of Ill Health Seriously

A few studies have asked physicians the extent to which they tend to take patient complaints seriously. As shown in Table 22.2.6.11, most physicians report doing so more in the case of male patients than female patients.

Table 22.2.6.10 Methods used for screening for colorectal cancer

Nature of difference				*Post-pubertal*	
				Adult	
More among males				**NORTH AMERICA** *United States*: SC Lemon et al. 2001 (endoscopy); JA Shapiro et al. 2001 (endoscopy); Brawarsky et al. 2003 (endoscopy); Subramanian et al. 2005 (endoscopy)	
Not significant				**NORTH AMERICA** *United States*: A McQueen et al. 2006 (endoscopy)	
More among females				**NORTH AMERICA** *United States*: SC Lemon et al. 2001 (FOBT); JA Shapiro et al. 2001 (FOBT); Brawarsky et al. 2003 (FOBT); Subramanian et al. 2005 (FOBT); A McQueen et al. 2006 (FOBT); Brenner, Haug & Hundt 2010 (FOBT)	

Table 22.2.6.11 Take symptoms of ill health seriously

Nature of difference				*Post-pubertal*	
				Adult	
Males taken more seriously				**NORTH AMERICA** *United States*: Bronstein 1976; KJ Armitage et al. 1979; B Bernstein & Kane 1981; Colameco et al. 1983; JN Katz et al. 1994; Riuz & Verbrugge 1997	
Not significant					
Females taken more seriously					

22.2.6.12 Survival Following Surgery

A number of studies were located on sex differences in survival after various forms of surgery. As one can see by viewing Table 22.2.6.12, there appear to be differences according to the specific type of disease being treated.

22.3 Treatment and Perception by Voters

In the following tables, studies of are reviewed concerning how political candidates are treated or perceived by voters according to the sex of the candidates. Also considered is treatment by judges depending on the sex of the defendant in trials.

Table 22.2.6.12 Survival following surgery

Nature of difference				*Post-pubertal*	
				Adult	
More among males				**ASIA** *Japan*: Shibue, Kondo et al. 1987 (after kidney transplant) **EUROPE** *Germany*: W Otto, May et al. 2012 (after bladder cancer surgery); *Poland*: Glyda, Czapiowski et al. 2011 (after kidney transplant) **NORTH AMERICA** *United States*: Vaccarino, Horwitz et al. 1998 (after surgery following a hart attack)	
Not significant				**EUROPE** *Denmark*: Norregaard, Gerner et al. 1996 (after skin cancer surgery) **NORTH AMERICA** *United States*: JS Berger, Elliott et al. 2009 (after surgery for coronary heart disease)	
More among females				**EUROPE** *Germany*: Majek, Gondos et al. 2013 (after surgery for colorectal cancer); *Scotland*: McArdle, McMillan & Hole 2003 (after operation for colorectal cancer) **NORTH AMERICA** *United States*: SJ Jacobsen, Goldberg et al. 1992 (after surgery for hip fracture); R Moore, Doherty et al. 2004 (after lung cancer surgery); Wisnivesky & Halm 2007 (after surgery for lung cancer)	

22.3.1 Treatment by Voters or Citizens

Sex differences in whether or not someone is elected to a political office or is treated by jurors more harshly has received considerable research attention. Findings are summarized in the tables below.

22.3.1.1 Winning Elections/Being Elected

Some studies have investigated sex differences in the likelihood of male or female candidates for various types of public office are more likely to win the election. One can see in Table 22.3.1.1 that the findings have been mixed.

22.3.1.2 Asked to Perform Governmental Casework Interventions

Two studies were located that had investigated sex differences in the extent to which legislators are asked for help from their constituents. Table 22.3.1.2 shows that both of these studies found that female legislators had received more requests to perform casework interventions on their constituents' behalf than did male legislators.

22.3.2 Voters' Perceptions of Elected Officials and Candidates

Sex differences in how candidates and elected officials are perceived by their constituents have been investigated in several studies. Results are summarized in the following brief section.

Table 22.3.1.1 Winning elections/being elected

Nature of difference			*Post-pubertal*		
			Adolescent	*Adult*	
More among males				**NORTH AMERICA** *United States*: Westlye 1991; Drasno 1994; Herrick 1996; Kropf & Boiney 2001	
Not significant				**NORTH AMERICA** *United States*: RS Darcy et al. 1994 (national offices); Seltzer et al. 1997:79; S Thompson & Steckenridger 1997; Burrell 1998; Dolan 1998; RL Fox 2000 (national offices); ER Smith & Fox 2001	
More among females			**INTERNATIONAL** *Multiple Countries*: Cassell et al. 2006:443 (in leadership posts of the Junior Summit; an internet organization)		

Table 22.3.1.2 Asked to perform governmental casework interventions

Nature of difference			*Post-pubertal*		
				Adult	
Males asked more					
Not significant					
Females asked more				**NORTH AMERICA** *United States*: Antolini 1984; LE Richardson & Freeman 1995	

22.3.2.1 Perceived as Compassionate

Table 22.3.2.1 shows that two studies compared male and female political candidates in terms of potential voters' perceptions of their degree of compassion. The table shows that in both cases, female candidates were thought to be more compassionate than were the male candidates.

22.3.2.2 Perceived as Better Able to Deal with Compassionate Issues

In the present context, compassion issues have to do with those of welfare, education, race relations, and health. Table 22.3.2.2 shows that the available studies have concluded that female political candidates are thought by their constituents to be on average better able to deal with these types of issues than are male political candidates.

Table 22.3.2.1 Perceived as compassionate

Nature of difference			*Post-pubertal*		
				Adult	
Males perceived as more					
Not significant					
Females perceived as more				**NORTH AMERICA** *United States*: Leeper 1991; Huddy & Terkildsen 1993a	

Table 22.3.2.2 Perceived as better able to deal with compassionate issues

Nature of difference			*Post-pubertal*		
				Adult	
Males perceived as more					
Not significant					
Females perceived as more				**EUROPE** *Norway*: Matland 1994 **NORTH AMERICA** *United States*: Huddy & Terkildsen 1993a; Huddy & Terkildsen 1993b	

22.3.2.3 Perceived as More Competent in Economic and Military/ Foreign Affairs

A few studies have asked voting constituents to evaluate the competence of male and female political candidates regarding the candidates' abilities to deal with economic and/or military/foreign affairs. One can see in Table 22.3.2.3 that male candidates were given higher ratings regarding these types of issues than were female candidates.

Table 22.3.2.3 Perceived as more competent in economic and military/foreign affairs

Nature of difference			*Post-pubertal*		
				Adult	
Males perceived as more				**EUROPE** *Norway*: Matland 1994 **NORTH AMERICA** *United States*: Huddy & Terkildsen 1993a; Huddy & Terkildsen 1993b	
Not significant					
Females perceived as more					

22.4 Social Treatment by Others

A wide array of studies has examined how males and females differ with respect to the treatment they receive from others. Findings are reviewed below.

22.4.1 Treatment by Social Interactants in General

Sex differences in various form of treatment by social interactants (other than parents and teachers) have been studied. Findings from these studies are summarized in the following tables.

22.4.1.1 Being Helped or Supported by Others in General

A substantial amount of research has sought to determine if males and females are more likely to receive social support or help from others. Many of these studies were experimental in nature, especially for the studies of adults. As shown in Table 22.4.7.5, roughly half of these studies have indicated that females are more likely than males to receive various forms of help or social support, while the remainder either found no significant sex differences or that males received more help than females. (Table 22.4.1.1).

22.4.1.2 Being Encouraged

In a couple of studies, sex differences in who is most often encouraged to pursue a particular line of work were investigated. Table 22.4.1.2 shows that males were found to be encouraged to be scientists more often than were females.

22.4.1.3 Being Mentored

One study of being the recipient of mentoring was found. As shown in Table 22.4.1.3, male manager trainees were mentored more by established managers than were female manager trainees.

22.4.1.4 Being Teased by Peers

In one study, the sexes were compared to see which was most often teased, mocked, or taunted. Table 22.4.1.4 shows that this study indicated that females are teased more, at least for being overweight.

22.4.1.5 Being Waited on in Retail Stores

Two studies of customers of both sexes were studied to see which one received the most immediate attention in retail stores. One can see in Table 22.4.1.5 that both studies concluded that males receive attention from the sales staff more readily than did females.

Table 22.4.1.1 Being helped or supported by others in general

Nature of difference	*Pre-pubertal*		*Post-pubertal*		
		Child	*Adolescent*	*Adult*	
Males receive more				**EUROPE** *Britain*: Rojas et al. 2005:1697* (self-perceived) **LATIN/CARIBBEAN AMERICA** *Chile*: Rojas et al. 2005:1697* (self-perceived) **NORTH AMERICA** *United States*: Emswiller et al. 1971 (small favors); MB Harris & Baudin 1973* (experimental request for change from a stranger, help provided by women); Lerner & Frank 1974* (experiment with dropped items in a supermarket, from women); Valentine & Ehrlichman 1979 (experiment in which help was received after dropping some coins while wearing a sling)	
Not significant		**NORTH AMERICA** *United States*: DiPietro 1981 (young childhood); Leaper 1991* (early childhood); Leaper et al. 1999 (young childhood, blacks)		**NORTH AMERICA** *United States*: Latane & Darley 1970 (experiment in which persons were asked for a small amount of money); Franklin 1974 (stranded motorist experiment); Appleton & Gurwitz 1976 (experiment in which individuals sought help in career preparation); RD Barnes et al. 1979 (when they asked a classmate to barrow their class notes, experimental study)	
Females receive more		**NORTH AMERICA** *United States*: Leaper 1991* (later childhood); CER Phelps 2001; Sandstrom & Cillessen 2003; Storch, Nock et al. 2003 (among Hispanics and blacks)	**NORTH AMERICA** *Canada*: RJ Burke & Weir 1978; *United States*: Solomon & Herman 1977*; Juni & Roth 1981*; Gentile et al. 1986*; Mallozzi et al 1990*; Hops et al. 1997; Paquette & Underwood 1999; Colarossi & Eccles 2000 (from	**ASIA** *Japan*: Okamoto & Tanaka 2004 (elderly) **EUROPE** *Britain*: S Matthews et al. 1999 (from acquaintances and relatives); *Multiple European Countries*: Dalgard et al. 2006:447 (after negative life events) **NORTH AMERICA** *United States*: WE Simon 1971 (stranded motorist experiment); MB Harris & Baudin 1973* (experimental request for	

(*Continued*)

Table 22.4.1.1 (Continued)

Nature of difference	*Pre-pubertal*		*Post-pubertal*		
		Child	*Adolescent*	*Adult*	
			peers); Strough & Berg 2000 (in two-person groups); Storch, Brassard et al. 2003 (Hispanics & blacks)	change from a stranger, help provided by men); Penner et al. 1973 (stranded motorist experiment); Pomazal & Clore 1973 (stranded motorist experiment); MS Clark 1974 (stranded motorist experiment); W Howard & Crano 1974 (theft victim experiment); Lerner & Frank 1974* (experiment with dropped items in a supermarket, help provided by men); Snyder et al. 1974 (hitchhiker experiment); Unger et al. 1974 (when asked to be allowed to get ahead in a supermarket line, experimental study); Latane & Dabbs 1975 (contrived dropped object experiment); SG West et al. 1975 (stranded motorist experiment); Piliavin et al. 1976 (fall victim experiment); Renne & Allen 1976 (arms encumbered experiment); Solomon & Herman 1977*; Ahmed 1979 (stranded motorist experiment); Austin 1979 (theft victim experiment); Brigham & Richardson 1979 (when they asked to pay slightly less than the posted price, experimental study); Juni & Roth 1981*; Gentile et al. 1986*; Antonucci & Akiyama 1987 (elderly); Mallozzi et al 1990*; Roxburgh 1999:778 (among employed persons, from fellow workers); Courtenay 2000 **INTERNATIONAL** *Multiple Countries*: Orth-Gomer 1994	

Table 22.4.1.2 Being encouraged

Nature of difference			*Post-pubertal*		
			Adolescent		
Makes receive more			**NORTH AMERICA** *United States*: SM Malcolm et al. 1976 (encouraged to become scientists); GE Thomas 1984 (encouraged to become scientists)		
Not significant					
Females receive more					

Table 22.4.1.3 Being mentored

Nature of difference			*Post-pubertal*		
				Adult	
Males receive more				**NORTH AMERICA** *United States*: Ragins & Cotton 1991 (managers)	
Not significant					
Females receive more					

Table 22.4.1.4 Being teased by peers

Nature of difference			*Post-pubertal*		
			Adolescent		
Males teased more					
Not significant					
Females teased more			**NORTH AMERICA** *United States*: Neumark-Sztainer et al. 2002 (for being overweight)		

Table 22.4.1.5 Being waited on in retail stores

Nature of difference					*Wide age range*
Males receive customer attention sooner					**NORTH AMERICA** *United States*: Zinkhan & Stoiadin 1984; Stead & Zinkhan 1986
Not significant					
Females receive customer attention sooner					

22.4.1.6 Being the Object of Complaints

Citizens sometimes complain about treatment by public officials. Table 22.4.1.6 shows that male police officers are usually the target of more complaints than are female police officers.

Table 22.4.1.6 Being the object of complaints

Nature of difference			*Post-pubertal*		
				Adult	
More among males				**NORTH AMERICA** *United States*: Felkenes 1991 (citizen complaints about specific police officers)	
Not significant					
More among females					

Table 22.4.1.7 Being addressed by first name

Nature of difference					*Wide age range*
More among males					
Not significant					
More among females					**NORTH AMERICA** *United States*: Lakoff 1973 (in the workplace)

22.4.1.7 Being Addressed by First Name

In one study, researchers assessed the proportion of individuals in a work environment were addressed by their first name rather than their family name. Table 22.4.1.7 shows that females were more likely than males to be addressed by their first name.

22.4.1.8 Having a Nickname

Are males or females more likely to receive (or be called by) a nickname? At least two studies have addressed this question. As shown in Table 22.4.1.8, both indicated that many more males were given nicknames, often based on some unusual physical feature (e.g., "Shorty", "Red") or demeaning behavioral characteristic (e.g., "wise-guy" or "knucklehead"), than was the case for females.

Table 22.4.1.8 Having a nickname

Nature of difference	*Pre-pubertal*				
	Infant/toddler	*Child*			
More among males	**NORTH AMERICA** *United States*: Gleason 1975 (toddler, by father)	**NORTH AMERICA** *United States*: Orgel & Tuchman 1935 (Jewish orphanage, reflecting unusual physical feature)			
Not significant					
More among females					

22.4.1.9 Being Described with Slang Sexual Terminology

Two studies sought to determine if males or females were given more slang sexual terminology. Examples would be "prick" or "dick head" in the case of males, or "bitch" or "cunt" in the case of females. Table 22.4.1.9 shows that these studies concluded that females are more often described with such slang terminology than are males.

Table 22.4.1.9 Being described with slang sexual terminology

Nature of difference	*Pre-pubertal*				
		Child			
More among males					
Not significant					
More among females		**NORTH AMERICA** *United States*: Kutner & Brogan 1974 (undergrad); Grossman & Tucker 1997			

22.4.2 Treatment by the Criminal Justice System

Some research has sought to determine if social institutions treat males and females differently. Results from these studies are summarized below.

22.4.2.1 Being Arrested

A few studies have sought to determine if a sex difference exists in treatment by the criminal justice system. As shown in Table 22.4.2.1, relative to females, males seem to be more often arrested when suspected of the same basic offenses.

22.4.2.2 Sentences Administered by Courts

A substantial number of studies have sought to determine if the criminal justice system treats males and females differently after being convicted for

Table 22.4.2.1 Being arrested

Nature of difference					*Wide age range*
More among males					**NORTH AMERICA** *United States*: Lundman 1974 (adolescent & adult); DA Smith & Visher 1981 (adolescent & adult); Stolzenberg & D'Alessio 2004 (adolescent & adult)
Not significant					
More among females					

the same type of crime. As shown in Table 22.4.2.2, for the same of similar offenses, most studies have found that males receive harsher sentences than is true for females. This pattern was also found in a few studies involving people reading criminal cases that were identical except for the sex of the offender. When instructed to serve as jurors and asked recommend punishment, people recommended longer average sentences to male offenders than to female offenders.

Some of the inconsistency may depend on the seriousness of the offenses involved. Specifically, when the offenses are serious (major thefts, burglaries, and assaults), males appear to be treated more harshly, but when the offenses are minor (e.g., minor shoplifting, running away from home), females may be treated more harshly.

22.4.3 Attention and Treatment by Parents

In a number of respects, parents appear to treat their daughters and their sons differently. The findings in this regard are presented in the following tables.

22.4.3.1 Positive Parent-Offspring Social Interactions

Some studies have assessed sex differences in overall positive parent-offspring interactions. One can see in Table 22.4.3.1a that all but one study found such interactions to be more common when female offspring were involved; the remaining study found no significant sex differences.

One study of the prevalence of positive parent-offspring interactions was conducted among rhesus macaques. Table 22.4.3.1b shows that it reached different conclusions regarding sex differences depending on the age of the infants.

22.4.3.2 Protective and Retrieval Behavior by Parents

Of course, nearly all parents are inclined to be extremely protective of their offspring, especially in the first few years of life. As shown in

Table 22.4.2.2 Sentences administered by courts

Nature of difference			*Post-pubertal*		*Wide age range*
			Adolescent	*Adult*	
More severe for males (less leniency)			**NORTH AMERICA** *United States*: D Johnson & Scheuble 1991; Bishop & Frazier 1996; Lieber & Mack 2003:48 (N = 5,470 + 1,463F); Guevara, Herz & Spohn 2006:269; N = 7,464 + 1,636F)	**ASIA** *India*: Marisport 2017; *Russia*: Chatsverykova 2017:13-15 (N = 2,838,535M + 516,944F) **EUROPE** *Britain*: Wilczynski 1997 (murderers, N = 95); *Sweden*: Ahola, Christianson & Hellstrom 2009 (simulated jury experiment) **NORTH AMERICA** *United States*: Steffensmeier & Kramer 1982 (N = 680); Kruttschnitt & Green 1984 (N = 1,558M + 1,365F); A Morris 1987; GS Bickle & Peterson 1991; DC McDonald & Carlson 1993 (sentence length, federal cases); K Daly & Bordt 1995 (N = 50); Farnworth & Teske 1995 (N = 28,142); Albonetti 1997; Steffensmeier & Demuth 2000 (sentence length, federal court); Mustard 2001 (sentence length, in federal court); Fernando Rodrigues, Curry & Lee 2006:Tables 1-4 (N = 5,222 + 908); T Griffin & Wooldredge 2006 (N = 5,427); Blackwell, Hollerant & Finn 2008:408-411; JK Doerner & Demuth 2010:Tables 2 & 3 (N = 33,505) **OCEANIA** *Australia*: Forsterlee et al. 2004 (simulated jury experiment); *New Zealand*: S Jeffries, Fletcher & Newbold 2003:Tables 1-3 (N = 194M + 194F) **OVERVIEW** *Literature Review*: K Daly & Tonry 1997; CC Spohn 2009; *Meta-Analysis*: Bontrager, Barrick & Stupi 2013	**EUROPE** *Britain*: Farrington & Morris 1983 **NORTH AMERICA** *United States*: Visher 1983; Albonetti 1987 (sentence length, drug offenses)
Not significant				**NORTH AMERICA** *United States*: Steffensmeier, Kramer & Steifel 1993 (length of sentence for those incarcerated); Koons-Witt 2002 (except for women with children being imprisoned less)	**EUROPE** *Finland*: Kruttschnitt & Savolainen 2009:239 (N = 1,546M + 60F)
More severe for females			**NORTH AMERICA** *United States*: Chesney-Lind 1977; Datesman & Scarpitti 1977; Chesney-Lind 1988; Bishop & Frazier 1992 (offense seriousness controlled); Odem 1995		

Table 22.4.3.1a Positive parent-offspring social interactions

Nature of difference	*Pre-pubertal*				
	Infant/toddler				
More among males					
Not significant	**NORTH AMERICA** *United States*: Gunnar & Donahue 1980 (infant, by mother)				
More among females	**EUROPE** *Britain*: Murray, Kempton et al. 1993 (to infants by mothers) **NORTH AMERICA** *United States*: Cherry & Lewis 1976 (toddler, talking by mother); Klein & Durfee 1978 (infant, by mother); Barber & Thomas 1986:790 (physical affection from father); Malatesta et al. 1989 (toddler, friendly facial expressions toward infants by mothers); Parnell 1991 (toddler, mothers smile toward daughters more); Lavelli & Fogel 2002 (infant, by mother) **OVERVIEW** *Meta-Analysis*: Leaper, Anderson & Saunders 1998 (talking by mother, d = .29)				

Table 22.4.3.1b Friendly parent-offspring social interactions, among non-humans

Nature of difference	*Pre-pubertal*				
	Infant/toddler				
More among males	**PRIMATE** *Rhesus Macaque*: GD Jensen et al. 1968* (1-4 weeks old, held by mothers)				
Not significant					
More among females	**PRIMATE** *Rhesus Macaque*: GD Jensen et al. 1968* (5 weeks and older, held by mothers)				

Table 22.4.3.2a, the two studies that investigated sex differences in this regard concluded that parents were more protective of their infant girls than of their infant boys.

Table 22.4.3.2a Protective and retrieval behavior by parents

Nature of difference	*Pre-pubertal*				
	Infant/toddler				
More among male offspring					
Not significant					
More among female offspring	**LATIN/CARABBEAN AMERICA** *Puerto Rico*: Landy 1965 **NORTH AMERICA** *United States*: Callard 1964; Saegert & Hart 1976				

In various macaque species, primatologists have reported on sex differences in the tendency by adults (mainly mothers) to exhibit protective measures on behalf of their offspring. As shown in Table 22.4.3.2b, these studies have not come to consistent conclusions.

Table 22.4.3.2b Protective and retrieval behavior by parents among non-humans

Nature of difference	*Pre-pubertal*				
	Infant/toddler	*Child*			
More among males	**PRIMATE** *Japanese Macaque*: Eaton et al. 1985* (by mothers)				
Not significant		**PRIMATE** *Japanese Macaque*: Eaton et al. 1985* (by mothers)			
More among females	**PRIMATE** *Pigtail Macaque*: GD Jensen et al. 1967 (by the mother); *Japanese Macaque*: Itani 1959 (by the mother); *Rhesus Macaques*: GD Mitchell 1968 (by the mother)				

22.4.3.3 Receiving Supervision or Vigilant Attention from Parents

In a few studies, researchers have compared the extent to which parents spent time supervising and closely monitoring their offspring. As shown in Table 22.4.3.3, all the studies concluded that boys were supervised more diligently than were girls.

22.4.3.4 Receiving Help or Encouragement from Parents

In a few studies, researchers assessed sex differences in offspring receiving various forms of support in their activities by parents. One can see in Table 22.4.3.4 that findings have not been consistent.

22.4.3.5 Receiving Prohibitive or Directive Commands from Parents

Sex differences in offspring receiving prohibitive or directive commands from parents have been examined in some research. As shown in Table 22.4.3.5, most studies indicate that males receive more such directives than do females.

22.4.3.6 Being Physically Punished by Parents

Are there sex differences in being physically punished by one's parents? Table 22.4.3.6 indicates that males are physically punished more than are females.

Table 22.4.3.3 Receiving supervision or vigilant attention from parents

Nature of difference	*Pre-pubertal*		*Post-pubertal*		
	Infant/toddler	*Child*	*Adolescent*		
More among males	**NORTH AMERICA** *United States*: Fagot 1974 (toddler, by mother); Fagot 1978 (toddler, by mother)	**AFRICA** *Multiple African Countries*: MR Welch & Page 1981 (by either parent) **EUROPE** *Britain*: Saegart & Hart 1976 (young, by mother) **NORTH AMERICA** *United States*: Newson & Newson 1976 (young, by mother); Aries & Oliver 1985 (by either parent)			
Not significant					
More among females			**EUROPE** *Sweden*: Svensson 2003 (monitoring offspring activities)		

Table 22.4.3.4 Receiving help or encouragement from parents

Nature of difference	*Pre-pubertal*		*Post-pubertal*		
	Infant/toddler	*Child*	*Adolescent*		
More among males	**NORTH AMERICA** *Canada*: Morrongiello & Dawber 1999 (toddler, when taking small risks)	**NORTH AMERICA** *United States*: Alessandri & Lewis 1993 (praised by parents when they were being helped with school work); Entwisle et al. 1994 (parental encouragement to be exploratory)	**NORTH AMERICA** *United States*: DL Stevenson & Baker 1987 (school activities)		
Not significant			**EUROPE** *Britain*: Eiser et al. 1995:311 (given to young adolescent)		
More among females	**NORTH AMERICA** *United States*: Fagot 1974:556 (toddler, praise & helpful criticism); Gunnar-von Gnechten 1978 (when problem-solving)	**NORTH AMERICA** *United States*: Rothbart 1971 (when problem-solving); Rothbart & Rothbart 1976 (when solving memory and puzzle tasks); JH Block 1983 (parental nurturing)			

Table 22.4.3.5 Receiving prohibitive or directive commands from parents

Nature of difference	*Pre-pubertal*		*Post-pubertal*		
	Infant/toddler		*Adolescent*		
More among males	**NORTH AMERICA** *United States*: Cloran 1989 (toddler, from mother); JB Gleason 1975 (toddler, by father); Cherry & Lewis 1976 (toddler, from mother); Fagot 1978 (toddler, by mother); Biringen et al. 1995 (infant, by mother)		**NORTH AMERICA** *United States*: Radke-Yarrow & Kochanska 1990 (corrective attention regarding anger issues)		
Not significant					
More among females	**NORTH AMERICA** *United States*: J Block 1983 (toddler, restrictive action by mother)				

Table 22.4.3.6 Being physically punished by parents

Nature of difference	*Pre-pubertal*				*Wide age range*
		Child			
More among males		**ASIA** *China*: Xing, Wang et al. 2011 (n = 454) **NORTH AMERICA** *United States*: R Pinkerton 1996 (physically punished by parents) **OCEANIA** *Philippines*: Sanapo & Nakamura 2011			**OVERVIEW** *Meta-Analysis*: Lytton & Romney 1991
Not significant					
More among females					

22.4.3.7 Topics of Conversation between Parents and Offspring

In three studies, information was obtained regarding the topics discussed between parents and offspring, depending on the sex of the offspring. As shown in Table 22.4.3.7, all three studies indicated that, at least regarding the topic of emotions, parents had more discussions with girls than with boys.

Table 22.4.3.7 Topics of conversation between parents and offspring

Nature of difference	*Pre-pubertal*				
	Infant/toddler				
More among males					
Not significant					
More among females	**NORTH AMERICA** *United States*: J Dunn et al. 1987 (emotional issues, mother & toddler); Fivush 1989 (toddler, discussing emotions); Kuebli et al. 1995 (emotional issues, mother & toddler)				

22.4.3.8 Parents Stimulating Offspring

Stimulation by parents refers to any interactive attention (sometimes verbal and other times physical) given to offspring by parents. As shown in Table 22.4.3.8, males appear to receive more stimulation by parents than do females.

Table 22.4.3.8 Parents stimulating offspring

Nature of difference	*Pre-pubertal*				
	Infant/toddler				
More among males	**NORTH AMERICA** *United States*: Moss 1967 (infant, by mothers); M Lewis 1972 (infant, by mother); Moss 1974 (infant, by mothers); Yarrow 1975 (infant, by mothers); RD Parke & O'Leary 1976 (infant); RD Parke & Sawin 1976 (infant, by father)				
Not significant					
More among females					

22.4.3.9 Parents Assigning Chores to Offspring

A couple of studies investigated possible sex differences in being assigned tasks or chores by parents. One can see in Table 22.4.3.9 that both males and females are assigned chores, but that the nature of those assigned seem to differ according to the type of chores involved. Specifically, males were more likely to be assigned outdoor chores while females were more often given indoor chores.

Table 22.4.3.9 Parents assigning chores to offspring

Nature of difference	*Pre-pubertal*		*Post-pubertal*		
		Child	*Adolescent*		
More among males		**NORTH AMERICA** *United States*: Blair 1992* (outdoor chores); McHale et al. 1990* (outdoor chores); Antill et al. 1996* (outdoor chores)			
Not significant					
More among females		**NORTH AMERICA** *United States*: Blair 1992* (indoor chores); McHale et al. 1990* (indoor chores); Antill et al. 1996* (indoor chores)	**NORTH AMERICA** *Canada*: J Peters 1994 (household chores)		

22.4.3.10 Parents Giving Sex-Typical Toys to Offspring

In one study, the types of toys parents gave to their children were assessed. The study, cited in Table 22.4.3.10, indicated that males were more likely to be given masculine toys than females were given feminine toys.

Table 22.4.3.10 Parents giving sex-typical toys to offspring

Nature of difference	*Pre-pubertal*				
		Child			
More among males		**NORTH AMERICA** *United States*: Fisher-Thompson 1993; Fisher-Thompson et al. 1995			
Not significant					
More among females					

22.4.3.11 Parental Pressure for High Achievement by Offspring

A few studies have investigated parental pressure on high achievement relative to the sex differences. Most often the pressure has to do with academic achievement. One can see in Table 22.4.3.11 that the findings have been mixed regarding whether more pressure is put on male or female offspring.

22.4.3.12 Financial Investment in Offspring by Parents

Studies of financial investments in offspring by parents have been compared regarding sex differences in a few studies. As shown in Table 22.4.3.12, the conclusions have not been consistent.

Table 22.4.3.11 Parental pressure for high achievement by offspring

Nature of difference			*Post-pubertal*		
			Adolescent	*Adult*	
More among males			**NORTH AMERICA** *United States*: JC Flanagan et al. 1964; W Sewell & Shah 1968b; MM Marini 1974		
Not significant				**EUROPE** *Finland*: Raty 1999	
More among females			**NORTH AMERICA** *United States*: Feliciano & Rumbaut 2005:1094 (children of immigrants)		

Table 22.4.3.12 Financial investment in offspring by parents

Nature of difference					*Wide age range*
More among males					**AFRICA** *Papua New Guinea*: J Gibson & Rozelle 2004 (distribution of assets)
Not significant					
More among females					**EUROPE** *Hungary*: Bereczkei 1993 (among Gypsies); Bereczkei & Dunbar 1997 (among Gypsies)

22.4.3.13 Parental Religious Strictness

In one study of people attending college in three different countries, males and females were asked to rate the degree to which their parents were strict regarding their religious upbringing. As one can see in Table 22.4.3.13, females in all three countries reported more parental strictness in their religious training than was the case for males.

Table 22.4.3.13 Parental religious strictness

Nature of difference			*Post-pubertal*	
				Adult
More so among males				
Not significant				
More so among females				**ASIA** *Malaysia*: Ellis, Wahab & Ratnasingan 2013:186* (undergrad, retrospective account, N = 826M + 1,568F) **MIDDLE EAST** *Turkey*: Ellis, Wahab & Ratnasingan 2013:186* (undergrad, retrospective account, N = 201M + 64F) **NORTH AMERICA** *United States*: Ellis, Wahab & Ratnasingan 2013:186* (undergrad, retrospective account, N = 416M + 714F)

22.4.3.14 Parents Giving in to Offspring Tantrums

In one study, parents of both sexes were compared regarding their tendency to give in to tantrums by their offspring. Table 22.4.3.14 shows that the study indicated that parents of boys were more likely to give in to tantrum behavior by the offspring.

Table 22.4.3.14 Parents giving in to offspring tantrums

Nature of difference	*Pre-pubertal*				
		Child			
More among males		**NORTH AMERICA** *United States*: Radke-Yarrow & Kochanska 1990 (preschool, mothers giving into tantrums)			
Not significant					
More among females					

22.4.3.15 Parental Tolerance/Acceptance of Unruly Behavior by Offspring

A few studies of parental tolerance or at least acceptance of unruly behavior by male and female offspring have been published. As shown in Table 22.4.3.15, the results have not been consistent.

Table 22.4.3.15 Parental tolerance/acceptance of unruly behavior by offspring

Nature of difference	*Pre-pubertal*				
		Child			
More among males		**EUROPE** *Netherlands*: Endendijk, Groeneveld et al. 2017 **NORTH AMERICA** *United States*: Eisenberg et al. 1996 (physical aggression); RS Mills & Rubin 1992 (unruly behavior, by mothers) J Martin & Ross 2005 (physical aggression)			
Not significant		**NORTH AMERICA** *Canada*: W Roberts 1999 (physical aggression); *United States*: Eisenberg & Fabes 1994 (physical aggression)			
More among females		**NORTH AMERICA** *United States*: Battle & Lacey 1972 (unruly behavior)			

22.4.3.16 Parental Tolerance/Acceptance of Sadness by Offspring

In a couple of studies, researchers assessed the likelihood of parents tolerating or accepting offspring of both sexes exhibiting sadness or depression. Table 22.4.3.16 shows that one study reported no sex difference in this regard, while the other study indicated that sadness by females was more acceptable.

Table 22.4.3.16 Parental tolerance/acceptance of sadness by offspring

Nature of difference	*Pre-pubertal*				
		Child			
More among males					
Not significant		**NORTH AMERICA** *Canada*: WL Roberts 1999			
More among females		**NORTH AMERICA** *United States*: Eisenberg et al. 1996			

22.4.3.17 Parental Encouragement of Offspring Academic Success

Findings from studies of the sex of the offspring who receives the greatest parental encouragement in terms of academic achievement are summarized in Table 22.4.3.17. One can see that most of these studies have concluded that males receive more encouragement than females. However, one reported no significant difference with regard to doing well in mathematics.

Table 22.4.3.17 Parental encouragement of offspring academic success

Nature of difference	*Pre-pubertal*		*Post-pubertal*		
		Child	*Adolescent*		
More among males		**EUROPE** *Norway*: Lynn & Sawrey 1962 (by mothers)	**EUROPE** *Austria*: Schober et al. 2004 (among gifted students) **NORTH AMERICA** *United States*: JC Flanagan et al. 1964; Sewell & Shah 1968b; Marini 1974		
Not significant			**NORTH AMERICA** *United States*: RB Felson & Trudeau 1991 (math learning)		
More among females					

22.4.3.18 Parental Encouragement or Tolerance of Offspring Independence

Among humans, three studies involving human research participants sought to determine if boys or girls received more encouragement by their parents when it came to being independent. As shown in Table 22.4.3.18a, these studies concluded that, on average, boys were encouraged more in this regard than were girls.

Table 22.4.3.18a Parental encouragement or tolerance of offspring independence

Nature of difference	*Pre-pubertal*				
		Child			
More among males		**NORTH AMERICA** *United States*: Block 1983; Weitzman et al. 1985; Fagot & Hagen 1991 (school age)			
Not significant					
More among females					

Some studies of non-human primates suggest similar treatment of offspring according to their sex. Specifically, in Table 22.4.3.18b, one can see that mothers of male toddlers began weaning earlier than mothers of female toddlers. Also, infant clinging was rejected earlier in the case of males than in the case of females.

Table 22.4.3.18b Parental encouragement or tolerance of offspring independence among non-humans

Nature of difference	*Pre-pubertal*				
	Infant/toddler				
More among males	**PRIMATE** *Chimpanzee*: Nicolson 1977 (weaned earlier); *Pigtail Macaque*: GD Jensen et al. 1967 (weaned earlier); J Erwin et al. 1975 (weaned earlier); *Japanese Macaque*: Itani 1959 (weaned earlier); *Rhesus Macaque*: Hinde & Spencer-Booth 1967 (mother rejects toddler clinging); LE White & Hinde 1975 (mother rejects toddler clinging)				
Not significant					
More among females					

22.4.3.19 Parental Encouragement of Offspring Competitiveness

A couple of studies were located pertaining to parental encouragement of their offspring to be competitive. As shown in Table 22.4.3.19, but studies indicate that parents encourage competitiveness more in their sons than in their daughters.

Table 22.4.3.19 Parental encouragement of offspring competitiveness

Nature of difference	*Pre-pubertal*				
		Child			
More among males		**NORTH AMERICA** *United States*: Maltz & Borker 1982; JH Block 1983; JA Hall 1987			
Not significant					
More among females					

22.4.3.20 Parental Encouragement of Sex-Typical Behavior in Offspring

In two studies, parents were observed with regard to their encouraging sex-typical behavior in their offspring. Table 22.4.3.20 shows that both studies concluded that this was done more for males than for females.

Table 22.4.3.20 Parental encouragement of sex-typical behavior in offspring

Nature of difference	*Pre-pubertal*				
	Infant/toddler				
More among males	**NORTH AMERICA** *United States*: Fagot 1978 (toddler); Langlois & Downs 1980 (toddler)				
Not significant					
More among females					

22.4.3.21 Parental Tolerance of Offspring Drinking

Based on interviews or questionnaires of either parents or the offspring, researchers have sought to determine if there are sex differences regarding parental permissiveness concerning the consumption of alcohol. Table 22.4.3.21 reveals that in all of these studies, drinking is allowed or at least tolerated more by parents of sons than by parents of daughters.

Table 22.4.3.21 Parental tolerance of offspring drinking

Nature of difference			*Post-pubertal*		*Wide age range*
				Adult	
More among males				**EUROPE** *Britain*: Otto 1981; C Schmidt et al. 1990 **NORTH AMERICA** *United States*: Gomberg & Nirenberg 1993	**NORTH AMERICA** *Canada*: Legge & Sherlock 1990-1991 (among Indian-Pakistanis residing in Canada)
Not significant					
More among females					

22.4.3.22 Relationship between Parental Socioeconomic Status and Occupational Aspirations of Offspring

In a few studies, the relationship between parental socioeconomic status and the occupational aspirations of their offspring has been investigated with respect to possible sex differences. Table 22.4.3.22 shows that all of these studies have concluded that females with high-status parents had higher occupational aspirations than did males with equally high-status parents.

Table 22.4.3.22 Relationship between parental socioeconomic status and occupational aspirations of offspring

Nature of difference			*Post-pubertal*		
			Adolescent		
Stronger among males					
Not significant					
Stronger among females			**NORTH AMERICA** *United States*: RH Turner 1966; WH Sewell & Shah 1967; WH Sewell & Shah 1968a; WH Sewell & Shah 1968b; AE Bayer 1969; RM Hauser 1971; KL Alexander & Eckland 1974; M Hout & Morgan 1975		

22.4.4 Teacher-Student Interactions

Considerable research has been conducted on teacher-student relationships based on the sex of either one or both of the interactants. The findings from these studies are reviewed below.

22.4.4.1 Attention Given to Students by Teachers in General

Numerous studies have compared the amount of time teachers give to boys and girls in the classroom. As shown in Table 22.4.4.1, the vast majority of these studies have concluded that males receive more attention (both positive and negative) than do females. Note that the studies cited in this table differ from those cited in the table that follows in the sense that the following table has to do with teacher attention of a specific instructional nature.

22.4.4.2 Instructional Contact with Students by Teachers Outside the Classroom

Several studies have sought to determine if males or females receive more contact from their teachers, thereby possibly helping to explain sex differences in performance in various subject areas. Assessments are sometimes made based on observations using one-way mirrored classrooms, while in other studies, teachers are asked to maintain their own records. As shown in Table 22.4.4.2, inconsistent findings have typified studies of school-age children. For adolescents, however, nearly all studies have concluded that males received more instructional contact, especially in science classes.

22.4.4.3 Positive Teacher-Student Relationships

Studies of how students are treated by teachers are reviewed in Table 22.4.4.3. It indicates that females receive more positive treatment than do males.

22.4.4.4 Praise/Reward from Teacher

Several studies have sought to determine if boys or girls receive greater praise from their teachers. Table 22.4.4.4 shows that these studies have reached conflicting results.

22.4.4.5 Grades Given to Students According to the Instructor's Sex

Who gives higher grades, male teachers or female teachers? According to Table 22.4.4.5, research has either failed to find significant sex differences or that females give higher grades than do males, at least when grading children.

22.4.4.6 Evaluation of Teaching by Students

Numerous studies have investigated whether male or female teachers receive higher teacher ratings by their students (most of which have been conducted among college students). Table 22.4.4.6 shows that the findings have been mixed with most studies failing to obtain significant differences.

Table 22.4.4.1 Attention given to students by teachers in general

Nature of difference	*Pre-pubertal*		*Post-pubertal*		*Wide age range*
		Child	*Adolescent*	*Adult*	
Male students receive more		**EUROPE** *Britain*: Croll 1985 (2nd graders) **NORTH AMERICA** *United States*: W Meyer & Thompson 1956 (both negative & positive attention); WJ Meyer & Thompson 1963; Brophy & Good 1970 (1st grade); Felsenthal 1970 (boh positive & negative attention); Serbin et al. 1973 (preschool, corrective attention); Brophy & Good 1974; L Cherry 1975 (preschool); Dweck et al. 1978; Leinhardt et al. 1979 (in math classes); Parsons, Kaczala et al. 1982; Kahle & Lakes 1983 (in science class); Fagot 1984 (preschool); Brophy 1985 (teachers give boys more attention, both positively & negatively); Fagot et al. 1985 (preschool); Sadker & Sadker 1985 (school age); Irvine 1986 (K-5th grade); D Gold et al. 1987 (preschool); Meece 1987 (teachers pay more attention to boys both positively & negatively); Eccles 1989; Hendrick & Stange 1991 **OCEANIA** *Hawaii*: Greenfield 1997 (in science class)	**EUROPE** *Britain*: Delamont 1984 (Wales, high school); Dart & Clarke 1988; Salisbury & Jackson 1996 **NORTH AMERICA** *United States*: R Good et al. 1973; JR Becker 1981* (in math class); JR Becker 1982 (math class); JE Parsons et al. 1982; AW Simpson & Erickson 1983; Eccles & Blumenfeld 1985; Fennema & Peterson 1985; J Stallings 1985 (in math lessons); MG Jones 1987 (science class); MG Jones & Wheatley 1990 (science class); Oakes 1990 (math & science class); Tobin et al. 1990 (in science class); Barba & Cardinale 1991 (questions asked in science class); Sadker & Sadker 1994 (in science class); Altermatt et al. 1998 (in science classes); CJ Burger & Sandy 1998 (called on more, in math & science classes)	**NORTH AMERICA** *United States*: Stallings 1979; Becker 1981*; RM Hall & Sandler 1982 (undergrad); Brophy 1985 (undergrad); Krupnick 1985 (undergrad); M Crawford & MacLeod 1990 (undergrad); Statham et al. 1991 (undergrad)	**EUROPE** *Britain*: Spender 1982 (high school & undergrad) **NORTH AMERICA** *United States*: Sadker & Sadker 1986; Kahle & Meece 1994 **OVERVIEW** *Meta-Analysis*: Jones & Dindia 2004
Not significant		**NORTH AMERICA** *United States*: Heller & Parsons 1981 (in math lessons); JE Parsons et al. 1982			
Female students receive more		**NORTH AMERICA** *United States*: Leder 1987	**EUROPE** *Britain*: Worrall & Tsarna 1987 (secondary language classes)		

Table 22.4.4.2 Instructional contact from teachers outside the classroom

Nature of difference	*Pre-pubertal*		*Post-pubertal*		
		Child	*Adolescent*		
Male students receive more		**NORTH AMERICA** *United States*: WJ Meyer & Thompson 1956; WJ Meyer & Thompson 1963; PS Sears & Feldman 1966 (general); Leinhardt et al. 1979* (help with math); Sadker et al. 1984 (teachers of both sexes interact more with male students); SM Bailey 1993 (teachers of both sexes interact more with male students); WM Roth 1996 (challenge more in science education)	**ASIA** *Taiwan*: She 1997 (science class); She 1998 (science class); She 1999 (science class); She 2000 (science class) **NORTH AMERICA** *Canada*: J Duffy et al. 2001 (high school, teachers of both sexes interact more with male students); *United States*: MG Jones & Wheatley 1989 (challenge more in science education); Omvig 1989 (high school vocational class instructors interact more with male students including both praise and criticism); MG Jones & Wheatley 1990 (science class); Tobin 1990 (science class); D Smith 1992 (high school business education); Bellamy 1994* (male junior high school science teachers interact more with male students); Sadker & Sadker 1994 (science class); Greenfield 1997 (science class)		
Not significant		**NORTH AMERICA** *United States*: Davis & Slobadian 1967 (teaching of reading); TL Good & Brophy 1971 (general)	**NORTH AMERICA** *United States*: Bellamy 1994* (female junior high science teachers)		
Female students receive more		**NORTH AMERICA** *United States*: Biber et al. 1972 (general); Dweck et al. 1978 (negative feedback on academic work); Leinhardt et al. 1979* (help with reading)			

Table 22.4.4.3 Positive teacher-student relationships

Nature of difference	*Pre-pubertal*				
		Child			
Male students receive more					
Not significant					
Female students receive more		**NORTH AMERICA** *United States*: Lippitt & Gold 1959; WJ Meyer & Thompson 1963; Schmuck & van Egmond 1965; Dweck et al. 1978* (for neatness in schoolwork); KA Martin 1998:503 (spoke to in a kinder voice)			

Table 22.4.4.4 Praise/reward from teacher

Nature of difference	*Pre-pubertal*				
		Child			
Male students receive more		**MIDDLE EAST** *Israel*: Ben Tsvi-Mayer et al. 1989 (considered outstanding students) **NORTH AMERICA** *United States*: Torrance 1962; Torrance 1965 (for creative activities); Dweck et al. 1978* (intellectual aspects of schoolwork); JR Becker 1982; MG Jones 1987			
Not significant					
Female students receive more		**NORTH AMERICA** *United States*: WJ Meyer & Thompson 1956 (for behavior); R Lippitt & Gold 1959; P Sears & Feldman 1966 (for behavior); PW Jackson & Lahaderne 1967 (for behavior); Faggot & Patterson 1969 (rewarded with special privileges); Westbrook 1970 (for behavior)			

Table 22.4.4.5 Grades given to students according to the instructor's sex

Nature of difference	*Pre-pubertal*		*Post-pubertal*		
		Child	*Adolescent*		
Males give higher grades					
Not significant		**NORTH AMERICA** *United States*: Arnold 1968	**NORTH AMERICA** *United States*: RE Robb & Robb 1999		
Females give higher grades		**MIDDLE EAST** *Israel*: J Klein 2004 **NORTH AMERICA** *United States*: RL Spaulding 1963; DA Bennett 1966; Lahaderne 1967			

Table 22.4.4.6 Evaluation of teaching by students

Nature of difference			*Post-pubertal*		
			Adolescent	*Adult*	
Male teacher rated higher			**NORTH AMERICA** *United States*: HN Mischel 1974 (math & science courses)	**NORTH AMERICA** *Canada*: P Caplan 1993 (undergrad); *United States*: Hudiburg 1965; PA Goldberg 1968; Choy 1969; Elmore & LaPointe 1975 (undergrad); N Eagle 1977; Aleamoni 1978 (anthropology); Lohr 1978; J Lombardo & Tocci 1979* (peer professor ratings); Unger 1979; SK Bennett 1982* (undergrad); Nussbaum 1982; Basow & Silberg 1987:313*	

(*Continued*)

Table 22.4.4.6 (Continued)

Nature of difference			*Post-pubertal*		
			Adolescent	*Adult*	
				(undergrad, especially by male students); Kierstad et al. 1988 (undergrad); Fandt & Stevens 1991 (undergrad, business courses); Basow 1995* (undergrad); Bernstein & Burke 1995* (undergrad, more knowledgeable)	
Not significant				**EUROPE** *Spain*: J Fernandez & Mateo 1997 (undergrad) **NORTH AMERICA** *United States*: WP Wilson 1932; HY Willaims 1965; BD Walker 1968; Bausell & Magoon 1972; Reimanis 1972; Alciatore 1973; Elmore & LaPointe 1974 (undergrad, teacher effectiveness); Elmore & LaPointe 1975 (undergrad, teacher effectiveness); MB Harris 1975 (undergrad); Hesselbart 1977 (undergrad); Kaschak 1978 (undergrad); Barnett & Littlepage 1979 (undergrad, friendliness); Goebel & Cashen 1979 (undergrad); S Kay 1979; J Lombardo & Tocci 1979* (undergrad); Bray & Howard 1980; SK Bennett 1982* (undergrad, teacher effectiveness); Basow & Distenfeld 1985 (undergrad, teacher effectiveness); Basow & Silberg 1987* (undergrad); Wheeless & Potorti 1989; Basow 1990 (undergrad, enthusiasm, friendliness); EG Shapiro 1990; Statham et al. 1991; KA Feldman 1993 (undergrad); Basow 1995* (by females, undergrad); Basow & Rubenfeld 2003 (undergrad)	
Female teacher rated higher				**NORTH AMERICA** *United States*: Heilman & Armentrout 1936; Hanke 1970; AP King 1971; Aleamoni & Yimer 1973; South 1975; DL Brown 1976; Elmore & Pohlmann 1978; RD Freedman et al. 1979; SK Bennett 1982*; RA Hoffman 1984; Basow & Distenfeld 1985 (undergrad, more enthusiastic, friendly and personable); Basow & Silberg 1987* (undergrad, friendly and personable); Basow & Silberg 1987; Sidanius & Crane 1989; Wigington et al. 1989; Basow 1995* (by females, undergrad); Bernstein & Burke 1995* (undergrad, more concerned with students)	

22.4.4.7 Evaluation of Teaching by Fellow Teachers

A few studies have used ratings from fellow teachers to assess the teaching skills of other teachers. In the course of doing so, a few studies have sought to determine if any sex differences exist in average ratings. One can see by

examining Table 22.4.4.7 that most studies have concluded that there are no significant average differences. When differences have been found they have favored males.

Table 22.4.4.7 Evaluation of teaching by fellow teachers

Nature of difference			*Post-pubertal*		
				Adult	
Male teacher rated higher				**NORTH AMERICA** *United States*: Kaschak 1978 (peer professor ratings); Steinpreis et al. 1999 (experimental study)	
Not significant				**NORTH AMERICA** *United States*: Hesselbart 1977 (undergrad); Goebel & Cashen 1979 (undergrad); J Lombardo & Tocci 1979 (undergrad); Basow & Distenfeld 1985 (undergrad); Basow 1990 (undergrad)	
Female teacher rated higher					

22.4.4.8 Favorable Teacher Evaluation of Students According to the Student's Sex

Aside from assigning grades to students, a few studies have been undertaken to determine how teachers assess the behavior and attitudes of their students. As shown in Table 22.4.4.8, these studies have consistently found that females receive higher ratings with regard to several aspects of their attitudes and behavior in school than do males.

22.4.4.9 Sex of the Teacher and Academic Performance of the Student

Research undertaken to determine if students perform better for teachers of one or the other sex are reviewed in Table 22.4.4.9. One can see that studies have found no significant sex differences in this regard.

22.4.5 Educational Institution-Student Interaction

This awkwardly worded sub-section has to do with the types of educational institutions to which students of both sexes are exposed. Specifically, some students attend sex-segregated classes and others attend entire schools that are sex-segregated. Findings from studies of these types of educational arrangements are reviewed.

Table 22.4.4.8 Favorable teacher evaluation of students according to the student's sex

Nature of difference	*Pre-pubertal*				
		Child			
Males receive more favorable evaluations					
Not significant					
Females receive more favorable evaluations		**EUROPE** *Greece*: Hopf & Hatzichristou 1999:9* (better at math and less troublesome behavior) **NORTH AMERICA** *United States*: Schmuck & van Egmond 1965 (girls did better in school overall); Arnold 1968 (fewer academic problems, according to both male and female teachers); Schaeffer 1968 (fewer academic problems, according to both male and female teachers)			

Table 22.4.4.9 Sex of the teacher and academic performance of the student

Nature of difference	*Pre-pubertal*				
		Child			
Students perform better for male teachers					
Not significant		**NORTH AMERICA** *United States*: RL Spaulding 1963; DA Bennett 1966; Clapp 1966; Lahaderne 1967; McFarland 1969; Asher & Gottman 1973			
Students perform better for female teachers					

22.4.5.1 Single-Sex Classes

Do students benefit from being taught in sex-segregated classes? This question has been addressed by considerable empirical research. The basis for assessing any benefits from single-sex education typically have to do with student learn as determined by performance on objective (usually standardized) exams. Table 22.4.5.1 shows that nearly all studies indicate that student exam performance is either enhanced by being in single-sex classes or unaffected. Which sex seems to benefit most in this regard is uncertain and may depend on the subject matter of the courses being taught.

Table 22.4.5.1 Single-sex classes

Nature of difference			*Post-pubertal*		
			Adolescent		
Student performance enhanced			**ASIA** *China*: KC Wong et al. 2002 (classes, amount of learning, females); *South Korea*: Korean Institute for Curriculum Evaluation 2010; H Park, Behrman, Choi 2013 (learning Korean & learning English, both sexes benefit); H Park, Behrman, Choi 2018* (learning STEM subjects, males benefit) **EUROPE** *Britain*: Tyrer 1999 (single-sex classes); Warrington & Younger 2001 (both sexes) **NORTH AMERICA** *United States*: CE Ogden 2011* (6-8th graders, females, general proficiency exam) **OVERVIEW** *Meta-Analysis*: Pahlke, Hyde & Allison 2014 (females benefit in math & science in studies without randomized controls)		
Not significant			**ASIA** *South Korea*: H Park, Behrman, Choi 2018* (learning STEM subject matter, females do not benefit) **EUROPE** *Belgium*: Van de Gaer et al. 2004:317* (females in math & language, male in math); *Britain*: Smithers & Robinson 1995 (in math achievement, SES of students controlled); *Northern Ireland*: P Daly & Shuttleworth 1997 (in math achievement, control for SES background) **NORTH AMERICA** *United States*: CE Ogden 2011* (6-8th graders, males, general proficiency exam) **OCEANIA** *Australia*: HW Marsh & Rowe 1996:153 (class, both sexes, in math) **OVERVIEW** *Meta-Analysis*: Pahlke, Hyde & Allison 2014:Table 2* (d = .10 for math & science classes with randomized controls)		
Student performance diminished			**ASIA** *China*: KC Wong et al. 2002 (classes, amount of learning, males) **EUROPE** *Belgium*: Van de Gaer et al. 2004:317* (males in language)		

22.4.5.2 Single-Sex Schools

The above table pertains to single-sex classes. Additional studies have sought to determine if one or both sexes might benefit from attending single-sex schools. The findings are summarized in Table 22.4.5.2. One can see that more than half of the studies suggest that objective test performance is enhanced for one or both sexes in enhanced, although there are a substantial number of studies that indicate there are no significant effects. It is also worth noting that several of the studies that found one or both sexes doing better in single-sex schools compared to both-sex schools concluded that the differences disappeared after statistically controlling for IQ and/or parental social status.

Table 22.4.5.2 Single-sex schools

Nature of difference	*Pre-pubertal*		*Post-pubertal*		
		Child	*Adolescent*		
Student performance enhanced			**ASIA** *China*: DM Kim & Law 2012:Table 1.2* (math performance, both boys & girls, age 15); *South Korea*: DM Kim & Law 2012:Table 1.2* (math performance, boys, age 15) **EUROPE** *Britain*: R Dale 1974* (females, overall learning); JF Bell 1989* (both sexes, in science); VA Lee & Bryk 1986 (females, in math); Lawrie & Brown 1992 (females, in science); Arnot et al. 1996 (females, in science); Gillibrand et al. 1999 (school, females, in physics); Harker 2000* (both sexes, no statistical controls); *Denmark*: Kruse 1996 (females, in science) **NORTH AMERICA** *United States*: Riordan 1985 (both sexes, in general); V Lee & Bryk 1986 (both sexes, in general); Lepore & Warren 1997 (females, in general) **OCEANIA** *Australia*: DJ Young & Fraser 1990 (both sexes, science); L Woodward et al. 1999 (both sexes, general proficiency)		
Not significant		**OCEANIA** *Tasmania*: Wills et al. 2006	**ASIA** *South Korea*: DM Kim & Law 2012:Table 1.2* (math performance, girls, age 15) **EUROPE** *Britain*: JF Bell 1989* (both sexes, in science, after controlling for IQ and parental SES); Smithers & Robinson 1995 (in math achievement, parental SES of students statistically controlled); P Robinson & Smithers 1999 (females, overall achievement); Harker 2000* (both sexes, after controlling for IQ and parental SES); C Jackson & Smith 2000:414* (both sexes, in math) **OVERVIEW** *Literature Review*: Smyth 2007:143 (findings have been mixed)		
Student performance diminished			**EUROPE** *Britain*: R Dale 1974* (females, in general); C Jackson & Smith 2000:414* (males, overall academic achievement) **NORTH AMERICA** *United States*: Lepore & Warren 1997 (females, in general)		

22.4.6 Treatment by Others in the Workplace

A substantial number of studies have investigated differences in how boys and girls are treated by teachers. The results of these studies, as well as those pertaining to treatment by healthcare workers, are reviewed below.

22.4.6.1 Assessed Quality of Job Applicants

Some interesting experiments have sought to determine if the quality of an individual's resume (curriculum vitae) is affected by whether the name on

the resume appears to be that of a male or a female. In these experiments, research participants are given resumes of various job candidates and then asked to rank the resumes according to the information provided in the resumes. In actuality, two groups of participants are shown the same resumes with only the first names altered (i.e., half are male names while the other half are female names. Table 22.4.6.1 shows that these studies have all indicated that resumes for male applicants were preferred over resumes for female applicants.

Table 22.4.6.1 Assessed quality of job applicants

Nature of difference				*Post-pubertal*	
				Adult	
More among males				**NORTH AMERICA** *United States*: Heilman et al. 1988 (hypothetical data); Foschi et al. 1994 (hypothetical job candidates); Steinpreis et al. 1999 (psychology faculty, experimental hiring data); Goldin & Rouse 2000 (experimental music auditions); Bug 2010 (experimental data with altered names on resume); Moss-Racusin et al. 2012 (experimental data with only the name changed); Reuben et al. 2014 (experimental data with only the name changed)	
Not significant					
More among females					

22.4.6.2 Offered a Job or Being Hired

A few studies have been undertaken to determine if similarly qualified male or female candidates are more likely to be offered a job or actually hired. One can see by examining Table 22.4.6.2 that the evidence is inconsistent but leaning toward indicating that female applicants were more likely than their male counterparts to be offered a job or actually hired.

Table 22.4.6.2 Offered a job or being hired

Nature of difference			*Post-pubertal*		
				Adult	
More among males					
Not significant				**NORTH AMERICA** *United States*: Wolfinger et al. 2008 (for STEM university openings); C Glass & Minnotte 2010 (in STEM university openings)	
More among females				**NORTH AMERICA** *United States*: Irvine 1996 (university professors, hired); Ceci et al. 2014:101 (in STEM teaching openings)	

22.4.7 Residual Types of Treatment by Others

Besides treatment by parents and teachers, some studies have been undertaken to assess how males and females are treated more generally. Findings are reviewed below.

22.4.7.1 Being the Receipt of Nonverbal Stimulation in General

A few studies have compared boys and girls regarding their being given greater nonverbal (physical) stimulation by their parents or guardians. As shown in Table 22.4.7.1, for infants, boys appear to receive more than do girls, but the one study of children, girls received more.

Table 22.4.7.1 Being the receipt of nonverbal stimulation in general

Nature of difference	*Pre-pubertal*				
	Infant/toddler	*Child*			
More among males	**EUROPE** *Sweden*: Winberg & de Chateau 1982 (infant) **NORTH AMERICA** *United States*: Thoman et al. 1972 (infant); JV Brown et al. 1975 (infant, among blacks)				
Not significant					
More among females		**NORTH AMERICA** *Canada*: Dhami et al. 2005 (for prosocial acts)			

22.4.7.2 Being the Butt of Jokes

One study counted the number of commercials in which males and females were the object of humor due to their actions, making them the butt of jokes. One can see in Table 22.4.7.2 that males appear to be the butt of jokes more than are females.

Table 22.4.7.2 Being the butt of jokes

Nature of difference			*Post-pubertal*	
				Adult
More among males				**NORTH AMERICA** *United States*: Horovitz 1989 (in commercials)
Not significant				
More among females				

22.4.7.3 Being the Recipient of Flirtatious Behavior

In one study, males and females were compared regarding their being the recipient of flirtatious behavior. As shown in Table 22.4.7.3, this study reported females receiving more than males.

Table 22.4.7.3 Being the recipient of flirtatious behavior

Nature of difference			*Post-pubertal*		
				Adult	
More among males					
Not significant					
More among females				**NORTH AMERICA** *United States*: Rowland et al. 1982 (undergrad, self-report, by instructors)	

22.4.7.4 Being the Recipient of Smiles from Others

Several studies have been undertaken to determine if a sex difference exists regarding the tendency to smile (which is considered in Chapter 16). Here, the issue is which sex might be the *recipient* of smiles from others. Findings are summarized in Table 22.4.7.4. It indicates that seven of the eight studies concluded that females received more smiles than did males; the remaining study found the opposite.

Table 22.4.7.4 Being the recipient of smiles from others

Nature of difference	*Pre-pubertal*			*Post-pubertal*	*Wide age range*
	Infant/toddler			*Adult*	
Males receive more				**NORTH AMERICA** *United States*: CL Martin & Adams 1999 (from customers)	
Not significant					
Females receive more	**NORTH AMERICA** *United States*: J Levine et al. 1967 (from mothers); EB Thomas et al. 1972 (during breastfeeding by mothers); Will et al. 1976 (presumed female infants, by temporary adolescent guardians); Tauber 1979 (during free play)			**NORTH AMERICA** *United States*: Rosenthal 1976; Hinsz & Tomhave 1991	**NORTH AMERICA** *United States*: Weitz 1976

22.4.7.5 Being the Recipient of Tactile Stimulation (Touching) from Others

A few studies were located pertaining to sex differences in being the recipient of tactile stimulation from others. As can be seen in Table 22.4.7.5, most studies have indicated that females receive more tactile stimulation than do males.

Table 22.4.7.5 Being the recipient of tactile stimulation (touching) from others

Nature of difference	*Pre-pubertal*		*Post-pubertal*		*Wide age range*
	Infant/toddler	*Child*		*Adult*	
Males receive more					
Not significant		**NORTH AMERICA** *United States*: Langlois et al. 1973 (during dyad play)			
Females receive more	**EUROPE** *France*: Millot et al. 1988 (infant); *Sweden*: Hwang 1978 (infant)			**NORTH AMERICA** *United States*: Jourard 1966 (undergrad, self-report)	**NORTH AMERICA** *United States*: Henley 1973 (in public)

22.4.7.6 Being the Recipient of a Gesture of Politeness from Others

Two studies sought to determine if sex was related to the phenomenon of having one person open the door to a building or car for another. As shown in Table 22.4.7.6, in both cases, females were more likely to be the recipient of such a gesture than were males, and males were the one providing the service in nearly all cases. One study involved people generally, while the other was confined to dating couples.

The social meaning of such a gesture as door opening for others may be disputed. Two authors characterized it as a form of "benevolent sexism" by males, reflecting their attempt to maintain dominance over women (Glick & Fiske 1996). This view may be questioned, however, since it would imply that royalty should be opening doors for commoners more than vice versa.

22.4.7.7 Recipient of a Prominent (or Lengthy) Obituary or Funeral

Nearly everyone in an industrialized country will receive an obituary when he or she dies, but most obituaries are less than a paragraph or two in

Table 22.4.7.6 Being the recipient of a gesture of politeness from others

Nature of difference			*Post-pubertal*		
				Adult	
Males receive more					
Not significant					
Females receive more				**NORTH AMERICA** *United States*: Goldman et al. 1981 (door opening); Yoder et al. 2002 (undergrad, among dating couples, door opening)	

length. Obituaries published in relatively large city or national newspapers and news magazines are typically reserved for relatively prominent citizens, and these obituaries have been subjected to content analysis in several studies regarding the extent to which they are prominently featured along with the length.

As shown in Table 22.4.7.7, studies have revealed that males are more likely to receive obituaries in a prominent newspaper when they die, and that their obituaries tend to be longer and more likely to include a photograph than the obituaries of females. At least one researcher examined obituaries published in both the early and the latter portions of the 20th century and found considerable stability in the extent of these sex differences (Kearl 1986). The tendency for large-city newspapers to publish more and longer obituaries for men than for women who have died is likely reflecting sex differences in involvement in prominent occupations (such as law, politics, medicine, science, the military, and the arts) (Moremen & Cradduck 1999:249).

22.4.7.8 Receiving a Formal Burial

A few studies have compared the proportion of each sex who were the recipients of a formal burial in ancient times. These studies, summarized in Table 22.4.7.8, all concluded that males were more likely than females to have received such burials.

22.4.7.9 Popularity

Popularity refers to the extent to which an individual is frequently chosen as a recipient of social interactions by others. It is usually assessed by either observing interactions with others or by asking people to name their favorite friends or the individuals with whom they most often socialize. One can see by viewing Table 22.4.7.9 that the findings with respect to any sex differences in popularity have been quite inconsistent.

Table 22.4.7.7 Recipient of a prominent (or lengthy) obituary or funeral

Nature of difference	*Obituary Published*	*Length of Obituary (or Inclusion of a Photograph)*	*Funeral Elaboration*
Males receive more	**NORTH AMERICA** *United States*: Kastenbaum et al. 1977* (*Boston Globe*, *New York Times*); Spilka et al. 1979*; Kearl 1986*; Halbur & Vandagriff 1987*; Maybury 1995*; Marks & Piggee 1998 (*Arkansas Gazette*); Moremen & Cradduck 1999* (*New York Times*, *Los Angeles Times*, *Boston Globe*)	**NORTH AMERICA** *United States*: Kastenbaum et al. 1977*; Spilka et al. 1979*; Kearl 1986*; Halbur & Vandagriff 1987*; Maybury 1995*; Moremen & Cradduck 1999* (*New York Times*, *Los Angeles Times*, *Boston Globe*, *Miami Herald*) **INTERNATIONAL** *Multiple Countries*: Eid 2002 (Egypt, Iran & US)	**INTERNATIONAL** *Multiple Preliterate Societies*: Whyte 1978:217* (11/84 societies)
Not significant	**NORTH AMERICA** *United States*: Moremen & Cradduck 1999* (*Miami Herald*); Spilka et al. 1979* (*Denver Post*)		**INTERNATIONAL** *Multiple Preliterate Societies*: Whyte 1978:217* (73/84 societies)
Females receive more			

Table 22.4.7.8 Receiving a formal burial

Nature of difference					*Wide age range*
Males more					**EUROPE** *Britain*: Hedges 1984:186 (prehistoric); *France*: Defleur 1987:215 (upper paleolithic) **OCEANIA** *Australia*: Collier 1982:13 (19th Century)
Not significant					
Females more					

Table 22.4.7.9 Popularity

Nature of difference	*Pre-pubertal*		*Post-pubertal*		*Wide age range*
		Child	*Adolescent*		
Males more		**NORTH AMERICA** *United States*: Tryon 1939 (when one is a leader and good at games)			**NORTH AMERICA** *United States*: Feldstein et al. 2001:803 (male speakers more socially attractive to both sexes)
Not significant		**NORTH AMERICA** *United States*: McCandless et al. 1961; S Moore & Updegraff 1964	**ASIA** *Russia*: Butovskaya, Timentschik & Burkova 2007:Table 1 (both self-rated and peer rated, N = 101M + 111F)		
Females more		**NORTH AMERICA** *United States*: Parten 1933b; Tryon 1939 (when polite & considerate); Bonney 1942 (social acceptance); Bonney 1944 (social acceptance); Tuddenham 1952 (females given higher peer ratings); Marshall & McCandless 1957 (sociocentric choice test)			**NORTH AMERICA** *Canada*: Bosacki 2003:148 (age 11, among peers)

22.4.7.10 Receiving Campaign Funding

Two studies were located that compared men and women who were running for political office regarding the amount of campaign funding they received. Table 22.4.7.10 shows that there were no significant differences found in either study.

Table 22.4.7.10 Receiving campaign funding

Nature of difference			*Post-pubertal*		
				Adult	
Males receive more					
Not significant				**NORTH AMERICA** *United States*: Burrell 1994 (national elections); Dolan 1997 (national elections)	
Females receive more					

22.4.8 Being the Recipient of Verbal Social Actions

Some studies have assessed sex differences in the extent to which individuals are the recipients of linguistic or verbal stimulation from others. This brief section summarizes the findings.

22.4.8.1 Being the Recipient of Verbal Stimulation in General

Some studies compared the extent to which parents talked to their young infants. Table 22.4.8.1 shows that the results have been inconsistent, although most studies indicate that girls receive more than do boys.

Table 22.4.8.1 Being the recipient of verbal stimulation in general

Nature of difference	*Pre-pubertal*				
	Infant/toddler				
Males more	**NORTH AMERICA** *United States*: JV Brown et al. 1975 (blacks)				
Not significant	**NORTH AMERICA** *United States*: Huttenlocher et al. 1991 (toddler, by mothers)				
Females more	**NORTH AMERICA** *United States*: Thoman et al. 1972; Cherry & Lewis 1976 (toddlers, by mothers); Koblinsky et al. 1997 (low income black mothers)				

22.4.8.2 Being Interrupted by Others When Speaking

Table 22.4.8.2 summarizes findings undertaken to determine if there are sex differences in being interrupted by others when one is speaking. Results have not been consistent, at least among adults.

Table 22.4.8.2 Being interrupted by others when speaking

Nature of difference	*Pre-pubertal*		*Post-pubertal*		
		Child	*Adolescent*	*Adult*	
Males more				**NORTH AMERICA** *United States*: Eakins & Eakins 1976 (university faculty meetings); Natale et al. 1979	
Not significant				**NORTH AMERICA** *United States*: Dindia 1987 (in both same-sex and opposite-sex dyads)	
Females more		**NORTH AMERICA** *United States*: Steinberg & Hill 1978 (by parents when the child is speaking)	**NORTH AMERICA** *United States*: Marche & Peterson 1993 (by other females)	**NORTH AMERICA** *United States*: CW Kennedy & Camden 1983 (mixed-sex interactions)	

22.4.8.3 Being the Recipient of Racial Discrimination

In one study, adults were asked if they had even been the recipient of racial discrimination. As shown in Table 22.4.8.3, the study concluded that more males than females reported having had such an experience.

Table 22.4.8.3 Being the recipient of racial discrimination

Nature of difference			*Post-pubertal*		
				Adult	
Males more				**NORTH AMERICA** *United States*: Klonoff & Landrine 2000 (blacks, self-reports)	
Not significant					
Females more					

22.5 Portrayals in the Mass Media

Most studies of sex differences in mass media portrayals are based on researchers observing hundreds of instances of mass media (such as TV commercials, movies, and the like) and then recording information about which sex is being portrayed in various activities. This type of research is usually known as *contents of analyses*. The idea behind such research is

that it may help researchers determine whether mass media merely reflects reality in terms of various sex differences in behavior, molds these sex differences, or may do both.

22.5.1 Prevalence of Males and Females in the Mass Media

A number of studies have been undertaken to determine the extent to which and the manner in which males and females are portrayed in the mass media. The tables in this sub-section serve to summarize the findings from these investigations.

22.5.1.1 Featured in the Mass Media

Numerous studies have sought to determine which sex is most often portrayed in the mass media, especially in featured roles (as opposed to merely support roles). Table 22.5.1.1 provides a summary of the findings. Excluding cartoons and commercial advertising, one can see that the vast majority of these studies have determined that males are portrayed more often than females. According to one review, since relevant data first began to be compiled in the 1970s, the overall sex ratio appears to have remained constant at about two males portrayed as main characters in children's story books for every one female (Glascock 2001:657).

22.5.1.2 Featured in Cartoons and Video Games

Some studies of the sex of individuals featured in the mass media have pertained to cartoon characters or characters in video games. As shown in Table 22.5.1.2, all of these studies have concluded that males are featured more than females.

22.5.1.3 Featured in Commercials and Advertisements

Research findings having to do with the prevalence of males and females in commercials and other forms of advertisements have yielded mixed results. As shown in Table 22.5.1.3, some of the differences may be explained in terms of the types of products being marketed.

22.5.1.4 Featured in Mass Media Photographs

Findings from studies of the prevalence of sex differences in the mass media photographs that are published, particularly in textbooks, are summarized in Table 22.5.1.4. Most of the findings indicate that photographs of males are used more than those of females.

Table 22.5.1.1 Featured in the mass media

Nature of difference	*Pre-pubertal*		*Post-pubertal*		*Wide age range*
		Child	*Adolescent*	*Adult*	
More males		**NORTH AMERICA** *United States*: Weitzman et al. 1972; Bekkedal 1973 (fiction for children, main characters); Sternglanz & Serbin 1974 (children's TV programs); Marten & Matlin 1976:765 (children's readers, main characters); Kolbe & La Voie 1981 (central character in children's books); Barcus 1983 (children's TV); L Collins et al. 1984 (central character in children's books); AJ Davis 1984 (children's readers, main characters); M Barnett 1986 (central character in children's books); JA Williams et al. 1987 (children's readers, main characters); SM McDonald 1989 (children's readers, main character); DM Davis 1990 (TV); SB Peterson & Lach 1990 (children's readers, main characters); AM Allen et al. 1993 (central character in children's picture books); Kartenhaus & Demarest 1993 (central character in children's story books); Tognoli et al. 1994 (lead character in children's books); Turner-Bowker 1996 (lead in children's picture books); RG Clark 2003 (central character in children's books); M Hamilton et al. 2006	**NORTH AMERICA** *United States*: Calvert & Huston 1987 (in adolescent TV programs)	**EUROPE** *Austria*: Ahlstrand 2007:20 **NORTH AMERICA** *United States*: A Courtney & Lockeretz 1971 (in the paid work force/portrayed in magazines); S Miller 1975 (in newspapers); D Archer et al. 1983 (news magazines); DeLouth et al. 1995 (newspaper photos) **INTERNATIONAL** *Multiple Countries*: Al-Olayan & Karande 2000:77 (US and Arab magazines)	**NORTH AMERICA** *United States*: Graebner 1972 (novels, main characters); Tedesco 1974 (TV); McNeil 1975 (TV); McArthur & Eisen 1976 (TV); Tuchman et al. 1978:28 (TV drama); JR Dominick 1979 (TV); BS Greenberg 1980 (TV); Signorielli 1989 (TV); Lauzen & Dozier 1999 (TV); C Douglas et al. 2002; Signorielli 1993; Elasmar et al. 1999 (TV); R Clark et al. 2003 (central character in children's books); Monk-Turner et al. 2007 (radio, 72% of central characters) **INTERNATIONAL** *Multiple Countries*: BA Browne 1998:91

(*Continued*)

Table 22.5.1.1 (Continued)

Nature of difference	*Pre-pubertal*		*Post-pubertal*		*Wide age range*
		Child	*Adolescent*	*Adult*	
		(central character in children's books); McCabe et al. 2011 (central character in children's books) **OVERVIEW** *Literature Review*: Calvert & Huston 1987; Glascock 2001:657			
Not significant		**NORTH AMERICA** *United States*: H White 1986 (children's readers, main characters, peripheral characters)			**AFRICA** *Kenya*: Mwangi 1996 (TV commercials) **ASIA** *China*: A Furnham & Chan 2003 (Hong Kong)
More females		**NORTH AMERICA** *United States*: Baskin & Harris 1977 (children's books, main characters, ill or disabled); Saad 1999 (children's books, main characters, ill or disabled)			

Table 22.5.1.2 Featured in cartoons and video games

Nature of difference					*Wide age range*
More males					**NORTH AMERICA** *United States*: Busby 1974 (cartoons); O'Kelly 1974 (cartoons); Streicher 1974 (cartoons); Levinson 1975 (cartoons); Deitz 1998 (video game characters); Provenzo 1991 (video game characters); Beasley & Standley 2002 (video games); C Leaper et al. 2002:1658 (cartoons); Scharrer 2004 (video game ads); Ivory 2006 (video games); Ogletree & Drake 2007 (video games)
Not significant					
More females					

22.5.1.5 Featured as Mass Media Voice-Overs

Individuals in TV commercials who are unseen, but whose voice is heard in connection with many commercials are known as *voice-overs*. A number of studies have been conducted to determine if male or female voice-overs are more frequently used. Table 22.5.1.5 reveals that male voices seem to be used more in most types of TV commercials. Most of the exceptions are commercials mainly intended for young female audiences, where adult female voices tend to be used more.

22.5.1.6 Pace of Television Ads Depending on the Sex Being Targeted

Two research has compared TV ads being targeted primarily to boys and those targeted primarily to girls. Researchers then assessed the pace of ads in terms of how quickly cameras moved and scenes changed. As shown in Table 22.5.1.6, both of these studies indicated that ads targeting boys moved at a faster pace than the ads targeting females.

22.5.2 Depictions of Physical Characteristics

The physical characteristics of males and females depicted in the mass media have received some research attention. Results appear in the following two tables.

22.5.2.1 Age of People Portrayed in the Mass Media

Considerable evidence has accumulated regarding the relative age of males and females who appear in the mass media, particularly in commercials and movies. As shown in Table 22.5.2.1, these studies all indicate that the average age is older for males than for females.

Table 22.5.1.3 Featured in commercials and advertisements

Nature of difference	*Pre-pubertal*		*Post-pubertal*		*Wide age range*
		Child		*Adult*	
More males		**NORTH AMERICA** *United States*: Peck1979* BA Browne 1998:87* **OCEANIA** *Australia*: Peck1979*; BA Browne 1998:87*		**EUROPE** *Austria*: Ahlstrand 2007:20 **NORTH AMERICA** *United States*: Koernig & Granitz 2006:87 (e-commerce ads) **INTERNATIONAL** *Multiple Countries*: Al-Olayan & Karande 2000:77 (US & Arab magazines)	**MIDDLE EAST** *Israel*: First 1998:1075* (TV ads in 1979) **NORTH AMERICA** *United States*: SN Davis 2003 (TV ads) **OCEANIA** *Australia*: Hurtz & Durkin 1996 (radio ads, 78%M) **INTERNATIONAL** *Multiple Countries*: BA Browne 1998:91
Not significant					**MIDDLE EAST** *Israel*: First 1998:1075* (TV ads in 1994) **NORTH AMERICA** *United States*: Bretl & Cantor 1988 (TV ads); Lovdal 1989 (TV ads)
More females				**EUROPE** *Britain*: Furnham & Bitar 1993 (for body products); Furnham & Skae 1997 (for body products); Skoric & Furnham 2003:132* (for body products); *Serbia*: Skoric & Furnham 2003:132* (for body products)	**ASIA** *China*: Ellis & He 2011:481* (adolescents & adults, in shopping mall displays & ads, especially clothing ads); *Japan*: Arima 2000 (TV ads); *Malaysia*: Ellis & He 2011:481* (adolescents & adults, in shopping mall displays & ads, especially clothing ads) **NORTH AMERICA** *United States*: D Archer et al. 1983 (magazine covers); Nigro et al. 1988 (magazine ads); Ellis & He 2011:481* (adolescents & adults, in shopping mall displays & ads, especially clothing ads)

Table 22.5.1.4 Featured in mass media photographs

Nature of difference					*Wide age range*
More males					**NORTH AMERICA** *United States*: Peterson & Kroner 1992 (in textbooks overall); Hogben & Waterman 1997 (in undergrad textbooks overall); Yanowitz & Weathers 2004 (in educational psychology textbooks)
Not significant					
More females					**NORTH AMERICA** *United States*: EJ Hall 2000 (in sociology textbooks to illustrate poverty)

Table 22.5.1.5 Featured as mass media voice-overs

Nature of difference			*Post-pubertal*		*Wide age range*
				Adult	
More males				**EUROPE** *Austria*: Ahlstrand 2007:19; *Britain*: Manstead & McCulloch 1981; PR Harris & Stobart 1986; Livingstone & Green 1986; Skoric & Furnham 2003*; *Serbia*: Skoric & Furnham 2003* **NORTH AMERICA** *United States*: McArthur & Resko 1975; Downs & Harrison 1985; Bretl & Cantor 1988	**ASIA** *China*: Furnham & Chan 2003 (Hong Kong); *Japan*: Sakamoto et al. 1999; Bresnahan, Inove et al. 2001* (68%M vs. 32%F); *Malaysia*: Bresnahan, Inove et al. 2001* (81%M vs. 19%F); *Taiwan*: Bresnahan, Inove et al. 2001* (81%M vs. 19%F) **EUROPE** *Britain*: Manstead & McCulloch 1981* (in ads for boys); Livingstone & Green 1986* (in ads for boys); Chandler & Griffiths 2000 (in ads for boys) **NORTH AMERICA** *United States*: Verna 1975* (in ads for boys); Culley & Bennett 1976; Tuchman 1978; R Welch et al. 1979* (in ads for boys); Bertl & Cantor 1988 (90%M); Bresnahan, Inove et al. 2001* **OCEANIA** *Indonesia*: Furnhan et al. 2000 **INTERNATIONAL** *Multiple Countries*: Gilly 1988; Bresnahan et al. 2001:124 (4/4 countries)
Not significant					
More females					**EUROPE** *Britain*: Manstead & McCulloch 1981* (in ads for girls); Livingstone & Green 1986* (in ads for girls); Chandler & Griffiths 2000 (in ads for girls) **NORTH AMERICA** *United States*: Verna 1975* (in ads for girls); R Welch et al. 1979* (in ads for girls)

Table 22.5.1.6 Pace of television ads depending on the sex being targeted

Nature of difference	*Pre-pubertal*				
		Child			
Male ads faster		**EUROPE** *Britain*: Chandler & Griffiths 2000 **NORTH AMERICA** *United States*: R Welch et al. 1979 (more rapid scenes; ads targeted at girls have more fading effects)			
Not significant					
Female ads faster					

Table 22.5.2.1 Age of people portrayed in the mass media

Nature of difference			*Post-pubertal*		*Wide age range*
				Adult	
Males older				**ASIA** *Japan*: Arima 2003; *Korea*: Kim & Lowry 2005 **EUROPE** *Austria*: Ahlstrand 2007:20; *Britain*: Skoric & Furnham 2003:131*; *Serbia*: Skoric & Furnham 2003:131* **NORTH AMERICA** *United States*: E Levy 1989 (top box office drawing actors); Markson & Taylor 1993 (Oscar winners); Schatz 1997:363 (major film stars); Gilberg & Hines 2000 (Oscar winners); Lincoln & Allen 2004 (actors) **INTERNATIONAL** *Multiple Countries*: Furnham & Mak 1999	**NORTH AMERICA** *United States*: Dominick & Rauch 1972 (in commercials); Culley & Bennett 1976 (in commercials); Schneider & Schneider 1979 (in commercials); BS Greenberg 1980 (on television); DM Davis 1990 (television); Signorielli 1993; Glascock 2001:664 (on television) **INTERNATIONAL** *Multiple Countries*: Gilly 1988
Not significant					
Females older					

22.5.2.2 Mass Media Portrayals of Face versus Body

A few studies have compared the sexes with respect to mass media presentation of faces (as opposed to presenting much more of the entire body). In Table 22.5.2.2, one can see that this face-only presentation is more common for males than for females.

22.5.3 Depictions of Personality, Emotions, and General Behavior

In the following section, studies are reviewed that compare males and females regarding how they are portrayed regarding a variety of personality traits. Differences in emotionality and some general behavior patterns are also included.

Table 22.5.2.2 Mass media portrayals of face versus body

Nature of difference					*Wide age range*
Males more				**NORTH AMERICA** *United States*: Nigro et al. 1988 (faces more prominent, magazines); Luebke 1989	**INTERNATIONAL** *Multiple Countries*: D Archer et al. 1983 (faces more prominent, popular magazines)
Not significant					
Females more					

22.5.3.1 Mass Media Portrayals of Sex Differences in Independence

Three studies were located pertaining to sex differences in tendencies to be independent. Table 22.5.3.1 shows that all three studies concluded that greater proportions of males were displayed as exhibiting such tendencies than was the case for females.

Table 22.5.3.1 Mass media portrayals of sex differences in independence

Nature of difference					*Wide age range*
More males					**NORTH AMERICA** *United States*: Kolbe & Albanese 1996 (in TV ads); Dilevko & Harris 1997 (in TV ads); R Clark et al. 2003:443 (more independent, in children's books)
Not significant					
More females					

22.5.3.2 Mass Media Portrayals of Achievement-Orientation or Competitiveness

Two studies of mass media depictions of sex differences in achievement-orientation or competitive behavior were located. As shown in Table 22.5.3.2, both studies indicated that males were depicted as being more achievement-oriented or more competitive than were females.

22.5.3.3 Mass Media Portrayals of Fearfulness and Shyness

Some research has compared male and female characters in various mass media regarding their exhibiting fearfulness or shyness. One can see in Table 22.5.3.3 that all the studies that were located indicated that females are more likely to be portrayed as fearful or shy than are males.

Table 22.5.3.2 Mass media portrayals of achievement-orientation or competitiveness

Nature of difference					*Wide age range*
More males					**NORTH AMERICA** *Canada*: VA Gray 1977 (achievement-oriented, in college textbooks); *United States*: R Clark et al. 2003:443 (competitive, in children's books)
Not significant					
More females					

Table 22.5.3.3 Mass media portrayals of fearfulness and shyness

Nature of difference					*Wide age range*
More males					
Not significant					
More females					**NORTH AMERICA** *United States*: C Leaper et al. 2002:1658 (cartoon characters, fearful); Ogletree & Drake 2007 (helplessness) **MIDDLE EAST** *Israel*: First 1998:1074 (TV ads, shy) **INTERNATIONAL** *Multiple Countries*: BA Browne 1998:91 (in TV ads)

22.5.3.4 Mass Media Portrayals of People Being Argumentative

One study compared males and females who were portrayed in children's books as being argumentative. Table 22.5.3.4 shows that it concluded that more males than females were depicted in this way.

Table 22.5.3.4 Mass media portrayals of people being argumentative

Nature of difference					*Wide age range*
More males					**NORTH AMERICA** *United States*: Evans & Davies 2000 (in children's textbooks)
Not significant					
More females					

22.5.3.5 Mass Media Portrayals of People Behaving Aggressively

Several studies based on content analyses have sought to determine if males or females are more likely to be portrayed as exhibiting physical aggression and violence. Table 22.5.3.5 shows that all of these studies have concluded that males (or male characters) are more likely than females (or female characters) to exhibit physical aggression. This sex difference has been found in the case of commercials, movies, and even cartoons.

Table 22.5.3.5 Mass media portrayals of people behaving aggressively

Nature of difference	*Pre-pubertal*		*Post-pubertal*		*Wide age range*
		Child	*Adolescent*	*Adult*	
More males		**NORTH AMERICA** *United States*: Tout et al. 1998:1255	**NORTH AMERICA** *United States*: Felson 1996 **INTERNATIONAL** *Multiple Countries*: BA Browne 1998:91 (aggressive, TV ads)	**ASIA** *Japan*: Rolandelli 1991 (TV)	**NORTH AMERICA** *United States*: Sternglanz & Serbin 1974 (children's TV); Streicher 1974 (cartoons); Tedesco 1974; E Goffmann 1976 (aggressiveness, in magazine ads); McArthur & Eisen 1976 (TV); Norland & Shover 1977 (TV); BS Greenberg 1980 (TV); Signorielli 1989 (TV); Turow 1986 (TV); Basow 1992; Sommers-Flanagan et al. 1993 (TV); TL Thompson & Zerbinos 1995 (cartoons); M Rich, Woods et al. 1998 (in violent music videos, N = 76, 78%M vs. 22%F); Glascock 2001:665 (TV); C Leaper et al. 2002:1658 (cartoons); Yanowitz & Weathers 2004 (in education textbooks)
Not significant					
More females					

22.5.3.6 Mass Media Portrayal of Victims of Aggression and Violence

Mass media attention given to the victims of violence has been subjected to content analysis in a few studies to determine if a sex difference is detectable. As shown in Table 22.5.3.6, the findings have been mixed, with three studies concluding that male victimization receives more mass

media coverage while the remaining two studies suggested that female victimization was portrayed more often or that there were no significant sex differences.

Table 22.5.3.6 Mass media coverage of victims of aggression and violence

Nature of difference					*Wide age range*
Males more					**NORTH AMERICA** *United States*: Cavender et al. 1999 (on reality TV programs); Cavender et al. 1999 (in TV interviews); C Leaper et al. 2002:1658 (in cartoons)
Not significant					**NORTH AMERICA** *United States*: M Rich, Woods et al. 1998 (in violent music videos, N = 76, 53.7%M vs. 46.3%F)
Females more					**NORTH AMERICA** *United States*: Sommers-Flanagan et al. 1993 (in cartoons)

22.5.3.7 Mass Media Portrayals of Dominance and Status-Related Behavior

Research undertaken to determine if males or females are more likely to be portrayed in dominant roles or as being of high social status is summarized in Table 22.5.3.7. One can see that these characterizations are made more often for males than for females.

Table 22.5.3.7 Mass media portrayals of dominance and status-related behavior

Nature of difference				*Post-pubertal*	*Wide age range*
				Adult	
Males more				**NORTH AMERICA** *United States*: Goffman 1979; Courtney & Whipple 1983; Bretl & Cantor 1988; Dilevko & Harris 1997; T Stephenson et al. 1997	**ASIA** *Japan*: Rolandelli 1991 (on TV) **EUROPE** *Britain*: M Macdonald 1985 **MIDDLE EAST** *Israel*: First 1998:1074 (in social control) **NORTH AMERICA** *United States*: Gerbner & Signorielli 1979; BS Greenberg 1980; M Morgan 1982; M Morgan 1987; Signorielli 1989; SJ Douglas 1994; Coltrane & Adams 1997 (in authority or in professional positions, TV ads); Glascock 2001:664 (business owners & supervisors); JS Aubrey & Harrison 2004 (being a boss or in control, in children's TV programs)
Not significant				**NORTH AMERICA** *United States*: Koernig & Granitz 2006:87 (e-commerce ads)	
Females more					

22.5.3.8 Portrayals of Negative Emotions in the Mass Media

Table 22.5.3.8 shows that a couple of studies compared males and females who were portrayed with negative emotions in the mass media. It shows that one study found males more often portrayed as angry while females were more often portrayed as sad or stressed.

Table 22.5.3.8 Portrayals of negative emotions in the mass media

Nature of difference					*Wide age range*
Males more					**NORTH AMERICA** *United States*: Birnbaum & Croll 1984 (angry, in children's TV programs)
Not significant					
Females more					**NORTH AMERICA** *United States*: Aubrey 2004:510 (sadness & stress)

22.5.3.9 Mass Media Portrayals of Persons Who Are Nurturing or Helpful

Research undertaken to assess sex differences in mass media portrayals of engaging in nurturing and helping behavior are shown in Table 22.5.3.9. One can see that all the studies of nurturing behavior that were located indicate that females are characterized as engaging in such behavior to a greater degree than males. However, the one study of general helping behavior suggested that this was more commonly exhibited by boys than by girls.

Table 22.5.3.9 Mass media portrayals of people who are nurturing or helpful

Nature of difference	*Pre-pubertal*				*Wide age range*
		Child			
Males more		**NORTH AMERICA** *United States*: Sternglanz & Serbin 1974 (in commercial TV programs, being helpful to others)			
Not significant					
Females more					**NORTH AMERICA** *Canada*: VA Gray 1977 (in college textbooks); *United States*: R Clark et al. 1993 (more nurturing, in children's books); Milburn et al. 2001 (in mass media generally); R Clark et al. 2003:443 (more nurturing, in children's books)

22.5.3.10 Mass Media Portrayals of Politeness

In one study, cartoon characters of both sexes were compared with regard to being polite. As one can see in Table 22.5.3.10, females were displayed as being more polite than was the case for males.

Table 22.5.3.10 Mass media portrayals of politeness

Nature of difference					*Wide age range*
Males more					
Not significant					
Females more					**NORTH AMERICA** *United States*: C Leaper et al. 2002:1658 (cartoon)

22.5.4 Depictions of Activities and Recreational Behavior

Mass media portrayals of males and females have been scrutinized by researchers to see if their activities are displayed as being different. Findings are summarized in the following three tables.

22.5.4.1 Mass Media Portrayals of Being Physically Active

One study of mass media portrayals of adolescents compared the sexes regarding their being described as physically active. Table 22.5.4.1 shows that this characterization was more apparent in males than in females.

Table 22.5.4.1 Mass media portrayals of being physically active

Nature of difference			*Post-pubertal*		
			Adolescent		
Males more			**INTERNATIONAL** *Multiple Countries*: BA Browne 1998		
Not significant					
Females more					

22.5.4.2 Mass Media Portrayals of People Involved in Outdoor Activities

A few studies were located that compared males and females with regard to having been depicted in the mass media as involved in outdoor activities. Table 22.5.4.2 shows that all the studies agree that males were depicted more often doing so than were females.

22.5.4.3 Mass Media Portrayals of People Using Computers

Table 22.5.4.3 shows the findings from one study of sex differences in mass media portrayals of people using computers. It indicated that males were more often depicted as doing so than were females.

Table 22.5.4.2 Mass media portrayals of people involved in outdoor activities

Nature of difference					*Wide age range*
Males more					**NORTH AMERICA** *United States*: A Cortney & Lockeretz 1971 (in magazine ads, 45%M vs. 9%F); Sexton & Haberman 1974 (in magazine ads); S Miller 1975 (in newspaper photos) **INTERNATIONAL** *Multiple Countries*: Furnham & Mak 1999 (for outdoor products and activities)
Not significant					
Females more					

22.5.5 Mass Media Depictions of Sexual Interests and Behavior

Studies of the mass media depictions of sex differences in sexuality and in sexual behavior have been studied by researchers. Findings from these studies are summarized below.

22.5.5.1 Mass Media Portrayals of Interests in Physical Appearance

In a couple of studies, sex differences in being interested in one's physical appearance were assessed. One can see in Table 22.5.5.1 that both studies concluded that females were depicted as having a greater interest than was the case for males.

22.5.5.2 Mass Media Portrayals of Physical Attractiveness and Sexiness

Research undertaken to assess sex differences in people's physical attractiveness is summarized in Table 22.5.5.2. One can see that all the studies indicate that females are more likely than males to be portrayed as physically attractive or sexy.

22.5.5.3 Mass Media Portrayals of Being Interested in Romance

Table 22.5.5.3 shows the results of a study undertaken to assess how the sexes are portrayed regarding interest in romance. It indicated that females were characterized as having more such interests than were males.

Table 22.5.4.3 Mass media portrayals of people using computers

Nature of difference					*Wide age range*
Males more					**NORTH AMERICA** *United States*: Ware & Stuck 1985
Not significant					
Females more					

Table 22.5.5.1 Mass media portrayals of interests in physical appearance

Nature of difference					*Wide age range*
Males more					
Not significant					
Females more					**NORTH AMERICA** *United States*: LM Ward 1995 (adolescents & adults, in TV entertainment programs); Schlenker et al. 1998 (in teen magazines)

Table 22.5.5.2 Mass media portrayals of physical attractiveness and sexiness

Nature of difference			*Post-pubertal*		*Wide age range*
				Adult	
Males more					
Not significant					
Females more				**NORTH AMERICA** *United States*: S Coltrane & Adams 1997 (as sex-objects in TV commercials)	**NORTH AMERICA** *United States*: Archer et al. 1983 (sexual); Soley & Kurzbard 1986 (sexual, magazine ads); Sommers-Flanagan et al. 1993 (sexual, TV programs); C Leaper et al. 2002:1658 (cartoon, exhibiting "romantic behavior"); Ogletree & Drake 2007 (sexually provocative)

22.5.5.4 Mass Media Portrayals of People Initiating Sexual Behavior

Research findings of sex differences in mass media portrayals of people initiating sexual behavior are presented in Table 22.5.5.4. One can see that in the case of flirting behavior, females appear to do so to a greater degree. However, for all other forms of sexual behavior initiations, males are depicted as doing so more.

Table 22.5.5.3 Mass media portrayals of being interested in romance

Nature of difference					*Wide age range*
Males more					
Not significant					
Females more					**NORTH AMERICA** *United States*: Schlenker et al. 1998 (in teen magazines)

Table 22.5.5.4 Mass media portrayals of people initiating sexual behavior

Nature of difference					*Wide age range*
Males more					**NORTH AMERICA** *United States*: MG Durham 1998 (in teenage-oriented magazines); Kunkel et al. 2001* (adolescents & adults, except flirting); Aubrey 2004:511 (in TV dramas, 60.5%M vs. 39.5%F)
Not significant					
Females more					**NORTH AMERICA** *United States*: LM Carpenter 1998 (being sexually alluring, teen magazines); Kunkel et al. 2001* (adolescents & adults, flirting)

22.5.5.5 Mass Media Portrayals of Negative Consequences from Premarital Sex

One study compared the portrayals of males and females having undesirable consequences from engaging in premarital sex. Table 22.5.5.5 shows that females were depicted as having more such results than was the case for males.

Table 22.5.5.5 Mass media portrayals of negative consequences from premarital sex

Nature of difference					*Wide age range*
Males more					
Not significant					
Females more					**NORTH AMERICA** *United States*: Aubrey 2004:510 (in TV dramas, 34.3%M, 44.3%F, 21.4% for both sexes, mainly emotional ill consequences)

22.5.6 Depictions of Work-Related Behavior

Considerable research interest has been devoted to studying how the mass media depicts males and females regarding the work they perform. The findings from these studies are presented below.

22.5.6.1 Mass Media Portrayals of People Working Inside the Home

Many studies have assessed the proportions of males and females being portrayed in the mass media as working inside the home (primarily cleaning or maintaining a tidy home environment). Most of these studies have focused on television ads. One can see in Table 22.5.6.1 that all but one of these studies have concluded that females are more often depicted as involved in work inside the home.

22.5.6.2 Mass Media Portrayals of Occupations Being Performed

Many studies have been undertaken to determine if males are more often than females depicted as performing traditional male-typical occupations. The issues of what constitutes masculine occupations was addressed in Chapter 15. As was noted in that chapter, males tend to gravitate toward a wider range of occupations than do females and are especially prominent in things-oriented jobs as opposed to people-oriented jobs.

Findings are summarized in Table 22.5.6.2. One can see that these findings are very consistent in indicating that throughout the world males are depicted as being engaged in more male-typical occupations than is the case for females. This is true regardless of the form of mass media involved, be they commercials, children's readers, or even cartoons. In the case of children's readers, one research team stated that controversy persists over whether these readers "should reflect reality or be a part of efforts to create greater sex equality" (Lee & Collins 2009).

22.5.6.3 Mass Media Portrayals of Working Outside the Home

Several studies have sought to determine the nature of sex differences in occupational portrayals in television commercials. As shown in Table 22.5.6.3, all but one of these studies have concluded that males are more often portrayed as having an occupation outside the home, as having a wider range of such occupations, and higher status occupations, than was true for females.

Table 22.5.6.1 Mass media portrayals of working inside the home

Nature of difference	*Pre-pubertal*		*Post-pubertal*		*Wide age range*
		Child	*Adolescent*	*Adult*	
Males more					
Not significant				**EUROPE** *Serbia*: Skoric & Furnham 2003:131* (TV ads)	
Females more		**NORTH AMERICA** *United States*: AL Smith 1994* (TV ads involved in domestic chores)	**NORTH AMERICA** *United States*: AL Smith 1994* (TV ads involved in domestic chores)	**ASIA** *China*: Furnham, Mak, & Tanidjojo 2000* (TV ads); *Japan*: Furnham & Imadzu 2002* (TV ads) **AFRICA** *South Africa*: Furnham & Spencer-Bowdage 2002* (doing housework) **EUROPE** *Britain*: Lysonski 1985 (magazine ads); Furnham & Bitar 1993 (homemakers in TV ads); RA Jones 1997 (scientists); Furnham & Spencer-Bowdage 2002* (doing housework in TV ads); Skoric & Furnham 2003:131* (TV ads); *Denmark*: Furnham, Babitzkow, & Uguccioni 2000*; *France*: Furnham, Babitzkow, & Uguccioni 2000* (TV ads); *Italy*: Furnham & Vali 1989 (TV ads); *Portugal*: Neto & Pinto 1998 (ads for domestic products) **MIDDLE EAST** *Israel*: Uray & Burnaz 2003 **NORTH AMERICA** *Canada*: Rak & McMullen 1987 (TV ads); *United States*: Courtney &	**AFRICA** *South Africa*: Furnham & Spencer-Bowdage 2002* (TV ads) **ASIA** *Japan*: Arima 2000 (TV ads); *Malaysia*: Wee et al. 1995*; *Singapore*: Wee et al. 1995* **EUROPE** *Britain*: Manstead & McCulloch 1981; Furnham & Spencer-Bowdage 2002* (TV ads); Nassif & Gunter 2008* (domestic roles) **MIDDLE EAST** *Saudi Arabia*: Nassif & Gunter 2008* (domestic roles) **NORTH AMERICA** *United States*: D Anderson & Hamilton 2005 (involved in housework, in children's books); Sigalow & Fox 2014:427 (involved in housework, in children's books) **INTERNATIONAL** *Multiple Countries*: Bresnahan et al. 2001:125

(*Continued*)

Table 22.5.6.1 (Continued)

Nature of difference	*Pre-pubertal*		*Post-pubertal*		*Wide age range*
		Child	*Adolescent*	*Adult*	
				Lockeretz 1971; Dominick & Rauch 1972* (in a domestic role); Courtney & Whipple 1974* (in the home, domestic role); LZ McArther & Resko 1975 (in the home); Culley & Bennett 1976* (in a domestic role); McArthur & Eisen 1976 (as parent and homemaker); O'Donnell & O'Donnell 1978 (in the home); Schneider & Schneider 1979* (in a domestic role); Caballero & Solomon 1984; Bretl & Cantor 1988 (TV ads); Gilly 1988* (TV ads); Lovdal 1989 (in the home); Craig 1992* (homemakers); Allan & Coltrane 1996* (in the home); Fowles 1996 (for domestic products); Brabant & Mooney 1997 (domestic role); Coltrane & Adams 1997* (homemakers); Mayne 2000; SN Davis 2003* (in the home) **OCEANIA** *Australia*: Gilly 1988* (TV ads); Mazzella et al. 1992 (TV ads); *Indonesia*: Furnham, Mak, & Tanidjojo 2000* (TV ads)	

Table 22.5.6.2 Mass media portrayals of occupations being performed

Nature of difference	*Post-pubertal*	*Wide age range*
	Adult	
Males more	**AFRICA** *Zimbabwe*: A Furnham et al. 2001 **ASIA** *China*: C Hong 1997; Furnham & Chan 2003* (Hong Kong, breadwinners); *Japan*: Sakamoto et al. 1999* (as breadwinners) **EUROPE** *Britain*: Manstead & McCulloch 1981; Furnham & Bitar 1993* (in charge of businesses); Skoric & Furnham 2003* (in charge of businesses); *Italy*: Furnham & Voli 1989; *Portugal*: Neto & Pinto 1998* (as breadwinners); *Serbia*: Skoric & Furnham 2003* (in charge of businesses) **NORTH AMERICA** *United States*: LA McArther &Resko 1975; Brownlow & Durham 1997 (as scientists, in children's cartoons); C Hong 1997; Signorielli 1997; Glascock 2001:664 (as business owners & supervisors); SR Stern & Mastro 2004 **INTERNATIONAL** *Multiple Countries*: Furnham et al. 2000; Furnham & Imadzu 2002	**ASIA** *China*: W Wang 1998 (children's readers, male-typical occupations); JFK Lee & Collins 2009* (children's readers, sex-typical occupations); JFK Lee 2014 (children's readers, wide range of male-typical occupations); *India*: Das 2000 (in magazine) **NORTH AMERICA** *United States*: Dominick & Rauch 1972; LZ McArther & Resko 1975; Elena 1993 (scientists); Rajecki et al. 1993 (as scientists, in children's TV ads); TL Thompson & Zerbinos 1995 (in cartoons) **OCEANIA** *Australia*: JFK Lee & Collins 2009* (children's readers, sex-typical occupations); *Philippines*: Lamug 1995* (police, physicians, fishermen); Lamug 1997 (children's readers, male-typical occupations)
Not significant		
Females more	**NORTH AMERICA** *United States*: S Coltrane & Adams 1997 (in TV ads, in service & clerical occupations)	**OCEANIA** *Philippines*: Lamug 1995* (teachers, in children's readers)

Table 22.5.6.3 Mass media portrayals of working outside the home

Nature of difference	*Post-pubertal*	*Wide age range*
	Adult	
Males more	**ASIA** *Japan*: Nobushima 1998 (with an occupation); Arima 2003 (with an occupation) **NORTH AMERICA** *United States*: A Courtney & Lockeretz 1971 (in magazine ads, 45%M vs. 9%F); Sexton & Haberman 1974 (in magazine ads); S Miller 1975 (in newspaper photos); McArthur & Eisen	**ASIA** *China*: Cheng 1997 (with an occupation) **EUROPE** *Britain*: Furnham & Bitar 1993 **LATIN/CARIBBEAN AMERICA** *Mexico*: Gilly 1988 **NORTH AMERICA** *United States*: Dominick & Rauch 1972 (in a wider range of occupations; business settings); Courtney & Whipple 1974 (away from home); Culley & Bennett 1976 (in a wider range of occupations); McArthur & Eisen 1976 (prime time TV); Schneider & Schneider 1979 (in a wider range of occupations); Knill et al. 1981 (in a wider range of occupations); Bretl & Cantor

(*Continued*)

Table 22.5.6.3 (Continued)

Nature of difference			*Post-pubertal*		*Wide age range*
				Adult	
				1976; Bretl & Cantor 1988 (in magazine ads, employed outside the home)	1988 (higher status occupations); DM Davis 1990 (TV programs); Craig 1992 (higher status); K Allan & Coltrane 1996 (higher status occupations); Coltrane & Adams 1997 (higher status); SN Davis 2003 (at work) **OCEANIA** *Australia*: Gilly 1988
Not significant					**INTERNATIONAL** *Multiple Countries*: Bresnahan et al. 2001:125 (in TV ads)
Females more					

22.5.7 Residual Mass Media Depictions of Sex Differences

A couple of remaining mass media depictions of sex differences were located. A summary of their findings appears below.

22.5.7.1 Mass Media Portrayals of Shopping and Purchasing Behavior

One study was located of mass media portrayals of sex differences in shopping and purchasing behavior. Table 22.5.7.1 shows the results were split, depending on whether car purchasing (more male) or cosmetic purchasing (more females) was being portrayed.

Table 22.5.7.1 Mass media portrayals of shopping and purchasing behavior

Nature of difference			*Post-pubertal*		
				Adult	
Males more				**NORTH AMERICA** *United States*: Klassen et al. 1993* (in magazines, purchasing cars)	
Not significant					
Females more				**NORTH AMERICA** *United States*: Klassen et al. 1993* (in magazines, purchasing cosmetics)	

22.5.7.2 Mass Media Portrayals of Being Authoritative or Knowledgeable

In a couple of studies, researchers compared the sexes in terms of how mass media portrayed people who were authoritative or knowledgeable. Table 22.5.7.2 shows that both studies concluded that these characteristics were depicted as being more prominent in males than in females.

Table 22.5.7.2 Mass media portrayals of being authoritative or knowledgeable

Nature of difference			*Post-pubertal*		*Wide age range*
			Adolescent		
Males more			**INTERNATIONAL** *Multiple Countries*: BA Browne 1998		**NORTH AMERICA** *United States*: JS Aubrey & Harrison 2004 (answering more questions, in children's TV programs)
Not significant					
Females more					

22.5.7.3 People Featured in Mass Media Coverage of Sports

Research undertaken to assess sex differences in people covered by the mass media dealing with sports is summarized in Table 22.5.7.3. One can see that all studies concluded that more males than females were featured when covering sports.

Table 22.5.7.3 People featured in mass media coverage of sports

Nature of difference			*Post-pubertal*		*Wide age range*
				Adult	
Males more				**NORTH AMERICA** *United States*: Bate 1987 (newscasts); M Sage & Furst 1994; Yang 1996 (newscasts); Wann 1998 (undergrad); Zoch & VanSlyke Turk 1998 (newscasts); JR Hallmark & Armstrong 1999; Cl Armstrong 2004 (newspapers)	**EUROPE** *Britain*: Alexander 1994; *Sweden*: Koivula 1999 (86%M vs. 12%F) **NORTH AMERICA** *United States*: Tuggle 1997; Kachgal 2001; Adams & Tuggle 2004
Not significant					
Females more					

22.5.7.4 People Featured in Textbooks

Three studies were located that counted the number of males and females who were mentioned by first and last name in textbooks of various types. As shown in Table 22.5.7.4, all three studies found that the names of males were mentioned more frequently than were the names of females.

Table 22.5.7.4 People featured in textbooks

Nature of difference					*Wide age range*
Males more					**NORTH AMERICA** *United States*: Weitzman & Rizzo 1974 (in elementary school texts); Banner 1977 (in college textbooks); Ferree & Hall 1990 (in college sociology textbooks)
Not significant					
Females more					

23 Ecologically Based Sex Differences

Ecological studies are ones in which the units of analysis are groups of individuals, not individuals. The groups involved in these studies are nearly always of a geographic nature, with countries being the most common unit of analysis. Nevertheless, some studies base their analyses on comparisons of states/provinces, cities, or neighborhoods.

In ecological studies, also sometimes called *cross-cultural ecological studies*, geographic areas (e.g., countries) are compared with respect to one or more variables. These variables can be biological, cultural, economic, political, or behavioral in nature. Just to give an example, readers will see that several studies have been undertaken to determine if countries with the greatest degree of gender equality in their laws and traditions have more or less sex equality in math scores.

Scientific research of an ecological nature pertaining to sex differences is substantial and wide-ranging, especially in recent decades, as this chapter will show. One reason is that these studies provide insight into questions about how traditions within countries (or sometimes other geographic regions, such as U.S. states) may impact sex differences in traits. As one research team stated, "Cross-cultural studies can provide crucial evidence on the relative importance of biological versus cultural factors in sex differences" (Costa, Terraciano & McCrae 2001:324). This chapter is devoted to summarizing findings based on ecological studies of sex differences, with differences between countries being the most common.

23.1 National Gender Equality (Ecological)

A sizeable number of multi-national studies have been conducted based on large samples of individuals (usually in the thousands) drawn from each country. Much of this research is being made feasible by the growing use of samples drawn from the internet. Researchers have been able to use these large multi-national studies to explore questions having to do with how cultural traditions and laws related to gender equality are related to a

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wide range of traits found in societies. For example, are men and women (or boys and girls) more similar to one another in countries with cultural traditions (as well as actual laws) supporting gender equality or in countries where cultural traditions tend to favor gender *in*equality?

A research innovation that has made this type of research possible has involved the development of several international gender equality indexes. One of the most widely used of these indexes is the periodically updated Global Gender Gap Index (GGGI) (Hausmann, Tyson & Zahidi 2011). The GGGI assesses within-country gender gaps across four categories: (1) economic participation and opportunity, (2) educational attainment, (3) health and survival, and (4) political empowerment. In the GGGI, 14 different indicators of gender equality/inequality are subsumed under these four categories to comprise the final index (Grieg et al. 2006:5).

Two other measures of gender equality are the World Economic Forum's Gender Gap Index (WEF-GGI) and the *Gender Empowerment Measure* (*GEM*), the latter having been developed by the United Nations Development Program. In this latter measure, sex equality indicators covering three areas – i.e., political participation and decision making, economic participation and decision making, and power over economic resources are combined into a single index. For additional lists and comparisons of national gender equality indicators, see Else-Quest, Hyde and Linn (2010:Table 1), M Mills (2010:Table 1), and Branisa, Klasen et al. (2014).

Of course, the precise ranking of countries will not be exactly the same across these gender equality indicators (Branisa, Klasen et al. 2014) and they will even vary somewhat from one timeframe to another within a given index (Hausmann, Tyson et al. 2012). Nevertheless, no matter what index or time period examined, one finds considerable agreement in terms of how countries are ranked. Specifically, the least gender-equal countries always include high proportions of Middle Eastern/Northern African countries (e.g., Saudi Arabia, Yemen, the United Arab Emirates), while the countries that are consistently scored high in gender equality are those in Scandinavia (e.g., Norway, Finland, Iceland). Most countries, of course, are somewhere in the mid-range as far as having long-term traditions promoting or inhibiting gender equality regarding cultural, political, and economic policies and laws (Schwartz & Rubel-Lifschitz, 2009:Appendix A).

Four groups of tables having to do with national gender equality variations will be presented. The first group has to do with how gender equality relates to traits not directly involving sex differences. For example, is gender equality related to national variations in income inequality, ethnic diversity, or religiosity?

In the remaining three groups of tables, national variations in gender equality are considered relative to a range of sex differences. Specifically,

research findings on associations between gender equality and sex differences of a biological, emotional, and behavioral nature will be examined. One will see that these tables provide some interesting and sometimes puzzling tentative answers to the question of whether national gender equality is correlated with sex differences.

23.1.1 National Gender Equality and Biological Sex Differences

This section has to do with national gender equality and biological variables, with the understanding that the term *biological* is being used here in a narrow (rather than all-inclusive sense). Findings are summarized below.

23.1.1.1 National Gender Equality and Sex Differences in Life Expectancy

As noted in Chapter 5, studies have indicated that females tend to outlive males in the vast majority of countries. In one study, researchers sought to determine if variations in gender equality were associated with sex differences in life expectancy. Table 23.1.1.1 shows that the findings differed, depending on whether one was studying countries overall or was focused simply on developed countries.

Table 23.1.1.1 National gender equality and sex differences in life expectancy

Nature of difference					*Wide age range*
More gender equality, more sex differences					**INTERNATIONAL** *Multiple Countries*: Medalia & Chang 2011* (131 countries)
Not significant					
More gender equality, fewer sex differences					**INTERNATIONAL** *Multiple Developed Countries*: Medalia & Chang 2011* (131 countries)

23.1.1.2 National Gender Equality and Sex Differences in Blood Pressure

One study was located on national gender equality and sex differences in blood pressure (which most studies have indicated is higher among males than among females – see Chapter 2). Table 23.1.1.2 shows that this study indicated that sex differences tend to be higher in gender equal compared to gender-unequal countries.

Table 23.1.1.2 National gender equality and sex differences in blood pressure

Nature of difference				*Post-pubertal*	
				Adult	
More gender equality, more sex differences				**INTERNATIONAL** *Multiple Countries*: Schmitt, Realo et al. 2008:176 (45 countries)	
Not significant					
More gender equality, fewer sex differences					

23.1.1.3 National Gender Equality and Sex Differences in Obesity Rate

As noted in Chapter 1, most (but far from all) studies have concluded that obesity is more prevalent among females than among males. The issue addressed in Table 23.1.1.3 has to do with whether or not gender equality was correlated with the tendency for females to be more obese than males. Just one pertinent study was located. It indicated that, based on two out of three measures of national gender equality, sex differences in obesity rates were less in more gender-equal countries.

Table 23.1.1.3 National gender equality and sex differences in obesity rate

Nature of difference			*Post-pubertal*	
			Adult	
More gender equality, more sex differences				
Not significant			**INTERNATIONAL** *Multiple Countries*: Garawi, Devries et al. 2014 (151 countries, SIGI gender equal indexes, N = 102 countries)	
More gender equality, fewer sex differences			**INTERNATIONAL** *Multiple Countries*: Garawi, Devries et al. 2014 (151 countries, GII & GGG, 2 out of 3 gender equal indexes were used, N = 138 countries)	

23.1.1.4 National Gender Equality and Sex Differences in Health

As documented in Chapter 5, most studies indicate that males self-rated their health higher than do females while males suffer more physical injuries (except among the elderly). One study was located that looked for evidence of a correlation between sex differences in self-rated health and gender equality within a sample of European countries. As shown in Table 23.1.1.4, it found no significant correlation. A study of physical injuries and gender equality at an international level of analysis, however, found that injuries were more prevalent among both sexes in gender-unequal countries than gender equal ones.

Table 23.1.1.4 National gender equality and sex differences in health

Nature of difference			*Post-pubertal*		
			Adolescence	*Adult*	
More gender equality, more sex differences					
Not significant				**EUROPE** *Multiple European Countries*: Dahlin & Harkonen 2013 (28 countries, self-rated)	
More gender equality, fewer sex differences			**INTERNATIONAL** *Multiple Countries*: de Looze, Elgar et al. 2019 (suffering physical injuries, 36 countries, N = 71,255, r = .28)		

23.1.1.5 National Gender Equality and Sex Differences in the 2D:4D Ratio

The vast majority of studies have found females to have a higher 2D:4D finger length ratio than do males (documented in Chapter 2). One study was located in which national gender equality was compared regarding sex differences in the 2D:4D ratio. As one can see in Table 23.1.1.5, the study concluded that the most gender-equal countries usually exhibited greater sex differences in this ratio than was the case of gender-unequal countries.

Table 23.1.1.5 National gender equality and sex differences in the 2D:4D ratio

Nature of difference			*Post-pubertal*		
				Adult	
More gender equality, more sex differences				**INTERNATIONAL** *Multiple Countries*: Manning, Fink & Trivers 2014:766 (29 countries, N = 158,753, both hands)	
Not significant					
More gender equality, fewer sex differences					

23.1.1.6 National Gender Equality and the Androgen Receptor Gene among Males

The androgen-receptor gene (AR gene) is located on the X chromosome. This gene varies with respect to the number of so-called *AR CAG repeats*,

with some individuals having as few as 7 while others have as many as 37. National averages vary from 16 to 28 (Simmons & Roney 2011; Ellis, Hoskin, & Buker 2021). Based on a study of several different indicators of national gender equality (i.e., the extent to which societies have laws and traditions promoting equal treatment of males and females), Table 23.1.1.6 shows that one study reported that countries in which gender equality was promoted the most had males with relatively more CAG repeats on their AR gene. No assessment of this relationship was made in the case of the AR gene in females because females have two such genes, while males have just one, thus making the functionality of the AR gene in females more problematic.

Table 23.1.1.6 National gender equality and the androgen receptor gene among males

Nature of difference				*Post-pubertal*	
				Adult	
More gender equality, more CAG repeats				**INTERNATIONAL** *Multiple Countries*: Ellis & Hoskin 2022 (78 countries)	
Not significant					
More gender equality, fewer CAG repeats					

23.1.2 National Gender Equality and Emotional Sex Differences

Some research has sought to determine if gender equality within countries correlates with sex differences in various measures of emotions. Relevant findings are reviewed in the following tables.

23.1.2.1 National Gender Equality and Sex Differences in Overall Emotionality

Most studies have indicated that females tend to be more emotional than males (documented in Chapter 10). In Table 23.1.2.1, one can see that the available evidence points toward greater sex differences in emotionality in gender-equal countries relative to gender-unequal countries.

23.1.2.2 National Gender Equality and Sex Differences in Depression

As documented in Chapter 14, the vast majority of studies have indicated that females suffer from depression (and exhibit various depressive

Table 23.1.2.1 National gender equality and sex differences in overall emotionality

Nature of difference				*Post-pubertal*	
				Adult	
More gender equality, more sex differences				**INTERNATIONAL** *Multiple Countries*: Nolen-Hoeksema 1987; Fischer & Manstead 2000 (37 countries, UN gender empowerment index); van Hemert, van de Vijver & Vingerhoets 2011 (37 countries, crying proneness)	
Not significant					
More gender equality, fewer sex differences					

symptoms) to a greater degree than males, especially after the onset of puberty. Five studies were located pertaining to how sex differences in depression (or negative emotions) correlate with variations in national gender equality indicators. As shown in Table 23.1.2.2, three of these studies indicated that sex differences in depression are greater in countries with cultural traditions of gender equality, while one study (limited to 25 all-European countries) actually reported the opposite tendency.

Table 23.1.2.2 National gender equality and sex differences in depression

Nature of difference				*Post-pubertal*	
				Adult	
More gender equality, more sex differences				**INTERNATIONAL** *Multiple Countries*: Fischer, Rodriguez et al. 2004 (negative emotions, 37 countries); Hopcroft & Bradley 2007 (29 countries); RH Salk, Hyde & Abramson 2017 (90 countries); PB Smith, Easterbrook et al. 2020 (24 countries, N = 5,320)	
Not significant					
More gender equality, fewer sex differences				**EUROPE** *Multiple European Countries*: Van de Velde, Huijts, Bricke & Bambra 2013 (25 countries)	

23.1.2.3 National Gender Equality and Sex Differences in Self-Esteem

Chapter 13 summarized the large number of studies of sex differences in self-esteem, indicating that most studies have found male self-esteem surpassing that of females, especially after puberty. Table 23.1.2.3 summarizes findings from two studies that investigated how national gender equality seemed to be associated with self-esteem. Both studies indicated that countries with the greatest gender equality exhibited more sex differences in self-esteem.

Table 23.1.2.3 National gender equality and sex differences in self-esteem

Nature of difference					*Wide age range*
More gender equality, more sex differences					**INTERNATIONAL** *Multiple Countries*: Bleidorn, Arslan et al. 2016 (adolescents & adults, 48 countries, N = 985,937, internet sample); M Zuckerman, Li & Hall 2016 (derived from a meta-analysis of 1,148 studies according to the countries in which the original studies were conducted)
Not significant					
More gender equality, fewer sex differences					

23.1.2.4 National Gender Equality and Sex Differences in Happiness

Chapter 13 documented that the evidence of any sex differences in happiness or satisfaction with life is mixed, with a slight tendency for females to express higher levels than males. Table 23.1.2.4 shows that most studies have failed to document any association between national gender equality and sex differences in happiness.

Table 23.1.2.4 National gender equality and sex differences in happiness

Nature of difference			*Post-pubertal*		
				Adult	
More gender equality, more sex differences			**INTERNATIONAL** *Multiple European & North American Countries*: de Looze, Huijts et al. 2018 (ages 11-16, 34 countries, N = 175,470)	**INTERNATIONAL** *Multiple Countries*: Veira-Lima 2011	
Not significant				**INTERNATIONAL** *Multiple Countries*: Tesch-Romer et al. 2008 (57 countries, complex relationship varying according to cultural acceptance of gender inequality); Hori 2010:73 (33 countries, gender empowerment & female percent employed used to measure gender equality); Zweig 2015 (73 countries)	
More gender equality, fewer sex differences					

23.1.2.5 National Gender Equality and Sex Differences in Accurate Recognition of Emotional Expressions

As documented in Chapter 9, most studies have found that females are more accurate than males in terms of being able to quickly recognize and name the emotional expressions of others after viewing relevant photographs. One study, shown in Table 23.1.2.5, found that samples drawn from more gender-equal countries exhibited greater average sex differences in this regard than was the case for less gender-equal countries.

Table 23.1.2.5 National gender equality and sex differences in accurate recognition of emotion expressions

Nature of difference					*Wide age range*
More gender equality, more sex differences					**INTERNATIONAL** *Multiple Countries*: Merten 2005 (ages 11-78, N = 42,638, 13 countries, internet sample, gender empowerment measure of gender equality)
Not significant					
More gender equality, fewer sex differences					

23.1.3 National Gender Equality and Personality/Behavioral Sex Differences

The second group of tables having to do with national gender equality involve behavior and personality. One will see that these tables provide some interesting tentative answers to the question of whether national gender equality is correlated with sex differences in these types of traits.

When interpreting the studies to be reviewed under this section, certain features should be noted regarding directionality of the relationships. One is that studies of sex differences (or degrees of sex differences) in traits can go in "either direction," i.e., they can be different "favoring males" and they can be different "favoring females." To illustrate this *directionality issue*, say, there are two studies of sex differences, one involved Variable X and the other involving Variable Y. Assume that both studies are seeking to determine how these two variables are correlated with gender equality in the same 100 countries. Also, assume that sex differences in Variable X all indicated that in all 100 country there are either no sex differences at all or that males scored higher, albeit to varying degrees. In the case of Variable Y, however, assume that sex differences are evenly split between countries in which males are higher and females are higher, with the remaining countries reporting no significant differences.

With the above two hypothetical examples in mind, one can begin to see that problems sometimes arise when one seeks to determine how well a particular sex difference variable correlates with national gender equality. Specifically, while Variable X will always have sex differences deviating from zero *in the same direction*, Variable Y will have sex differences deviating from zero *in two directions*. One way to deal with this directionality problem would involve assigning both positive and negative scores to Variable X, although this approach would make specifically assessing how gender equality was related to any specific sex difference difficult using bivariate statistics, such as correlation. Stoet and Geary (2018:Figure 4) dealt with the problem by presenting a scatterplot containing points for all 74 countries in their analysis for gender equality and sex differences in a behavioral trait, which also contained a line demarcating where gender equality was zero.

23.1.3.1 National Gender Equality and Sex Differences in Personality in General

As noted in Chapter 9, based on factor analysis, numerous studies have concluded that there are five major dimensions to human personality (often called the *Big Five*). Table 23.1.3.1 presents the findings from studies pertaining to how national gender equality appears to correlate with sex differences in the big five considered together. One can see that, in all cases, sex differences in personality appear to be positively correlated with gender equality. In other words, the more different males and females are in overall personality, the more likely they are to reside in gender equal (as opposed to gender unequal) countries.

Table 23.1.3.1 National gender equality and sex differences in personality in general

Nature of difference				*Post-pubertal*	
				Adult	
More gender equality, more sex differences				**INTERNATIONAL** *Multiple Countries*: Costa, Terracciano & McCrae 2001 (26 countries, N = 23,031); Schmitt, Realo et al. 2008 (55 countries, N = 17,637); Weisberg, DeYoung, & Hirsh 2018; Mac Giolla & Kajorius 2018 (22 countries, r = .69 with Gender Equality Index); T Kaiser 2019:Table 2 (50 countries, N = 867,782, r = .44, largely eliminated after controlling for national economic development); Mac Giolla & Kajonius 2019 (22 countries, r = .69) **OVERVIEW** *Literature Review*: L Ellis 2018	
Not significant					
More gender equality, fewer sex differences					

23.1.3.2 National Gender Equality and Sex Differences in Altruism

As was noted in Chapter 16, the majority of studies of sex differences in altruism have reported that females tend to be more altruistic than males. Table 23.1.3.2 pertains to how national gender equality is associated with national sex differences in altruism. It shows that just one study was located, with results indicating that the greatest sex differences in risk-taking were found in the most gender-equal countries.

Table 23.1.3.2 National gender equality and sex differences in altruism

Nature of difference				*Post-pubertal*	
				Adult	
More gender equality, more sex differences				**INTERNATIONAL** *Multiple Countries*: Falk & Hermle 2018:Figure 1 (76 countries, N = 80,000, r = .51)	
Not significant					
More gender equality, fewer sex differences					

23.1.3.3 National Gender Equality and Sex Differences in Physical Aggression

Nearly all studies have documented greater physically aggression among males than among females, both in humans and in most other animals (see Chapters 17 and 19). Three studies were located that sought to determine if there was a relationship between national gender equality and sex differences in physical aggression. As shown in Table 23.1.3.3, the studies have not reached consistent conclusions. One reported that national gender equality was positively correlated with the sex differences in physical aggression, while the other study found national gender equality inversely correlated with sex differences in physical fighting.

Table 23.1.3.3 National gender equality and sex differences in physical aggression

Nature of difference	*Prepubertal*		*Post-pubertal*		
		Child	*Adolescent*		
More gender equality, more sex differences			**INTERNATIONAL** *Multiple Countries*: Nivette, Sutherland et al. 2019 (63 countries, N = 247,909)		
Not significant					
More gender equality, fewer sex differences		**EUROPE** *Switzerland*: Nivette, Eisner et al. 2014:Figure 2 (ages 7-13, large proportion of immigrants)	**INTERNATIONAL** *Multiple Countries*: de Looze, Elgar et al. 2019 (physical fighting, 36 countries, age 15, N = 71,255, r = .28)		

23.1.3.4 National Gender Equality and Sex Differences in Homicide Victimization Rates

Two studies reported research having to do with national gender equality and sex differences in homicide victimization rates. As shown in Table 23.1.3.4, one study revealed that homicide rates were lower in gender-equal countries than in gender-unequal countries. This was found to be the case for both females and male homicide victimization. The other study obtained similar results, but reported that the relationships became non-significant after statistically controlling for per capita gross domestic product, income inequality, and ethnic diversity.

Table 23.1.3.4 National gender equality and sex differences in homicide victimization rates

Nature of difference			*Post-pubertal*		
			Adolescent	*Adult*	
More gender equality, more sex differences			**INTERNATIONAL** *Multiple Countries*: Nivette, Southerland, Eisner & Murray 2019:Figure 3 (self-reported fighting frequency, N = 247,909, 63 countries)		
Not significant				**INTERNATIONAL** *Multiple Countries*: DS Chon 2016 (124 countries, after controlling for per capita GDP, income inequality, and ethnic diversity)	
More gender equality, fewer sex differences				**INTERNATIONAL** *Multiple Countries*: Valdimarsdottir 2018:95 (127 countries, male victims: r = .75, female victims: r = .72)	

23.1.3.5 National Gender Equality and Sex Differences in Intimate Partner Violence Victimization

As noted in Chapter 19, findings regarding sex differences in the commission (and victimization) of intimate partner violence is quite varied, depending in part on the severity of the injuries resulting from the violence (i.e., the more severe the injuries, the more likely the tendency for males to be the perpetrator tends to be). Table 23.1.3.5 shows that one study concluded that gender-equal countries tend to have greater male victimization and less female victimization rates.

Table 23.1.3.5 National gender equality and sex differences in intimate partner violence victimization

Nature of difference			*Post-pubertal*		
				Adult	
More gender equality, more sex differences				**INTERNATIONAL** *Multiple Countries*: Archer 2006 (16 countries, greater male victimization & less female victimization)	
Not significant					
More gender equality, fewer sex differences					

23.1.3.6 National Gender Equality and Sex Differences in Physical Activity

Chapter 16 provides documentation that males tend to be much more physically active than females. In Table 23.1.3.6, one can see that one study found that countries in which gender equality is most prevalent tend to be those in which sex differences in physical activity are the least.

Table 23.1.3.6 National gender equality and sex differences in physical activity

Nature of difference			*Post-pubertal*		
			Adolescent		
More gender equality, more sex differences					
Not significant					
More gender equality, fewer sex differences			**INTERNATIONAL** *Multiple Countries*: de Looze, Elger et al. 2019 (36 countries, age 15, N = 71,255)		

23.1.3.7 National Gender Equality and Sex Differences in Playing Chess

In one study, sex differences in the proportion of chess players in official tournaments were compared in a large number of countries relative to each country's relative degrees of gender equality. As shown in Table 23.1.3.7, the study indicated that greater proportions of female players were found in the countries with the *least* amount of gender equality.

Table 23.1.3.7 National gender equality and sex differences in playing chess

Nature of difference					*Wide age range*
More gender equality, more sex differences					**INTERNATIONAL** *Multiple Countries*: Vishkin 2022 (160 countries, N = 803,485)
Not significant					
More gender equality, fewer sex differences					

23.1.3.8 National Gender Equality and Sex Differences in Stereotyping

As discussed in Chapter 21, there are numerous clear differences in how males and females are stereotyped. One study sought to determine if countries in which the sexes are stereotyped the most tend to be gender equal or gender-unequal countries. In Table 23.1.3.8, one can see that no significant relationships were found, at least regarding occupational sex stereotypes.

Table 23.1.3.8 National gender equality and sex differences in stereotyping

Nature of difference			*Post-pubertal*		
				Adult	
More gender equality, more sex differences					
Not significant				**INTERNATIONAL** *Multiple Countries*: Froehlich, Olsson & Martiny 2020 (regarding sex differences in occupations, 10 countries, N = 1,918)	
More gender equality, fewer sex differences					

23.1.3.9 National Gender Equality and Sex Differences in Suicidal Behavior

As pointed out in Chapter 14, males tend to commit suicide more than do females. One study investigated how national gender equality might be correlated with national variations in suicide rates. Table 23.1.3.9 shows that the results suggest that as gender equality increases the sex differences in the commission of suicide also tend to increase.

Table 23.1.3.9 National gender equality and sex differences in suicidal behavior

Nature of difference					*Wide age range*
More gender equality, more sex differences					**INTERNATIONAL** *Multiple Countries*: Alothman & Fogarty 2020:Figure 3 (182 countries, r = .56)
Not significant					
More gender equality, fewer sex differences					

23.1.3.10 National Gender Equality and Sex Differences in Morality

Morality is obviously an important aspect of human personality, although it is not easily assessed as a unitary concept. Just one relevant study was located. Table 23.1.3.10 shows that it found that females appear to be higher regarding some aspects of morality, especially in the most gender-equal countries, but there are no sex differences for other aspects of morality.

Table 23.1.3.10 National gender equality and sex differences in morality

Nature of difference				*Post-pubertal*	
				Adult	
More gender equality, more sex differences in mortality				**INTERNATIONAL** *Multiple Countries*: Atari, Lai & Dehghani 2020* (67 countries, N = 336,691, regarding caring, fairness & purity aspects of morality, females higher)	
Not significant				**INTERNATIONAL** *Multiple Countries*: Atari, Lai & Dehghani 2020* (67 countries, N = 336,691, regarding loyalty & authority aspects of morality)	
More gender equality, fewer sex differences in mortality					

23.1.3.11 National Gender Equality and Sex Differences in Reciprocity

Reciprocity, both positive and negative, refers to a tendency to give others things that are roughly equivalent to what they have given you. As shown in Table 23.1.3.11, one study found sex differences in both forms of reciprocity to be greater in gender-equal countries than in gender-unequal countries.

Table 23.1.3.11 National gender equality and sex differences in reciprocity

Nature of difference				*Post-pubertal*	
				Adult	
More gender equality, more sex differences				**INTERNATIONAL** *Multiple Countries*: Falk & Hermle 2018:Figure 1 (both positive and negative, 76 countries, N = 80,000)	
Not significant					
More gender equality, fewer sex differences					

23.1.3.12 National Gender Equality and Sex Differences in Risk-Taking

As documented in Chapter 16, nearly all studies have concluded that males are more prone to take risks than are females. One study investigated how sex differences in risk-taking varied according to gender equality. Table 23.1.3.12 shows that this study indicated that gender-equal countries have greater differences than do gender-unequal countries.

Table 23.1.3.12 National gender equality and sex differences in risk-taking

Nature of difference				*Post-pubertal*	
				Adult	
More gender equality, more sex differences				**INTERNATIONAL** *Multiple Countries*: Falk & Hermle 2018:Figure 1 (76 countries, N = 80,000)	
Not significant					
More gender equality, fewer sex differences					

23.1.3.13 National Gender Equality and Sex Differences in Strength of One's Sex Drive

Chapter 17 documented stronger sex drives among males than among females. One study was used to determine if the degree to which this was true is greater or less among gender-equal countries. Table 23.1.3.13 shows that the study indicated that the differences seem to be greatest in countries with the lowest gender equality.

Table 23.1.3.13 National gender equality and sex differences in strength of sex drive

Nature of difference					*Wide age range*
More gender equality, more sex differences					
Not significant					
More gender equality, fewer sex differences					**INTERNATIONAL** *Multiple Countries*: Lippa 2007:Table 3 (53 countries, N = 255,114)

23.1.3.14 National Gender Equality and Sex Differences in Smoking Rates

One study was located that sought to determine if gender-equal countries had greater sex equality with respect to smoking rates. As one can see in Table 23.1.3.14, it found no significant relationship, at least among the 16 European countries sampled.

Table 23.1.3.14 National gender equality and sex differences in smoking rates

Nature of difference			*Post-pubertal*		
				Adult	
More gender equality, more sex differences					
Not significant				**EUROPE** *Multiple European Countries*: Pampel 2003 (16 countries)	
More gender equality, fewer sex differences					

23.1.3.15 National Gender Equality and Sex Differences in Trust of Others

Table 23.1.3.15 shows the findings from one study regarding sex differences in self-rated trust of others according to variations in national gender equality. This study reported that as gender equality increased, so too did sex differences in people's tendencies to trust one another.

Table 23.1.3.15 National gender equality and sex differences in trust of others

Nature of difference				*Post-pubertal*	
				Adult	
More gender equality, more sex differences				**INTERNATIONAL** *Multiple Countries*: Falk & Hermle 2018:Figure 1 (76 countries, N = 80,000)	
Not significant					
More gender equality, fewer sex differences					

23.1.4 National Gender Equality and Cognitive/Academic Sex Differences

Some research on national variations in gender equality traditions and laws have compared this variation to cognitive and academic sex differences. Results are presented below.

23.1.4.1 National Gender Equality and Sex Differences in Academic Performance

Two studies (by the same research team) were located having to do with academic performance in three areas: math, science, and reading. As shown in Table 23.1.4.1, one study concluded that there was no significant correlation between sex differences in academic performance and national gender equality, but the other study indicated that there were greater sex differences in countries with the greatest gender equality.

Table 23.1.4.1 National gender equality and sex differences in academic performance

Nature of difference			*Post-pubertal*		
			Adolescent		
More gender equality, more sex differences			**INTERNATIONAL** *Multiple Countries*: Stoet & Geary 2020:Table 3 (age 15, N = 969,673, 55 countries)		
Not significant			**INTERNATIONAL** *Multiple Countries*: Stoet & Geary 2015 (41-74 countries, depending on which gender equality index was used)		
More gender equality, fewer sex differences					

23.1.4.2 National Gender Equality and Sex Differences in Math Ability

Several studies have sought to determine if countries with the greatest gender equality policies and practices have fewer or greater sex differences in math scores among adolescent students. To put this issue into context, one may recall that in Chapter 12, research findings were shown to be inconsistent regarding sex differences in math ability or knowledge. Nonetheless, there was a tendency in most of the studies for males to surpass females, especially regarding the most advanced forms of mathematics.

Some social scientists have argued that the gender gap in mathematics should decline as societal gender equality becomes more prevalent (Hyde & Mertz 2009; Else-Quest et al. 2010; Kane & Mertz 2012). To test this hypothesis, studies in recent decades have utilized standardized math tests administered to students from many different countries along with measures of gender equality that that have been developed for those countries. For example, low gender-equality countries would include many countries in the Middle East and northern Africa, while high gender-equality countries would include those in Scandinavia. If the hypothesis is correct, one should observe fewer sex differences in the most gender-equal countries.

The relevant evidence is presented in Table 23.1.4.2. One can see that it is quite mixed. Some of the inconsistencies are likely due to the particular gender-equality measures used (e.g., sex differences in employment, educational opportunities, voting rights), the number of countries and time periods sampled, while others may be attributable to the complexity of math abilities measured (see Eriksson et al. 2020:11).

Table 23.1.4.2 National gender equality and sex differences in math ability

Nature of difference			*Post-pubertal*		
			Adolescent		
More gender equality, more sex differences			**INTERNATIONAL** *Multiple Countries*: Fryer & Levitt 2010:Figure 2 (34 countries); Nollenberger, Rodríguez-Planas & Sevilla 2016:Figure 1 (45 countries, r = .22, for second-generation immigrants to the Spain relative to the country-of-origin); Breda, Jouini & Napp 2019:Figure 1 (35 countries, r = .59); K Eriksson et al. 2020:Figure 2 (7-wave samples of 42, 47, 47 & 50 countries, PISA for 2003 through 2015)		
Not significant			**INTERNATIONAL** *Multiple Countries*: Machin & Pekkarinen 2008 (age 15, 10 countries, upper range of math abilities); GN Marks 2008:89 (31 countries, female workforce); Stoet & Geary 2013; Tao & Michalopoulos 2017* (age 15, 5-wave sample of 42,		

(*Continued*)

Table 23.1.4.2 (Continued)

Nature of difference			*Post-pubertal*		
			Adolescent		
			39, 55, 65 & 65 countries, from 2000 through 2012, no trend toward reduced sex differences as societies have become more gender equal)		
More gender equality, fewer sex differences			**INTERNATIONAL** *Multiple Countries*: DP Baker & Perkins Jones 1993 (8th graders, 19 countries, N = 77,602); Guiso, Monte et al. 2008:1164 (age 15, 10 countries, PISA for 2003); Else-Quest, Hyde & Linn 2010 (46 countries, ages 14-16, N = 219,612); JM Kane & Mertz 2012 (65 countries); Reilly 2012; Tao & Michalopoulos 2017* (age 15, 5-wave sample of 42, 39, 55, 65 & 65 countries, from 2000 through 2012)		

23.1.4.3 National Gender Equality and Sex Differences in Spatial Reasoning

As noted in Chapter 11, most studies have found males to be considerably better at spatial reasoning than females. Table 23.1.4.3 indicates that regarding national variations in gender equality, countries with relatively high gender equality tended to exhibit more average sex differences in mental rotation ability when compared to gender-unequal countries.

Table 23.1.4.3 National gender equality and sex differences in spatial reasoning

Nature of difference			*Post-pubertal*		
				Adult	
More gender equality, more sex differences				**INTERNATIONAL** *Multiple Countries*: Lippa, Collaer & Peters 2010 (53 countries); Coutrot, Silva et al. 2018:2862* (scores on Sea Hero Quest internet game, ages 19-80, N = 558,143, 57 countries, r = .62)	
Not significant					
More gender equality, fewer sex differences					

23.1.4.4 National Gender Equality and Sex Differences in Episodic Memory

Episodic memory refers to the ability to remember sequences of events, such as those contained in a story. As documented in Chapter 12, most studies indicate that this type of memory is better among females than

among males. Regarding the relationship between sex differences in episodic memory and national gender equality, Table 23.1.4.4 shows that the one pertinent study indicated that the differences were greater in gender-equal countries than in gender-unequal countries.

Table 23.1.4.4 National gender equality and sex differences in episodic memory

Nature of difference				*Post-pubertal*	
				Adult	
More gender equality, more sex differences				**INTERNATIONAL** *Multiple Countries*: Asperholm, Nagar et al. 2019 (54 countries, verbal episodic memory)	
Not significant					
More gender equality, fewer sex differences					

23.1.4.5 National Gender Equality and Sex Differences in Reading Ability

Research summarized in Chapter 11 indicated that females are better than males at reading. Some research has sought to determine if sex differences in reading ability was positively or negatively correlated with living in societies with high or low degrees of overall gender equality. Table 23.1.4.5 shows that the findings have not been consistent.

Table 23.1.4.5 National gender equality and sex differences in reading ability

Nature of difference			*Post-pubertal*		
			Adolescent	*Adult*	
More gender equality, more sex differences			**INTERNATIONAL** *Multiple Countries*: Guiso, Monte et al. 2008:1164 (age 15, 10 countries); D Reilly 2015 (61 countries, most gender equality measures)	**INTERNATIONAL** *Multiple Countries*: Fryer & Levitt 2010:Figure 2 (34 countries)	
Not significant					
More gender equality, fewer sex differences			**INTERNATIONAL** *Multiple Countries*: K Eriksson et al. 2020:Figure 2 (74 countries, with males catching up some)	**INTERNATIONAL** *Multiple Countries*: Stoet & Geary 2018 ($r = .30$, 62 countries, $N = 472{,}242$)	

23.1.4.6 National Gender Equality and Sex Differences in Science Knowledge

Research findings concerning the association between gender equality within countries and sex differences in science knowledge (or science literacy) among those same countries are shown in Table 23.1.4.6. One can see that the findings all indicate that greater sex differences are found in more gender-equal countries than in the unequal counterparts.

Table 23.1.4.6 National gender equality and sex differences in science knowledge

Nature of difference			*Post-pubertal*		
			Adolescent	*Adult*	
More gender equality, more sex differences			**INTERNATIONAL** *Multiple Countries*: K Eriksson et al. 2020:Figure 2 (74 countries, with males pulling further away in advanced countries)	**INTERNATIONAL** *Multiple Countries*: D Reilly 2012 (65 countries); Stoet & Geary 2018:Figure 3A (science literacy, 62 countries, N = 472,242, r = .23, M>F); D Reilly, Neumann & Andrews 2019a (45 countries, N = 261,738)	
Not significant					
More gender equality, fewer sex differences					

23.1.4.7 National Gender Equality and Percent of STEM Degrees Awarded to Women

Chapter 20 documents that males obtain more academic degrees in science, technology, engineering, and math (STEM) than do females. Two studies were located that sought to determine if this sex difference was associated with national variations in gender equality. Table 23.1.4.7 shows that one study indicated that greater proportions of women who are living in gender-equal countries are awarded STEM degrees than women living in gender-unequal countries, while the other study failed to identify a significant relationship in this regard.

23.1.4.8 National Gender Equality and Sex Differences in STEM Employment

Studies cited in Chapter 20 clearly indicated that males are more likely to be employed in STEM jobs than are females. Table 23.1.4.8 indicates that the fewest sex differences in STEM employment are found in countries with the greatest gender equality.

Table 23.1.4.7 National gender equality and percent of STEM degrees awarded to women

Nature of difference				*Post-pubertal*	
				Adult	
More gender equality, more sex differences					
Not significant				**INTERNATIONAL** *Multiple Countries*: SS Richardson, Reiches et al. 2020:Figure 1 (77 countries)	
More gender equality, fewer sex differences				**INTERNATIONAL** *Multiple Countries*: Stoet & Geary 2018:Figure 3b (percent of STEM degrees awarded to women, 62 countries, r = .47, N = 472,242)	

Table 23.1.4.8 National gender equality and sex differences in STEM employment

Nature of difference				*Post-pubertal*	
				Adult	
More gender equality, more sex differences					
Not significant					
More gender equality, fewer sex differences				**INTERNATIONAL** *Multiple Countries*: Stoet, Bailey et al. 2016 (68 countries, N = 761,655, parents of 15 year-olds)	

23.1.4.9 National Gender Equality and Sex Differences in Mental Illness

As noted in Chapter 14, mental illness tends to be more prevalent among females than among males, especially regarding depression and anxiety-related illnesses. One study investigated the possibility of sex differences in mental illness being related to gender equality. As shown in Table 23.1.4.9, sex differences were found to be greater in gender-equal countries than in gender-unequal countries.

Table 23.1.4.9 National gender equality and sex differences in mental illness

Nature of difference			*Post-pubertal*		
			Adolescent		
More gender equality, more sex differences			**INTERNATIONAL** *Multiple Countries*: OLK Campbell, Patalay & Bann 2021:Figures 2 & 3, Table 2 (73 countries, N = 566,829)		
Not significant					
More gender equality, fewer sex differences					

23.1.5 National Gender Equality and Sex Differences in Attitudes and Preferences

Various studies have assessed national gender equality with regard to sex differences in several types of attitudes and preferences. It is worth mentioning that there are two distinct theories that have been offered for why sex differences in attitudes and preferences would exist. One theory which is based on evolutionary reasoning, argues that males and females have different interests and preferences due to natural selection, given the different contributions that the sexes make to reproduction. Thus, because females can only reproduce by investing heavily in each offspring conceived, they should exhibit interests and preferences that promote this type of investment. These interests should include a greater bias toward mates who appear to be capable resource provisioners and a willingness to share (Schmitt 2015). Males, on the other hand, should exhibit greater interests and preferences associated with resource provisioning than do females (Ellis 2011b).

Social role theory, on the other hand, argues that sex differences in attitudes and preferences are learned through the socialization process (Eagly & Wood 1999). Basically, once an individual comes to recognize that he or she is either a male or a female, the individual gradually acquires interests and preferences that are consistent with that particular sex. Because countries in which gender equality is promoted most strongly, one should expect fewer sex differences in interests and attitudes in these countries than in countries in which the sharpest gender distinctions are made.

23.1.5.1 National Gender Equality and Sex Differences in Masculine-Feminine Interests in General

In one study, a large sample of Facebook users were surveyed regarding their interests (inferred on the basis of their search histories). As shown in Table 23.1.5.1, this study indicated that there were greater sex differences in overall masculine-feminine interests in gender-equal countries (e.g., Finland, Norway) than in gender-unequal countries (e.g., Iran, Lebanon). This pattern was greatest for interests for which the sex differences were the greatest.

23.1.5.2 National Gender Equality and Sex Differences in "Math Is for Boys" Stereotype

As documented in Chapter 21, many people believe that math is more of a male domain than a female domain. One study investigated the strength of this stereotype among adolescents living in 64 different countries. One can see in Table 23.1.5.2 that this stereotype was stronger in gender-equal countries than in gender-unequal countries.

Table 23.1.5.1 National gender equality and sex differences in masculine-feminine interests in general

Nature of difference					*Wide age range*
More gender equality, more sex differences					**INTERNATIONAL** *Multiple Countries*: Cuevas, Cuevas et al. 2021:Figure 3 (Facebook users, N = 45.397)
Not significant					
More gender equality, fewer sex differences					

Table 23.1.5.2 National gender equality and sex differences in "math is for boys" stereotype

Nature of difference			*Post-pubertal*		
			Adolescent		
More gender equality, more sex differences			**INTERNATIONAL** *Multiple Countries*: Breda, Joiuni et al. 2020 (64 countries, age 15, N = 300,000)		
Not significant					
More gender equality, fewer sex differences					

23.1.5.3 National Gender Equality and Sex Differences in Math Anxiety

Nearly all studies have found females expressing greater math anxiety than do males (as discussed in Chapter 10). As shown in Table 23.1.5.3, countries with relatively high degrees of gender equality have been shown to have greater sex differences in math anxiety than countries with the greatest degree of gender inequality.

Table 23.1.5.3 National gender equality and sex differences in math anxiety

Nature of difference			*Post-pubertal*		
			Adolescent		
More gender equality, more sex differences			**INTERNATIONAL** *Multiple Countries*: Else-Quest, Hyde, & Linn 2010 (46 countries, ages 14-16, N = 219,612); Stoet, Bailey et al. 2016:Figure 1A (age 15, 68 countries, N = 761,655)		
Not significant					
More gender equality, fewer sex differences					

23.1.5.4 National Gender Equality and Sex Differences in People-Oriented Occupational Interests

One study assessed the relationship between national variations in gender equality and sex differences in the preferences expressed by adolescents in people-oriented occupations. As shown in Table 23.1.5.4, the study indicated that gender equality countries exhibited greater sex differences in tendencies to prefer people-oriented occupations than was true for gender-unequal countries. The researchers conducting this study interpreted their findings as suggesting that gender-equal countries allow both sexes to more freely express their "natural" inclinations regarding occupational interests than in gender-unequal countries (Stoet & Geary 2022).

Table 23.1.5.4 National gender equality and sex differences in people-oriented occupational interests

Nature of difference			*Post-pubertal*		
			Adolescent		
More gender equality, more sex differences			**INTERNATIONAL** *Multiple Countries*: Stoet & Geary 2022:Figure 1 (80 countries, N = 473,260)		
Not significant					
More gender equality, fewer sex differences					

23.1.5.5 National Gender Equality and Sex Differences in STEM Occupational Interests

The same study that assessed how national gender equality was related to interests in people-oriented occupations also assessed sex differences in adolescent interests in STEM occupations (i.e., occupations having to do with science, technology, engineering and mathematics). Table 23.1.5.5 shows that the study indicated that as countries become more equal in how they treat males and females, the tendencies for males to prefer STEM occupations more than females increases.

23.1.5.6 National Gender Equality and Sex Differences in Valuing Benevolence

Relevant studies, summarized in Chapter 15, have concluded that females value benevolence as a trait more than do males. One study investigated whether this sex differences is truer for gender-equal countries or for gender-unequal countries. Table 23.1.5.6 shows that the sexes differed most in gender-equal countries.

Table 23.1.5.5 National gender equality and sex differences in STEM occupational interests

Nature of difference			*Post-pubertal*		
			Adolescent		
More gender equality, more sex differences			**INTERNATIONAL** *Multiple Countries*: Stoet & Geary 2022:Figure 1 (80 countries, N = 473,260)		
Not significant					
More gender equality, fewer sex differences					

Table 23.1.5.6 National gender equality and sex differences in valuing benevolence

Nature of difference				*Post-pubertal*	
				Adult	
More gender equality, more sex differences				**INTERNATIONAL** *Multiple Countries*: Schwartz & Rubel-Lifschitz 2009 (70 countries, N = 77,528, r = .70)	
Not significant					
More gender equality, fewer sex differences					

23.1.5.7 National Gender Equality and Sex Differences in Valuing Positive Reciprocity

One international study examined countries with varying degree of gender equality regarding the degree of sex differences in valuing what is known as positive reciprocity. As one can see in Table 23.1.5.7, this study found no significant indicated that gender-equal countries exhibited greater sex differences in this trait than was true for gender-unequal countries.

Table 23.1.5.7 National gender equality and sex differences in positive reciprocity

Nature of difference				*Post-pubertal*	
				Adult	
More gender equality, more sex differences					
Not significant				**INTERNATIONAL** *Multiple Countries*: Falk & Hermle 2018:Figure 1C (76 countries, N = ~80,000, r = .13, gender equal countries had slightly greater sex differences)	
More gender equality, fewer sex differences					

23.1.5.8 National Gender Equality and Sex Differences in Valuing Negative Reciprocity

So far, just one study has compared countries regarding possible sex differences in the tendency to value negative reciprocity (which is usually higher among males than among females). Table 23.1.5.8 shows that gender-equal countries exhibited greater sex differences in this trait than do gender-unequal countries.

Table 23.1.5.8 National gender equality and sex differences in negative reciprocity

Nature of difference				*Post-pubertal*	
				Adult	
More gender equality, more sex differences				**INTERNATIONAL** *Multiple Countries*: Falk & Hermle 2018:Figure 1C (76 countries, N = ~80,000, r = .40)	
Not significant					
More gender equality, fewer sex differences					

23.1.5.9 National Gender Equality and Sex Differences in Valuing Patience

People vary in the extent to which they value patience in themselves and others. As shown in Table 23.1.5.9, males and female appear to differ more in their valuing of this personal quality in gender-equal countries than in gender-unequal countries.

Table 23.1.5.9 National gender equality and sex differences in valuing patience

Nature of difference				*Post-pubertal*	
				Adult	
More gender equality, more sex differences				**INTERNATIONAL** *Multiple Countries*: Falk & Hermle 2018:Figure 1C (76 countries, N = ~80,000, r = .43)	
Not significant					
More gender equality, fewer sex differences					

23.1.5.10 National Gender Equality and Sex Differences in STEM Interests

Chapter 15 provided evidence that males express greater interest in studying and doing work in science, technology, engineering, and math

(STEM) than is true for females. One study investigated the possibility that this sex difference might vary according to the country in which the sexes were compared. As shown in Table 23.1.5.10, the study concluded that greater sex differences were found in gender-equal countries than in gender-unequal countries.

Table 23.1.5.10 National gender equality and sex differences in STEM interests

Nature of difference			*Post-pubertal*		
				Adult	
More gender equality, more sex differences				**INTERNATIONAL** *Multiple Countries*: Charles & Bradley 2009 (44 countries)	
Not significant					
More gender equality, fewer sex differences					

23.1.5.11 National Gender Equality and Sex Differences in Trusting of Others

According to available research, as shown in Chapter 15, females are more likely than males to trust others. One study investigated average sex differences in this respect relative to the gender equality common in those countries. As shown in Table 23.1.5.11, it indicated that there were greater sex differences in tendencies to trust others in the most gender-equal countries.

Table 23.1.5.11 National gender equality and sex differences in trusting of others

Nature of difference			*Post-pubertal*		
				Adult	
More gender equality, more sex differences				**INTERNATIONAL** *Multiple Countries*: Falk & Hermle 2018:Figure 1C (76 countries, N = ~80,000, r = .41)	
Not significant					
More gender equality, fewer sex differences					

23.1.5.12 National Gender Equality and Sex Differences in Basic Personal Values

The concept of *basic personal values* has to do with several principles to which people subscribe. Among these traits are ones involving altruism,

trust in others, desire for power, and a willingness to reciprocate in both positive and negative terms. As shown in Table 23.1.5.12, all of the available evidence indicates that sex differences in basic values were more different from one another in countries with the greatest gender equality policies and laws.

Table 23.1.5.12 National gender equality and sex differences in basic personal values

Nature of difference				*Post-pubertal*	
				Adult	
More gender equality, more sex differences				**EUROPE** *Multiple European Countries*: FF Connolly, Goossen & Hjerm 2020 (32 countries, between 2002 and 2016, N = 235,339, sexes are converging, especially regarding power, achievement, and benevolence) **INTERNATIONAL** *Multiple Countries*: Schwartz & Rubel 2005 (70 countries, N = 77,528); Schwartz & Rubel-Lifschitz 2009; A Falk & Hermle 2018:Figure 1D (76 countries, N = ~80,000, 6 fundamental values, r = .56)	
Not significant					
More gender equality, fewer sex differences					

23.1.5.13 National Gender Equality and Sex Differences in Valuing Power

Studies summarized in Chapter 15 have shown that males value power more than do females (Schwartz & Rubel 2005). In light of this sex difference, two studies sought to determine if the differences between males and females might be related to the gender equal of countries in which people live. Table 23.1.5.13 shows that the differences appear to be greater in gender-equal countries than in gender-unequal countries.

23.1.5.14 National Gender Equality and Sex Differences in Valuing Universality

Universalism as a value has to do with the extent to which individuals believe that all humans, and even all other creatures, should be treated equally. As documented in Chapter 15, most studies indicate that females value universalism to a greater degree than males. As shown in Table 23.1.5.14, sex differences tend to be greater in gender-equal countries than in gender-unequal countries.

Table 23.1.5.13 National gender equality and sex differences in valuing power

Nature of difference			*Post-pubertal*		*Wide age range*
				Adult	
More gender equality, more sex differences				**INTERNATIONAL** *Multiple Countries*: SH Schwartz & Rubel 2005:1023 (70 countries, N = 77.528, r = .61)	**EUROPE** *Multiple European Countries*: SH Schwartz & Rubel-Lifschitz 2009 (25 countries, ages 15 & older)
Not significant					
More gender equality, fewer sex differences					

Table 23.1.5.14 National gender equality and sex differences in valuing universality

Nature of difference			*Post-pubertal*		
				Adult	
More gender equality, more sex differences				**INTERNATIONAL** *Multiple Countries*: Schwartz & Rubel-Lifschitz 2009 (70 countries, N = 77,528)	
Not significant					
More gender equality, fewer sex differences					

23.1.5.15 National Gender Equality and Sex Differences in Moral Reasoning

One study was located pertaining to how national gender equality seems to be related to sex differences in moral reasoning. As shown in Table 23.1.5.15, it indicates that countries with the greatest degrees of gender equality have more (not less) average sex differences in moral reasoning.

23.1.5.16 National Gender Equality and Sex Differences in Narcissism

Research reviewed in Chapter 16 has indicated that males tend to be more narcissistic than females. Table 23.1.5.16 summarizes findings from a study of how sex differences in narcissism varies according to national variations in gender equality traditions. It indicates that males and females differ more in gender-equal countries than in gender-unequal countries.

Table 23.1.5.15 National gender equality and sex differences in moral reasoning

Nature of difference			*Post-pubertal*		
			Adolescent		
More gender equality, more sex differences			**INTERNATIONAL** *Multiple Countries*: Atari, Lai & Dehghani 2020:Table 4 (67 countries, N = 336,691)		
Not significant					
More gender equality, fewer sex differences					

Table 23.1.5.16 National gender equality and sex differences in narcissism

Nature of difference					*Wide age range*
More gender equality, more sex differences					**INTERNATIONAL** *Multiple Countries*: Schmitt, Alcalay et al. 2017 (53 countries); Jonason, Zemojtel-Piotrowski et al. 2020 (49 countries, N = 11,723)
Not significant					
More gender equality, fewer sex differences					

23.1.5.17 National Gender Equality and Sex Differences in Preference for Physically Attractive Mates

In Chapter 15, numerous studies were cited regarding sex differences in preferences for physical attractiveness in their mates, nearly all of which indicate that males express strong preferences for this mate selection criterion than do females. In this sex difference greater or less in countries relative to their tendencies regarding gender equality? As one can see in Table 23.1.5.17, the evidence has been mixed, with three studies indicating no significant correlation and one finding fewer sex differences in countries with the greatest degrees of gender equality.

23.1.5.18 National Gender Equality and Sex Differences in Preferences for Mates with Earnings Potential

Research findings cited in Chapter 15 clearly show that females are more likely than males to express a desire for mates (usually spouses) who exhibit a potential for making at least an adequate living. This has prompted a few researchers to try to determine if such sex differences tend to vary

Table 23.1.5.17 National gender equality and sex differences in preferences for physically attractive mates

Nature of difference				*Post-pubertal*	
				Adult	
More gender equality, more sex differences					
Not significant				**INTERNATIONAL** *Multiple Countries*: Lippa 2007a (53 countries, N = 119,733M + 98,462F, preference for physically attractive mates); Zhang, Lee et al. 2019 (36 countries, N = 3,073; preference for physical attractive mates); KV Walter, Conroy-Beam et al. 2020 (45 countries, N = 14,399, preference for physical attractive mates)	
More gender equality, fewer sex differences				**INTERNATIONAL** *Multiple Countries*: Eagly & Wood 1999* (37 countries, male preference for physical attractive mates)	

according to the country in which people live. Specifically, in gender-equal countries, are there lower tendencies for females to consider this criterion to be important when compared to gender-unequal countries? As one can see in Table 23.1.5.18, the evidence has been mixed.

Table 23.1.5.18 National gender equality and sex differences in preferences for mates with earnings potential

Nature of difference				*Post-pubertal*	
				Adult	
More gender equality, more sex differences					
Not significant				**INTERNATIONAL** *Multiple Countries*: Eagly & Wood 1999* (37 countries, preference for good earnings potential); Zentner & Mitura 2012* (Study 2: 31 countries, N = 8,052, female preference for good financial prospects); Zhang, Lee et al. 2019 (36 countries, N = 3,072; preferences for earnings potential); KV Walter, Conroy-Beam et al. 2020 (45 countries, N = 14,399, female preferences for earnings potential)	
More gender equality, fewer sex differences				**INTERNATIONAL** *Multiple Countries*: Kasser & Sharma 1999 (37 countries, N = 4,360M vs. 5,114F, preferences for mates with resource-acquiring skills); Zentner & Mitura 2012* (Study 1: 10 countries, N = 3,177, preference for good financial prospects)	

23.1.5.19 National Gender Equality and Sex Differences in Other Mate Preference Criteria

The two most widely documented sex differences in mate preferences are those having to do with physical attractiveness and with earnings potential. Nevertheless, as noted in Chapter 15, there are several other criteria that people usually have when it comes to any mate they may seek. Table 23.1.5.19 shows findings regarding how these other mate preference criteria appear to be related to national gender equality. One can see that the results have been mixed.

Table 23.1.5.19 National gender equality and sex differences in other mate preference criteria

Nature of difference			*Post-pubertal*		
				Adult	
More gender equality, more sex differences				**INTERNATIONAL** *Multiple Countries*: Schmitt et al. 2003; Falk & Hermle 2018a	
Not significant				**INTERNATIONAL** *Multiple Countries*: Zhang, Lee et al. 2019 (36 countries, N = 3,073, mates with domestic skills)	
More gender equality, fewer sex differences				**INTERNATIONAL** *Multiple Countries*: Eagly & Wood 1999* (37 countries, male preference for younger mates and mates with domestic skills); Zentner & Mitura 2012* (Study 1: 10 countries, N = 3,177, relative age preferences; Study 2: 31 countries, N = 8,052, relative age preferences); Conroy-Beam, Buss et al. 2015 (multiple mate preferences, 37 countries, N = 10,153, Gender Empowerment Measure); KV Walter, Conroy-Beam et al. 2020 (45 countries, N = 14,399, relative age preferences)	

23.1.5.20 National Gender Equality and Preference for Sons over Daughters

As noted in Chapter 15, people in many countries usually prefer to have boys rather than girls, especially for their first (or only) child. One study investigated the association between national gender equality and these son-preferring tendencies. Table 23.1.5.20 shows that, at least among European countries, the preference for boys was weaker in gender-equal countries. In other words, societies with the lowest gender equality (i.e., the greatest gender *in*equality) tended to have the strongest preferences for boys than for girls.

Table 23.1.5.20 National gender equality and preference for sons over daughters

Nature of difference				*Post-pubertal*	
				Adult	
More gender equality, stronger parental preferences for boys					
Not significant					
More gender equality, weaker parental preference for boys				**EUROPE** *Multiple European Countries*: M Mills & Begall 2010 (24 countries)	

23.1.5.21 National Gender Equality and Sex Differences in Interest in Sports

In Section 15.10.5, the tendency for males to be more interested in sports, especially regarding competitive team sports, was documented. One study was undertaken to determine if this sex difference was greater in gender equality countries relative to gender inequality countries. As shown in Table 23.1.5.21, the findings indicate that more distinct sex differences seem to exist in gender-equality countries.

Table 23.1.5.21 National gender equality and sex differences in interest in sports

Nature of difference				*Post-pubertal*	
				Adult	
More gender equality, more sex difference				**INTERNATIONAL** *Multiple Countries*: Balish, Deaner et al. 2016:11 (34 countries, N = 49.729, difference rather minimal)	
Not significant					
More gender equality, less sex difference					

23.1.6 National Gender Equality and Traits Not Directly Involving Sex Differences

This final category of studies in which *national gender equality* is treated as an independent variable involve studies in which sex difference traits are not dependent variables. Instead, the dependent variables have to do with traits such as overall income equality, ethnic diversity, and religiosity (regardless of sex).

23.1.6.1 National Gender Equality and Income Equality

In Table 23.1.6.1, the results of one study having to do with gender equality in countries correlated with the degree of overall income equality in those countries. One can see that the study reported a tendency for these two variables to be positively correlated.

Table 23.1.6.1 National gender equality and income equality

Nature of difference				*Post-pubertal*	
				Adult	
More gender equality, more income equality				**INTERNATIONAL** *Multiple Countries*: Valdimarsdottir 2018:Table 1 (127 countries, r = .51)	
Not significant					
More gender equality, less income equality					

23.1.6.2 National Gender Equality and per Capita Gross Domestic Product

Economists use the per capital gross domestic product (GDP) to estimate the overall wealth of countries (or other geographic regions). As shown in Table 23.1.6.2, one study reported that gender equality tends to be positively correlated with higher per capital GDP.

Table 23.1.6.2 National gender equality and per capita gross domestic product

Nature of difference				*Post-pubertal*	
				Adult	
More gender equality, higher PD-GDP				**INTERNATIONAL** *Multiple Countries*: Valdimarsdottir 2018:Table 1 (127 countries, r = .73)	
Not significant					
More gender equality, lower PD-GDP					

23.1.6.3 National Gender Equality and Ethnic Diversity

Ethnic diversity has to do with the degree to which countries are comprised of a wide mixture of ethnic groups. Table 23.1.6.3 shows that, according to one study, as ethnic diversity increases, gender equality tends to decrease.

Table 23.1.6.3 National gender equality and ethnic diversity

Nature of difference				*Post-pubertal*	
				Adult	
More gender equality, more ethnic diversity					
Not significant					
More gender equality, less ethnic diversity				**INTERNATIONAL** *Multiple Countries*: Valdimarsdottir 2018:Table 1 (127 countries, r = .65)	

23.1.6.4 National Gender Equality and Happiness

People's average degrees of happiness and satisfaction with life have been found to vary considerably from country to country. One study investigated the possibility of national gender equality being correlated with these average ratings. Table 23.1.6.4 shows that there appears to be a positive correlation in the sense that the most gender-equal countries were those in which one find relatively high ratings for quality of life.

Table 23.1.6.4 National gender equality and happiness

Nature of difference				*Post-pubertal*	
				Adult	
More gender equality, greater happiness				**INTERNATIONAL** *Multiple Countries*: Zuckerman, Li & Diener 2017:Table 1 (self-rated quality of life, N = 134, r = .36)	
Not significant					
More gender equality, less happiness					

23.1.6.5 National Gender Equality and Religiosity

One research team sought to determine if traditions and laws favoring national gender equality were correlated with national variations in religiosity. As shown in Table 23.1.6.5, the study indicated that countries with the highest proportions of highly religious people also had the highest degree of gender inequality.

Table 23.1.6.5 National gender equality and religiosity

Nature of difference				*Post-pubertal*	
				Adult	
More gender equality, greater religiosity					
Not significant					
More gender equality, less religiosity				**INTERNATIONAL** *Multiple Countries*: Zuckerman, Li & Diener 2017:Table 1 (N = 133, r = .55)	

23.1.6.6 National Gender Equality and Social Dominance Orientation (Hegemony)

Social dominance orientation (*SDO*), also known as *hegemony*, refers to authority and dominance that one social group or society has over another. The type of dominance can be cultural, economic, political, or military in nature. Basically, SDO is an aspect of people's personality (Pratto, Sidanius et al. 1994), average values for which can be compared between countries (Kunst, Fischer et al. 2017). Table 23.1.6.6 shows that one study found a substantial tendency for people living in the most gender-equal countries to have lower SDO scores than those living in the most gender-unequal countries.

Table 23.1.6.6 National gender equality and social dominance orientation (hegemony)

Nature of difference			*Post-pubertal*	
			Adult	
More gender equality, high SDO scores				
Not significant				
More gender equality, lower SDO scores			**INTERNATIONAL** *Multiple Countries*: Kunst, Fischer, Sidaniuse, & Thomsen 2017:Table 1 (27 countries, r = .46)	

23.1.6.7 National Gender Equality and the Availability of Governmental Services

Countries certainly vary in terms of the availability of governmental services. As a rule, the more socialist countries provide more services than do

the more free-enterprise countries. As shown in Table 23.1.6.7, one study investigated the possibility of a correlation between countries with traditions of gender equality and the availability of governmental services provided in these countries. One can see that these two national characteristics appear to be positively correlated.

Table 23.1.6.7 National gender equality and the availability of governmental services

Nature of difference				*Post-pubertal*	
				Adult	
More gender equality, more services available				**INTERNATIONAL** *Multiple Countries*: Zuckerman, Li & Diener 2017:Table 1 (N = 127, r = .55)	
Not significant					
More gender equality, less services available					

23.1.6.8 National Gender Equality and Gender Stereotyping

One study assessed the degree to which national gender equality appeared to be associated with gender stereotyping regarding sex differences in math ability. As one can see in Table 23.1.6.8, the study indicated that the most gender-equal countries in terms of traditions and laws tended to be the most likely to hold strong stereotypes about sex differences in people's ability to do well in mathematics.

Table 23.1.6.8 National gender equality and gender stereotyping

Nature of difference				*Post-pubertal*	
				Adult	
More gender equality, more gender stereotyping				**INTERNATIONAL** *Multiple Countries*: Breda, Jouini et al. 2020:31965 (GGGI, gender-math stereotyping, N = 59, r = .43)	
Not significant					
More gender equality, less gender stereotyping					

23.1.6.9 National Gender Equality and Gendered Naming

According to one study, while there are certainly exceptions, the names given to males tend to contain harder (or harsher) sounds than do the names normally given to females. In other words, names such a Bob, Richard, and John are harder sounding than names such as Marsha, Suzie, and Jill. This study went on to indicate that males in gender-equal countries were more likely to have harder sounding names, and females in these countries were more likely to have softer sounding names, than were males and females living in gender-unequal countries. (Table 23.1.6.9).

Table 23.1.6.9 National gender equality and gender stereotyping

Nature of difference			*Post-pubertal*		
				Adult	
More gender equality, more gender stereotyping				**INTERNATIONAL** *Multiple Countries*: Vishkin, Slepian & Galinsky 2021	
Not significant					
More gender equality, less gender stereotyping					

23.1.6.10 National Gender Equality and Percent Urban

The percent of a country that is classified as *urban dwellers* provides a rough estimate of the proportion of its population who live in large cities (as opposed to towns and rural areas). As shown in Table 23.1.6.10, one study concluded that the percentage of urban dwellers in countries is positively correlated with their degree of gender equality.

Table 23.1.6.10 National gender equality and percent urban

Nature of difference			*Post-pubertal*		
				Adult	
More gender equality, high percent urban				**INTERNATIONAL** *Multiple Countries*: Valdimarsdottir 2018:Table 1 (127 countries, r = .65)	
Not significant					
More gender equality, lower percent urban					

23.2 Economic Development or National Wealth per Capita

Some research has sought to determine if sex differences in various traits are correlated with economic development in the countries where those sex differences are found. The most common measures of economic development are *per capita gross domestic product* (or *per capita GDP*) and *per capita income*.

In considering these studies, readers should bear in mind that a nation's level of economic development and its tendency to promote gender equality (as discussed in the preceding section) appear to be closely correlated (Graham & Chattopadhyry 2013). For example, one study found the correlation between per capita income and gender equality to be r = .78 (Lippa 2007:Table 1). Due to this relationship, most correlations between economic development and sex differences in traits of persons living in these countries are likely to resemble one another.

23.2.1 Economic Development and Sex Differences in Personality and Behavior

Some research has assessed the degree to which the economic development in countries is related to sex differences in the personalities and behaviors of people living in those countries. Findings are summarized below.

23.2.1.1 Economic Development and Sex Differences in Personality

Using per capita wealth as its indicator of economic development, one study assessed the relationships between economic development in countries and the degree to which the citizens of those countries were similar in terms of average sex differences in the Big Five personality traits. One can see in Table 23.2.1.1 that both of the two studies conducted concluded that the countries with the most economic development had the greatest average sex differences in personality.

Table 23.2.1.1 Economic development and sex differences in personality

Nature of difference				*Post-pubertal*	
				Adult	
Higher economic development, more sex difference				**INTERNATIONAL** *Multiple Countries*: Costa et al. 2001 (23 countries, per capita wealth); T Kaiser 2019:Table 2 (50 countries, N = 867,782)	
Not significant					
Higher economic development, fewer sex difference					

23.2.1.2 Economic Development and Sex Differences in Altruism

As documented in Chapter 16, nearly all studies have found females to be more altruistic than males. One study examined the possibility of sex differences in altruism being associated with national per capita income. As one can see in Table 23.2.1.2, a positive correlation between a country's economic development and the degree to which females are more altruistic than males in those countries was found.

Table 23.2.1.2 Economic development and sex differences in altruism

Nature of difference			*Post-pubertal*		
				Adult	
Higher economic development, more sex difference				**INTERNATIONAL** *Multiple Countries*: Falk & Hermle 2018:Figure 1A (76 countries, r = .58)	
Not significant					
Higher economic development, fewer sex difference					

23.2.1.3 Economic Development and Sex Differences in Emotionality

One study correlated national economic development with sex differences in emotionality, as assessed by people's proneness to cry often. Table 23.2.1.3 shows that this study indicated that sex differences were greater in wealthy countries than in poor countries.

Table 23.2.1.3 Economic development and sex differences in overall emotionality

Nature of difference			*Post-pubertal*		
				Adult	
Higher economic development, more sex difference				**INTERNATIONAL** *Multiple Countries*: van Hemert, van de Vijver & Vingerhoets 2011 (37 countries, gender empowerment measure, crying proneness)	
Not significant					
Higher economic development, fewer sex difference					

23.2.1.4 Economic Development and Sex Differences in Narcissism

In Chapter 16, studies were summarized regarding sex differences in narcissism, nearly all of which found that males are more narcissistic than females. As shown in Table 23.2.1.4, one study correlated sex differences in narcissism with the degree to which the countries in which they lived had well-developed economies. One can see the results of this study indicated that the greatest sex differences were found in the countries with the greatest economic development.

Table 23.2.1.4 Economic development and sex differences in narcissism

Nature of difference			*Post-pubertal*		
				Adult	
Higher economic development, more sex difference				**INTERNATIONAL** *Multiple Countries*: PK Jonason et al. 2020 (49 countries, N = 11.723, women less narcissistic than in developing economies)	
Not significant					
Higher economic development, fewer sex difference					

23.2.1.5 Economic Development and Sex Differences in Risk-Taking

In Chapter 16, studies were summarized regarding sex differences in risk-taking, most of which have concluded that males are more prone to take risks than females. Table 23.2.1.5 shows that one study investigated the average sex difference in risk-taking relative to how well developed the economy was in the countries in which they lived. It concluded that men and women with the greatest sex differences in risk-taking usually lived in the countries with the most economically developed economies.

Table 23.2.1.5 Economic development and sex differences in risk-taking.

Nature of difference			*Post-pubertal*		
				Adult	
Higher economic development, more sex difference				**INTERNATIONAL** *Multiple Countries*: Falk & Hermle 2018:Figure 1A (76 countries, r = .37)	
Not significant					
Higher economic development, fewer sex difference					

23.2.1.6 Economic Development and Sex Differences in Positive Reciprocity

Positive reciprocity means that one rewards others for their acts of kindness. Table 23.2.1.6 shows that one study found that sex differences in the tendency to be positively reciprocal were usually greater in the most highly developed economies.

Table 23.2.1.6 Economic development and sex differences in positive reciprocity

Nature of difference				*Post-pubertal*	
				Adult	
Higher economic development, more sex difference				**INTERNATIONAL** *Multiple Countries*: Falk & Hermle 2018:Figure 1A (76 countries, r = .31)	
Not significant					
Higher economic development, fewer sex difference					

23.2.1.7 Economic Development and Sex Differences in Negative Reciprocity

Negative reciprocity refers to punishing others for actions that are considered unpleasant. As shown in Table 23.2.1.7, the study cited in the preceding table regarding positive reciprocity also reported greater tendencies toward negative reciprocity in countries with the most highly developed economies.

Table 23.2.1.7 Economic development and sex differences in negative reciprocity

Nature of difference				*Post-pubertal*	
				Adult	
Higher economic development, more sex difference				**INTERNATIONAL** *Multiple Countries*: Falk & Hermle 2018:Figure 1A (76 countries, r = .35)	
Not significant					
Higher economic development, fewer sex difference					

23.2.2 Economic Development and Cognitive and Attitudinal Sex Differences

Several studies that have examined how national economic development might be related to average sex differences in traits within each country are ones having to do with cognition and attitudes. Results from these studies are summarized below.

23.2.2.1 Economic Development and Sex Differences in Spatial Reasoning

Three studies were located having to do with average sex differences in spatial reasoning relative to the economic development of the countries in which those tested lived. As shown in Table 23.2.2.1, all three studies concluded that the more highly developed countries (usually measured in terms of per capita gross domestic product) exhibited greater degrees of sex differences in spatial reasoning than did relatively under-developed countries.

Table 23.2.2.1 Economic development and sex differences in spatial reasoning

Nature of difference				*Post-pubertal*	
				Adult	
Higher economic development, more sex difference				**INTERNATIONAL** *Multiple Countries*: Lippa, Collaer & Peters 2010 (53 countries); D Reilly 2012 (differences greatest in wealthier countries); Coutrot, Silva et al. 2018:2862 (scores on Sea Hero Quest, ages 19-80, N = 558,143, 57 countries, r = .69, per capita GDP)	
Not significant					
Higher economic development, fewer sex difference					

23.2.2.2 Economic Development and Sex Differences in Liking Math and Science

As noted in Chapter 15, nearly all studies have found that males enjoy math and science (and expressed more interests in math-laden occupations) than do females. One study assessed the relationship between economic development and the extent to which there are sex differences in liking math and science. Table 23.2.2.2 shows that the study found there are greater sex differences in highly developed countries than in less developed countries.

Table 23.2.2.2 Economic development and sex differences in liking math and science

Nature of difference			*Post-pubertal*		
				Adult	
Higher economic development, more sex difference				**INTERNATIONAL** *Multiple Countries*: Charles & Bradley 2009:Table 5 (44 countries)	
Not significant					
Higher economic development, fewer sex difference					

23.2.2.3 Economic Development and Sex Differences in Happiness

Evidence reviewed in Chapter 13 reveals that the evidence is quite mixed regarding sex differences in happiness, although a slight majority of studies point toward females being happier than males. A few international studies were located having to do with average sex differences in happiness and economic development of the countries in which males and females live. In other words, these studies sought to determine if there are greater or lesser sex differences in happiness in highly developed (wealthy) countries or in under-developed (poor) countries. As shown in Table 23.2.2.3, all but one of the studies indicate that the more advanced economies usually have larger sex differences in happiness (with females being happier than males) while under-developed economies typically exhibit smaller sex differences in happiness.

Table 23.2.2.3 Economic development and sex differences in happiness

Nature of difference			*Post-pubertal*		
				Adult	
Higher economic development, more sex difference				**INTERNATIONAL** *Multiple Countries*: C Graham 2009; Zuckerman, Li & Diener 2017 (N = 133); Veira-Lima 2011 (85 countries); C Graham & Chattopadhyay 2013 (160 countries); Meisenberg & Woodley 2015 (90 countries, females higher); Nicola & Lima 2015:11 (85 countries)	
Not significant				**INTERNATIONAL** *Multiple Countries*: Zweig 2015 (73 countries)	
Higher economic development, fewer sex difference					

23.2.2.4 Economic Development and Sex Differences in Self-Esteem

As noted in Chapter 13, most, but certainly not all, studies have reported males having higher self-esteem than females. One study was located that sought to determine if sex differences were related to a country's degree of economic development. Table 23.2.2.4 shows that the study concluded that the sex differences were greater in the countries with the greatest economic development.

Table 23.2.2.4 Economic development and sex differences in self-esteem

Nature of difference					*Wide age range*
Higher economic development, more sex difference					**INTERNATIONAL** *Multiple Countries*: Bleidorn, Arslan et al. 2016 (adolescents & adults, 48 countries, N = 985,937, internet sample, per capita GDP, Gini index, human development index); Zuckerman, Li & Hall 2016 (meta-analyses of 1,148 studies from numerous countries)
Not significant					
Higher economic development, fewer sex difference					

23.2.2.5 Economic Development and Sex Differences in Trust of Others

In one study, researchers sought to determine if sex differences in people's tendencies to trust others was correlated with the degree of economic development in the countries studied. Table 23.2.2.5 shows that the study indicated that sex differences in tendencies to trust others were greater in the most highly developed economies.

Table 23.2.2.5 Economic development and sex differences in trust of others

Nature of difference			*Post-pubertal*		
				Adult	
More economic development, more sex difference				**INTERNATIONAL** *Multiple Countries*: Falk & Hermle 2018:Figure 1A (76 countries, r = .59)	
Not significant					
More economic development, fewer sex difference					

23.2.2.6 Economic Development and Sex Differences in Basic Values

The concept of basic values refers to a composite of several traits that people hold in high regard. Among these traits are those having to do with altruism, trust in others, patients, and a willingness to reciprocate in both positive and negative terms. Table 23.2.2.6 reveals that just one study of sex differences in basic values was located with regard to national economic development (as measured by per capita GDP). It indicated that one finds greater average sex differences in the most developed countries.

Table 23.2.2.6 Economic development and sex differences in basic values

Nature of difference				*Post-pubertal*	
				Adult	
Higher economic development, more sex difference				**INTERNATIONAL** *Multiple Countries*: Falk & Hermle 2018:Figure 1B (76 countries, r = .67)	
Not significant					
Higher economic development, fewer sex difference					

23.2.2.7 Economic Development and Mental Health

As noted in Chapter 14, most, but not all, studies have found females having more mental illness than males (especially regarding depression). Table 23.2.2.7 shows the results of two studies undertaken to see if there are more or fewer sex differences in economically well-developed countries. One can see that both studies found greater sex differences in the most developed countries.

Table 23.2.2.7 Economic development and mental health

Nature of difference				*Post-pubertal*	
				Adult	
Higher economic development, more sex difference				**INTERNATIONAL** *Multiple Countries*: Hopcroft & Bradley 2007 (29 countries, depression); OLK Campbell, Patalay & Bann 2021:Figures 2 & 3, Table 2 (GDP per capita, 73 countries, N = 566,829)	
Not significant					
Higher economic development, fewer sex difference					

23.2.2.8 Economic Development and Preference for Sons over Daughters

In Chapter 15, research was reviewed regarding preferences for having sons over daughters. Most studies have found stronger preferences for sons, at least in countries where preferences were not equal. Table 23.2.2.8 shows that one study compared countries in terms of having a son preference and reported that it was strongest in countries with relatively poor economic development.

Table 23.2.2.8 Economic development and preference for sons over daughters

Nature of difference				*Post-pubertal*	
				Adult	
Higher economic development, stronger son preference					
Not significant					
Higher economic development, weaker son preference				**EUROPE** *Multiple European Countries*: M Mills & Begall 2010 (26 countries)	

23.2.3 Economic Development and Sex Division of Labor

Some studies have assessed how economic development seems to be associated with sex division of labor. Findings are summarized below.

23.2.3.1 Economic Development and Percent of Females in the Workforce

One study was located having to do with whether economic development was correlated with the extent to which males and females were found in the workforce. As shown in Table 23.2.3.1, the proportion of females in the workforce was found to be lower in highly developed economies than in less developed economies.

Table 23.2.3.1 Economic development and percent of females in the workforce

Nature of difference				*Post-pubertal*	
				Adult	
Higher economic development, more females					
Not significant					
Higher economic development, fewer females				**INTERNATIONAL** *Multiple Countries*: Charles & Bradley 2009:Figure 2 (44 countries)	

23.2.3.2 Economic Development and Percent of Females in Various Occupations

A few studies obtained information regarding national variations in occupations that happen to require above average academic training. These studies compared the degree to which females held positions within these occupations relative to the extent to which each country was highly advanced economically (as measured by per capita gross domestic product).

As shown in Table 23.2.3.2, the study found somewhat inconsistent results, depending on the type of occupations involved. For work in the humanities as well as in the social and health sciences, the highest percent of females were found in the most economically advanced countries. However, for work in engineering, mathematics, computer science, and the natural sciences, five different studies all concluded that the percent of workers who were females was actually greater in the *least* economically advanced countries.

Table 23.2.3.2 Economic development and percent of females in various occupations

Nature of difference				*Post-pubertal*	
				Adult	
Higher economic development, greater proportions of females				**INTERNATIONAL** *Multiple Countries*: Charles & Bradley 2009:945* (in humanities, social sciences, & health sciences)	
Not significant					
Lower economic development, greater proportions of females				**INTERNATIONAL** *Multiple Countries*: Blackburn, Jarman & Brooks 2000; K Bradley 2000:9; Charles & Grusky 2004; Charles & Bradley 2006 (in computer science); Charles & Bradley 2009:944* (in engineering, math & natural sciences)	

23.2.4 Economic Development and Other Sex Differences

Does national economic development have any relationships with any other types of sex differences? The limited evidence in this regard is summarized below.

23.2.4.1 Economic Development and Sex Differences in the 2D:4D Ratio

In one study, economic development in 29 countries were correlated with the average sex differences in 2D:4D finger length ratio in those same countries. Table 23.2.4.1 shows that this study concluded that high economic development was positively correlated with greater sex differences in 2D:4D.

Table 23.2.4.1 Economic development and sex differences in the 2D:4D ratio

Nature of difference			*Post-pubertal*		
				Adult	
Higher economic development, more sex difference				**INTERNATIONAL** *Multiple Countries*: Manning, Fink, & Trivers 2014:766 (29 countries, N = 158,753)	
Not significant					
Higher economic development, fewer sex difference					

23.2.4.2 Economic Development and Sex Differences in Strength of Sex Drive

One study assessed the extent to which people living in well-developed versus under-developed countries compared regarding their self-rated sex drives. As shown in Table 23.2.4.2, the study concluded that in the 53 countries included in the study, more economically developed countries rated the strength of their sex drives lower than did those in under-developed countries.

Table 23.2.4.2 Economic development and sex differences in strength of sex drive

Nature of difference					*Wide age range*
More economic development, more sex difference					
Not significant					
More economic development, fewer sex difference					**INTERNATIONAL** *Multiple Countries*: Lippa 2007:Table 3 (53 countries, N = 255,114)

23.3 Residual Ecological Factors

Economic equality (regardless of sex) is typically measured with what is known as the *Gini Index*. This index estimates a country's (or some other geographic entity's) income equality. Values for the Gini Index can range from 0.00 (meaning no inequality at all) to 1.00 (meaning the maximum inequality possible). More precisely, the first number would indicate that

every adult (or family unit) in a country has exactly the same income, while the second number represents the maximum degree of income inequality that is mathematically possible. Of course, no country has a Gini Index at either of these two extremes. Nevertheless, there are substantial national variations.

Generally, Scandinavian countries have the lowest Gini Indexes (i.e., in the low .20s), while the countries with the highest indexes are those in Africa and South America (i.e., in the .50s). For comparison, countries such as Britain and the United States have indexes in the low-to-mid .40s (Zhou, Biswas et al. 2011:Table A1; Hu, van Lenthe, & Mackenbach 2015). The following section examines studies how economic inequality appears to be correlated with sex differences in various traits.

23.3.1 Income Inequality and Sex Differences

To what degree is general income inequality related to sex differences in various traits? Studies undertaken to address this question are summarized below.

23.3.1.1 Income Inequality and Sex Differences in Life Expectancy

One study compared countries regarding sex differences in life expectancy and the degree of income inequality. Results, summarized in Table 23.3.1.1, indicate that as income equality increases, the tendency for females to outlive males also tends to increase.

Table 23.3.1.1 Income inequality and sex differences in life expectancy

Nature of difference					*Wide age range*
More economic equality, more sex differences					**INTERNATIONAL** *Multiple Countries*: Clark & Peck 2012:12 (Gini index)
Not significant					
More economic equality, fewer sex differences					

23.3.1.2 Income Inequality and Sex Differences in Physical Aggression

In one study, national sex differences in physical aggression were correlated with income inequality in those countries. Table 23.3.1.2 shows that no significant relationship was found.

Table 23.3.1.2 Income inequality and sex differences in physical aggression

Nature of difference			*Post-pubertal*		
			Adolescent		
More economic equality, more sex differences					
Not significant			**INTERNATIONAL** *Multiple Countries*: Nivette, Sutherland et al. 2019 (63 countries, N = 247,909)		
More economic equality, fewer sex differences					

23.3.1.3 Income Inequality and Sex Differences in Self-Esteem

An ecological study of sex differences in self-esteem was undertaken to determine if it was correlated with income inequality. As shown in Table 23.3.1.3, the study found that as economic equality rose, so did sex differences in self-esteem (with males being higher in the latter).

Table 23.3.1.3 Income inequality and sex differences in self-esteem

Nature of difference					*Wide age range*
More economic equality, more sex differences					**INTERNATIONAL** *Multiple Countries*: Bleidorn, Arslan et al. 2016 (adolescents & adults, 48 countries, N = 985,937, internet sample, Gini index, human development index)
Not significant					
More economic equality, fewer sex differences					

23.3.2 National Individualism and Sex Differences

As a generalization, people in some societies are more individualistic, while in other societies, they tend to be more collectivist. Research indicates that people living in most Western societies fit into the individualistic category, while those from Asian countries are more collectivist in orientation (Green, Deschamps & Paez 2005; Power, Schoenherr & Samson 2010). The present brief section summarizes findings of how sexes may differ from one another based on whether the individuals are living in individualist or in collectivist countries.

23.3.2.1 National Individualism and Sex Differences in Emotionality

In two studies, researchers sought to determine if sex differences in emotionality (with females usually being more emotional than males) was higher in individualist countries as opposed to collectivist countries. One can see in Table 23.3.2.1 that both studies concluded that sex differences in emotionality was greater in highly individualistic countries.

Table 23.3.2.1 National individualism and sex differences in emotionality

Nature of difference				*Post-pubertal*	
				Adult	
More individualism, more sex differences				**INTERNATIONAL** *Multiple Countries*: Fischer & Manstead 2000 (37 countries); Singh-Manoux 2000:93 (3 countries)	
Not significant					
More individualism, fewer sex differences					

23.3.2.2 National Individualism and Sex Differences in Morality

Sex differences in overall morality scores were compared in countries where individualism was highly valued relative to where collectivism was highly valued. One can see in Table 23.3.2.2 that the study concluded that as individualism rose, sex differences in morality also rose.

Table 23.3.2.2 National Individualism and sex differences in morality

Nature of difference				*Post-pubertal*	
				Adult	
More pronounced sex differences in Western countries				**INTERNATIONAL** *Multiple Countries*: Atari, Lai & Dehghani 2020 (67 countries, N = 336,691females higher)	
Not significant					
Less pronounced sex differences in Western countries					

23.3.2.3 National Individualism and Sex Differences in Intimate Partner Violence Perpetration

In one study, sex differences in the commission of intimate partner violence (with males being more violent than females) were examined in

individualistic (vs. collectivist) countries. Table 23.3.2.3 shows that the study concluded that greater sex differences in such violence were found in individualistic countries.

Table 23.3.2.3 National individualism and sex differences in intimate partner violence perpetration

Nature of difference				*Post-pubertal*	
				Adult	
More individualism, more sex differences				**INTERNATIONAL** *Multiple Countries*: Archer 2006 (16 countries, greater male victimization & lesser female victimization)	
Not significant					
More individualism, fewer sex differences					

23.3.3 Percent of Males in Countries and Sex Differences

Ecological studies have addressed two topics having to do with variables related to population level sex ratios. Of course, most populations consist of roughly half males and half females. Nevertheless, there are significant variations from a 50:50 ratio due to such factors as minor sex differences in birth rates (discussed in Chapter 1), in rates of death (discussed in Chapter 5), and in emigration (discussed in Chapter 20).

Sex ratios are typically expressed either as percentages of males or as ratios of *N males for every 100 females*. In the two tables appearing below, the percent-male statistic is used.

23.3.3.1 Ecological Percent of Males and Crime Rates

Why might there be any association between the percentage of males in populations and crime rates in those populations? Some of the theoretical reasoning can be summarized with two propositions: First, males have considerably higher rates of crime throughout the world, especially regarding repeated commission of serious violent offenses (discussed in Chapter 19). Second, many crimes seem to involve competition between males for resources and/or for mates. For both of these reasons, as the proportion of a population that is male increases, so too should the population's crime rate.

Table 23.3.3.1 provides a summary of studies of geographic variations in crime rates relative to the sex ratios in each of those geographic regions. In most cases, the geographic populations compared are countries, although in some cases, provinces and states within countries are the units of analysis.

Table 23.3.3.1 Ecological percent of males and crime rates

Nature of Difference	*Citation*
Positive	**ASIA** *China*: Edlund et al. 2007 (provinces, ages 16-25, both violent & property crime); Trent & Smith 2012 (1,338 women living in 37 large cities, self-reported rape victimization); Edlund et al. 2013 (crime in general); *India*: Oldenburg 1992 (provinces, violent crimes); Dreze & Khera 2000:341 (provinces, murder rates) **EUROPE** *Netherlands*: Van Wilsen et al. 2006:238* (governing districts, violent crime rates) **NORTH AMERICA** *United States*: Avakame 1999a (census tracts, homicide of females); Gazel et al. 2001:69* (violent, counties); Titterington 2006:221 (large cities, homicide of females); D'Alessio & Stolzenberg 2010 (large metropolitan areas, rates of partner violence against women); Kubrin & Ishizawa 2012:162* (Los Angeles neighborhoods, adolescent & young adults) **INTERNATIONAL** *Multiple Countries*: Conklin & Simpson 1985 (homicides); N Barber 2000 (70 countries, violent crime rates); Lim et al. 2005 (homicide); Jacobs & Richardson 2008 (homicide rate, 14 developed democratic countries, especially young males)
Not significant	**EUROPE** *Netherlands*: Van Wilsen et al. 2006:238* (governing districts, property crime) **NORTH AMERICA** *United States*: Lester 1999 (states, homicide); Gazel et al. 2001:69* (property, counties); J Schwartz 2006 (counties, homicide); S Akins et al. 2009:311 (homicide, adolescent & young adults, census tracts in Austin, TX); Kubrin & Ishizawa 2012:162* (Chicago neighborhoods, adolescent & young adults) **INTERNATIONAL** *Multiple Countries*: Barber 2004 (homicide); Chamlin & Cochran 2006 (homicide); Chon 2012:740 (homicide) **OVERVIEW** *Literature Review*: Schacht et al. 2014 (findings mixed); *Meta-Analysis*: Messner et al. 2010; Nivette 2011:117 (homicide rates, r = -.09)
Negative	**NORTH AMERICA** *United States*: Messner & Sampson 1991 (156 large cities, violent crime rates) **INTERNATIONAL** *Multiple Countries*: Messner & Rosenfeld 1997 (45 countries, homicide); Neapolitan 1997 (homicide); Savolainen 2000 (homicide); Messner, Raffalovich, & Shrock 2002 (homicide); Pratt & Godsey 2002 (46 countries, homicide); Lim, Bond & Bond 2004 (countries, homicide); Altheimer 2007 (countries, homicide); Antoneccio & Tittle 2007:941 (100 countries, homicide, r = -.32); Sun, Sung & Chu 2007 (countries, homicide); Altheimer 2008 (homicide); N Barber 2009 (violent); Schaible & Hughes 2011 (countries, homicide)

As one can see, the findings are quite mixed, particularly for violent and property offenses. It may be worth noting that most of the studies of homicide rates *between* countries have reported negative correlations with the sex ratio, while most of the studies on homicide rates are derived from

comparisons made *within* countries point toward a positive correlation. In any case, the evidence presented in this table does not seem to provide uniform support for the hypothesis that increases in the proportion of males in a population leads to higher rates of crime.

23.3.3.2 Ecological Percent of Male Births and Warfare

Several studies have investigated the possibility of a relationship between the percentage of a male-biased sex ratio at birth and the occurrence of wars. As shown in Table 23.3.3.2, most of these studies have indicated that during war, there seems to be a detectable increase in the proportion of males being born.

Table 23.3.3.2 Ecological percent-male births and warfare

Nature of Difference	*Citation*
Positive	**EUROPE** *Britain*: Lowe & McKeown 1951; *Netherlands*: Van der Brock 1997 **MIDDLE EAST** *Iran*: Ansari-Lari & Saadat 2002 (during the Iran-Iraq War) **NORTH AMERICA** *United States*: MacMahon & Pugh 1954; Ellis & Bonin 2004 **INTERNATIONAL** *Multiple Western Countries*: Graffelman & Hockstra 2000 (9 countries)
Not significant	**NORTH AMERICA** *United States*: MacMahon 1951
Negative	

23.3.4 Latitude and Sex Differences

Might there be sex differences associated with latitude? A few research findings have addressed this question, and their findings are summarized below.

23.3.4.1 Latitude and Secondary Sex Ratio

One study sought to determine if sex ratios varied according to latitude. As shown in Table 23.3.4.1, the study reached inconsistent conclusions regarding European and North American countries or states, with the overall pattern being non-significant.

Table 23.3.4.1 Latitude and secondary sex ratio

Nature of difference			*Post-pubertal*		
			Adolescent		
Higher latitude associated with higher sex ratios					
Not significant			**INTERNATIONAL** *Multiple Countries*: Grech, Savona-Ventura Vassallo-Agius 2002 (higher percent male in southern European countries than in northern European countries, but opposite pattern in North America)		
Higher latitude associated with lower sex ratios					

23.3.4.2 Latitude and Sex Differences in Math Ability

In one study, the average latitude of each of Italy's 20 provinces were assessed in terms of sex differences in the math scores of its 8th graders. One can see in Table 23.3.4.2 that there were greater differences (favoring males) in the northern provinces than in the southern provinces.

Table 23.3.4.2 Latitude and sex differences in math ability

Nature of difference			*Post-pubertal*		
			Adolescent		
Higher latitude associated with higher ability			**EUROPE** *Italy*: Gopfre, Cornoldi & Toffalini 2020 (8th graders)		
Not significant					
Higher latitude associated with lower ability					

23.3.4.3 Latitude and Sex Differences in Reading Ability

The same study mentioned in the above table also assessed sex differences in reading scores for 8th graders in Italy. Table 23.3.4.3 shows that there were no significant sex differences associated with latitude found in this study.

23.3.5 Westernization and Sex Differences

Western countries are those found predominantly in Europe and North America (along with Australia and New Zealand). Non-Western countries are all remaining countries, particularly those in the Middle East, Africa, Asia, and the Pacific Islands. The following section compares Western and

Table 23.3.4.3 Latitude and sex differences in reading ability

Nature of difference			*Post-pubertal*		
			Adolescent		
Higher latitude associated with higher ability					
Not significant			**EUROPE** *Italy*: Gopfre, Cornoldi & Toffalini 2020 (8th graders)		
Higher latitude associated with lower ability					

non-Western countries regarding the extent to which research has indicated males and female differ regarding various traits.

As a prelude to this section, one should bear in mind that Western countries tend to have various cultural characteristics to a greater degree than non-Western countries that have already been examined in this chapter. For example, Western countries appear to be more prone toward individualism and toward female empowerment in educational and financial affairs than is the case for most non-Western countries (Fischer & Manstead 2000).

23.3.5.1 Westernization and Sex Differences in Overall Personality

Three studies were found that assessed the degree to which Western countries compared to non-Western countries regarding sex differences in personality. One can see in Table 23.3.5.1 that all three studies concluded that there were more average sex differences in personality traits for Western countries than for non-Western countries.

Table 23.3.5.1 Westernization and sex differences in overall personality

Nature of difference				*Post-pubertal*	
				Adult	
More pronounced sex differences in Western countries				**INTERNATIONAL** *Multiple Countries*: Costa, Terracciano & McCrae 2001 (26 countries, N = 23,031); McCrae & Terracciano 2005 (50 countries); Schmitt, Realo et al. 2008:Figure 1 (55 countries, N = 17,637)	
Not significant					
More pronounced sex differences in non-Western countries					

23.3.5.2 Westernization and Sex Differences in Perpetrating Intimate Partner Violence

In Chapter 19, it was noted that females tend to surpass males in the commission of violence toward intimate partners (with nearly all of the studies having been conducted in Western countries). According to the study cited in Table 23.3.5.2, sex differences in such violence tends to be smaller in non-Western countries. In other words, in non-Western countries, males are more typically the perpetrators of physical aggression than are females.

Table 23.3.5.2 Westernization and sex differences in perpetrating intimate partner violence

Nature of difference			*Post-pubertal*		
				Adult	
More female-typical sex differences in Western countries					
Not significant					
Less female-typical sex differences in Western countries				**INTERNATIONAL** *Multiple Countries*: Archer 2000 (meta-analysis)	

23.3.5.3 Westernization and Sex Differences in Agreeableness

In one study, sex differences in agreeableness were compared for Western and non-Western countries. Table 23.3.5.3 shows that this study concluded that Western countries exhibited more sex differences than did non-Western countries.

Table 23.3.5.3 Westernization and sex differences in agreeableness

Nature of difference			*Post-pubertal*		
				Adult	
More pronounced sex differences in Western countries				**INTERNATIONAL** *Multiple Countries*: Schmitt, Realo et al. 2008:Figure 1 (55 countries, N = 17,637)	
Not significant					
Less pronounced sex differences in Western countries					

23.3.5.4 Westernization and Sex Differences in Conscientiousness

As one of the Big Five personality traits, conscientiousness tends to be more characteristic of females than of males (Chapter 16). Findings from the one study that was located that compared Western countries with non-Western countries are shown in Table 23.3.5.4. It indicated that greater sex differences were found among Western countries than among non-Western countries.

Table 23.3.5.4 Westernization and sex differences in conscientiousness

Nature of difference			*Post-pubertal*		
				Adult	
More pronounced sex differences in Western countries				**INTERNATIONAL** *Multiple Countries*: Schmitt, Realo et al. 2008:Figure 1 (55 countries, N = 17,637)	
Not significant					
Less pronounced sex differences in Western countries					

23.3.5.5 Westernization and Sex Differences in Emotionality

One study assessed sex differences in emotionality among a substantial number of countries. As shown in Table 23.3.5.5, it found that males and females differed more on average in Western countries than in non-Western countries.

Table 23.3.5.5 Westernization and sex differences in emotionality

Nature of difference			*Post-pubertal*		
				Adult	
More pronounced sex differences in Western countries				**INTERNATIONAL** *Multiple Countries*: Lee & Ashton 2020 (48 countries, N = 347,192)	
Not significant					
Less pronounced sex differences in Western countries					

23.3.5.6 Westernization and Sex Differences in Extraversion

In one study, male-female differences in extraversion were compared for Western and for non-Western countries. As shown in Table 23.3.5.6, the study concluded that Western countries tended to exhibit greater sex differences than did non-Western countries.

Table 23.3.5.6 Westernization and sex differences in extraversion

Nature of difference				*Post-pubertal*	
				Adult	
More pronounced sex differences in Western countries				**INTERNATIONAL** *Multiple Countries*: Schmitt, Realo et al. 2008:Figure 1 (55 countries, N = 17,637)	
Not significant					
Less pronounced sex differences in Western countries					

23.3.5.7 Westernization and Sex Differences in Morality

Sex differences in overall morality scores were compared between Western and non-Western countries. One can see in Table 23.3.5.7 that the study concluded that greater sex differences were found in Western than in non-Western countries.

Table 23.3.5.7 Westernization and sex differences in morality

Nature of difference				*Post-pubertal*	
				Adult	
More pronounced sex differences in Western countries				**INTERNATIONAL** *Multiple Countries*: Atari, Lai & Dehghani 2020 (67 countries, N = 336,691 females higher)	
Not significant					
Less pronounced sex differences in Western countries					

23.3.5.8 Westernization and Sex Differences in Neuroticism

As one of the Big Five personality traits, one study assessed the extent to which males and females differ in Western countries as opposed to non-Western countries. Table 23.3.5.8 shows that greater sex differences were found in Western countries.

23.3.5.9 Westernization and Sex Differences in Oppositional Defiant Disorder

Oppositional defiant disorder (ODD) tends to be more common in males than in females (Chapter 14). One meta-analysis compared Western countries with non-Western countries regarding the degree to which the sexes differ. In Table 23.3.5.9, one can see that it concluded that Western countries exhibited more sex differences in ODD tendencies than did non-Western countries.

Table 23.3.5.8 Westernization and sex differences in neuroticism

Nature of difference			*Post-pubertal*		
				Adult	
More pronounced sex differences in Western countries				**INTERNATIONAL** *Multiple Countries*: Schmitt, Realo et al. 2008:Figure 1 (55 countries, N = 17,637)	
Not significant					
Less pronounced sex differences in Western countries					

Table 23.3.5.9 Westernization and sex differences in oppositional defiant disorder

Nature of difference			*Post-pubertal*		
				Adult	
More pronounced sex differences in Western countries				**INTERNATIONAL** *Multiple Countries*: Demmer, Hooley et al. 2017 (meta-analysis)	
Not significant					
Less pronounced sex differences in Western countries					

23.3.5.10 Westernization and Sex Differences in Stereotyping

One study compared 30 countries regarding sex differences in the stereotypes that were held by samples of adults drawn from each country. As shown in Table 23.3.5.10, this study indicated that stronger overall sex stereotypes were found in Western than in non-Western countries.

Table 23.3.5.10 Westernization and sex differences in stereotyping

Nature of difference			*Post-pubertal*		
				Adult	
More pronounced sex differences in Western countries				**INTERNATIONAL** *Multiple Countries*: JE Williams & Best 1990 (30 countries)	
Not significant					
Less pronounced sex differences in Western countries					

Index

This index provides an alphabetical listing of all the sex difference variables contained in Volume III. Rather than referring to specific pages, this index directs readers to pertinent tables (and sometimes to sections covering multiple tables).

For example, if one wants to know what has been revealed by studies of sex differences in the prevalence of a personality trait known as *agreeableness* (one of the variables listed in alphabetical order below), the index provides a number – i.e., *16.1.1.1* – immediately following the variable name. This means that a summary of the findings of sex differences in the prevalence of agreeableness is located in Chapter 16, specifically in Table 16.1.1.1.

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