

6-2013

Allies or Rivals? The Study of Sibling Closeness in Young Adulthood

Jennifer Silvershein

Union College - Schenectady, NY

Follow this and additional works at: <https://digitalworks.union.edu/theses>



Part of the [Family, Life Course, and Society Commons](#)

Recommended Citation

Silvershein, Jennifer, "Allies or Rivals? The Study of Sibling Closeness in Young Adulthood" (2013). *Honors Theses*. 727.
<https://digitalworks.union.edu/theses/727>

This Open Access is brought to you for free and open access by the Student Work at Union | Digital Works. It has been accepted for inclusion in Honors Theses by an authorized administrator of Union | Digital Works. For more information, please contact digitalworks@union.edu.

Allies or Rivals? The Study of Sibling Closeness in Young Adulthood

By

Jennifer L. Silvershein

Advisor: Professor David Cotter

Submitted in partial fulfillment

of the requirements for

Honors in the Department of Sociology

UNION COLLEGE

March 2013

ACKNOWLEDGEMENTS:

I would like to start off by thanking Professor Cotter, for his enthusiasm, his encouragement, and his ability to listen to me ramble about my trials and tribulations throughout the thesis process.

Thank you for reading and responding to my 100+ emails over the past months!

Thank you to my grandparents, Ama and Papa, as well as Karen Feuer for being my dedicated unofficial editors.

Thank you professor Hill-Butler for being my second reader!

Thank you to the Undergraduate Student Research Committee as well as the participants, without you I would not have been able to much of this work.

Lastly, thank you to my family for putting up with me constantly talking about my work and believing in me!

Abstract

This thesis explores closeness amongst sibling during their emerging adulthood focusing on the variations of sibling composition. Emerging adulthood (from the late teens to late 20s) is seen as an increasingly important stage of the lifecourse, but relatively little is known about the nature of sibling relationships at this age. A total of 54 young adults, 24 Union College students and their 30 siblings, completed surveys about their relationship with each other. In order to gain a full understanding of closeness siblings were asked questions focusing on similarities, intimacy, quarreling, affection, antagonism, admiration, emotional support, competition, instrumental support, dominance, acceptance, and knowledge. The data were analyzed by aggregating responses at the level of sibship group, and then compared according to the sex-composition of those groups (all sisters, all brothers, and mixed-sex groups). The survey results indicate that same-sex siblings reported the greatest amount of closeness. These results support the sex-commonality principle that claims same-sex siblings are closer than cross-sex siblings.

Table of Contents

ABSTRACT	3
FOREWORD: A SISTER'S PERSPECTIVE	6
INTRODUCTION	8
CHAPTER 1: LITERATURE REVIEW	11
BEGINNINGS OF UNDERSTANDING SIBLINGS	11
PREVIOUS RESEARCH ON SIBLING CONFIGURATION (SIBLING CONSTELLATION).....	13
SEX COMPOSITION.....	19
<i>Gendered Principles.....</i>	<i>20</i>
<i>Sibling Configurations.....</i>	<i>21</i>
Same Sex Dyads	22
Mix Sex Dyads	23
LIFE COURSE PERSPECTIVE.....	24
DEVELOPMENT AND AGING.....	25
SIBLING CLOSENESS.....	29
<i>Gender</i>	<i>32</i>
THEORETICAL PERSPECTIVES ON SIBLING RELATIONSHIPS.....	33
GENERAL CONCLUSION	38
CHAPTER 2: METHODS.....	40
POPULATION AND SAMPLE ANALYZED	40
PROCEDURE.....	41
RESEARCH INSTRUMENT: SURVEYS.....	42
CHAPTER 3: RESULTS AND DISCUSSION	44
FREQUENCY CHARTS	44
<i>Similarity.....</i>	<i>44</i>
<i>Intimacy.....</i>	<i>45</i>
Intimacy	45
Knowledge	46
Shared Fantasy.....	48
<i>Negative Measures.....</i>	<i>49</i>
Quarreling	49
Antagonism.....	50
Competition.....	51
Dominance	53
<i>Negative Affection.....</i>	<i>55</i>
Receives Negative Affection	55
Expresses Negative Affection.....	56
<i>Positive Affection</i>	<i>57</i>
General Positive Affection	57
Received Positive Affection	59
Expressed Positive Affection.....	60
<i>Approval.....</i>	<i>62</i>
Admiration.....	62
Acceptance	63
<i>Support.....</i>	<i>65</i>
Emotional Support	65
Instrumental Support.....	66
<i>Perception.....</i>	<i>68</i>
Influence on Sibling.....	68
Influence of Sibling.....	69

Responsive to Sibling	70
Responded to by Sibling.....	71
CHAPTER 4: CONCLUSIONS AND IMPLICATIONS	74
SUMMARY	74
LIMITATIONS	75
IMPLICATIONS.....	76
FUTURE RESEARCH.....	78
GENERAL CONCLUSION	78
APPENDIX A: ORIGINAL CONTACT EMAIL	80
APPENDIX B: ADULT SIBLING RELATIONSHIP QUESTIONNAIRE ITEMS.....	81
APPENDIX C: FRIENDSHIP CLOSENESS QUESTIONNAIRE	84
APPENDIX D: OVERALL PERCENTAGES OF MEASUREMENT	86
APPENDIX E: SIBLING GROUP DATA.....	87
APPENDIX F: SEX COMPOSITION REPRESENTATION.....	90
APPENDIX G: SCATTER PLOT OF STANDARD DEVIATION OF SIBLING GROUPS.....	91
APPENDIX H: T-TEST RESULTS.....	92
REFERENCES	93

Foreword: A Sister's Perspective

This thesis is dedicated to my soul mate, best friend, and sister Allison Jill. She is the most beautiful individual I know, inside and out, therefore, I found it extremely appropriate to begin with her understanding and explanation of the importance of siblings.

Words cannot describe the bond between siblings. It is an unspoken yet magnetic force that connects souls together in a way that can never be broken. The relationships that I have cultivated with my siblings, through both good and bad experiences, have shaped the person who I am today into someone that I am proud of. Siblings are some of the few people in this world who can tell you the truth, in a "no-bullshit" way that forces one to be honest with themselves on the deepest level. They force you to be in touch with your most authentic self, and stay true to it, always.

The relationship I have with my sister is far different from the relationship I have with my brother. The relationship I have with my brother is a much rockier road, but one that has led me to treasure every bump and bruise. Although we don't fit together like two holding hands, like I do with my sister, he has taught me some of the most valuable lessons I know. I have learned how to be genuine with another human being, and how to push my "stuff" out of the way. I have learned one lesson, which I apply to every day life, just through the adversity I have encountered with my brother. Although you cannot control a situation, you can control how you react to it. I have learned to act and react with pure love, and been aware to keep fear from clouding my judgment.

The relationship with my sister, is inexplicable. We truly fit together like two hands clasped together, a bond that is absolutely unbreakable. Although it's an unspoken 'rule' that sisters always have each others' backs, I learned this first hand when I was 18. This was when I experienced this almost telepathic connection that Jen and I share.

After a grueling battle of choosing between 2 schools, one being Union College, where my sister attended, another a similar school, but one where she wouldn't be, I chose to go with the latter. I had applied Early Decision, gotten in, and gone with it. Jen was heartbroken, I was confused. As time grew closer and closer to that August date where I would leave home and start this new chapter, Jen was the first to support me in every way. I put on a brave face the whole time, although inside something felt wrong. I knew that Jen could sense this, but we never mustered up the confidence to talk about it.

My family drove me to school, unpacked me, and began to say goodbye. A classic college tale - gone suddenly wrong. We couldn't stop crying- and couldn't figure out why- I was only 45 minutes from home and this was what I 'wanted'. The days that followed were some of the toughest we had ever experienced. I avoided contact with my close-knit family and friends to avoid these burning feelings of tears rising in my chest. I couldn't open my mouth to speak, without a flood of emotion pouring out. When I finally had enough, I had to let my petrified face show, and let go of the façade.

My parents couldn't understand what was happening, why I let myself get so upset, and what could have possibly gone wrong. The only person that could understand was Jen. She took the reigns and went against my parents, who felt the best route for me was to 'tough it out'. She knew I was tough, I could handle most situations just fine on my own, but this one was too much for me to handle.

In my heart of hearts, I knew from the moment that I stepped on that campus, that I had made the wrong decision. My stomach turned and my head throbbed. I prayed that this was just a phase but I knew that I was in the wrong place. My sister had tapped into my struggle and taken immediate action to get me to the place that I belonged. After a few days and many countless discussions with my family, I finally admitted to them that I had made the wrong choice- Union was where I had to be.

My sister could rule the world and she suddenly rocks mine!- She demonstrated this while amidst a hurricane, she got in touch with the head of Union College admissions on her home phone. She had my college counselor from high school travel in the storm to fax my transcripts to the admission counselor's personal line, and within hours, found a spot for me to live after a discussion with Residential Life- all during a hurricane, with power lines down! She drove to get me, shoved all of my things into one car (it took 2 to get me there), and drove me home. At the halfway point between that school and home, I received an acceptance letter from Union College on my phone.

We both cried; we knew that this was what was meant to be. Every day I still thank her for taking action and trusting my intuition. Her actions demonstrated how she would walk to the ends of the earth just for me to smile. Every day, on the same college campus, we show each other endless love and respect. Growing up with her in the house was one thing, but this is another. Being able to see her at the drop of a hat is one of the countless blessings in my life; Jen and my family, being the first and greatest of them all.

Through my experiences, I truly believe that sibling relationships, especially sister to sister relationships, create unbreakable bonds. Siblings are a part of one's core growing years, from childhood to adolescence, to early adulthood, most siblings are living in the same household having the same experiences and also there to comfort one in their independent experiences.

- Allison Silvershein '15

Introduction

This thesis aims to explore whether sibling composition has a large influence on the perceived closeness between siblings throughout their young adulthood and whether the feelings are mutual between the sibling pairs. This thesis describes how sibling relationships are influenced and whether the sex composition of the sibship influenced their perceived closeness throughout life. Sociologists of the family have studied general aspects of the sibling phenomenon, such as birth-order research and the gender differences in the way siblings structure their relationships. Writing about siblings has tended to focus on rivalry for the love of a parent during early childhood; this leads to most of the emphasis being placed on sibling rivalry throughout the literature (Bank and Kahn 2003). Siblings have been viewed as a subsystem of the family-systems without focus on the individual, rather focusing on whether ‘the children’ are in compliance or in defiance with another subsystem ‘the parents’. Another reason for the neglect in sociological work of children’s and young people’s relationships with their siblings lies partly in an obsession with the parent-child relationship (Edwards *et al* 2006).

Siblings’ relationships are typically the longest lasting relationship in an individual’s life and seeing that 85% of adults in the United States have at least one sibling (Cicirelli 1995) it is important to examine the multifaceted relationship and how it changes throughout an individual’s life. Although the structure of the sibling group may seem fairly narrow, it has more substantive and theoretical legitimacy that one would assume (Steelman *et al.* 2002).

Although sociologists have explored the family structure and siblings, specifically how brothers and sisters affect each other’s lives throughout their life course remains relatively unexplored. The literature that has explored sibling relationships has focused on childhood as well as middle and late adulthood, leaving out young adulthood, an important time frame in which

siblings are no longer *forced* to have a relationship and have the opportunity to decide how they want to continue involvement in each other's lives.

The lack of research on siblings in young adulthood leads one to assume that these relationships are unimportant to the functioning of individuals and families, but this is not the case. The period in life between 19 and 25 is when individuals face challenges and begin to explore greater independence; during times of stress and change the relationship between siblings peak (Bank and Kahn 2003). Due to the loosening of obligatory ties in families during the twentieth century, siblings are free to be involved or not be involved.

Research that has focused on siblings through their young adulthood shows that these relationships are important to the involved parties, and a better understanding of siblings in young adulthood would contribute to the full understanding of sibling relationships across the life course.

Most research on siblings has not included both siblings from a dyad pair. The data containing only one sibling from the pair is half complete due to the reporting of one person's perspective on the relationship. Having data from both points of view of a sibling pair would allow researchers to determine levels of agreement as well as differences.

Such complete data would allow a fuller description of extended family relationships but also an understanding of how specific sibling ties operate within the context of the entire sibship, including gender composition, size, and age differences (Spitze and Trent 2006).

Several predictions have been made at the start of this study and used as hypotheses for the research. The general hypothesis is that sister dyads will report being the closest throughout sibling groups in young adulthood. Another hypothesis is that mixed-sex sibling dyads will report being second closest, after sister dyads, due to the assumption that the more females in a relationship the closer it becomes.

This paper begins with a literature review chapter, which explores previous research on important aspects of siblings. Several key aspects of siblings are discussed and analyzed in conjunction with the general hypothesis. This chapter starts off with a section on aspects of sibling relationships that have been previously researched. The next section includes research on the different sibling pair compositions and different developmental stages throughout the relationship. The final focus on this chapter is on measures of closeness and the ways in which it has previously been measured.

The second chapter focuses on methods and explores the target population that was used and analyzed as well as the procedural steps necessary to begin the research and the type of research instrument used for the data collection; surveys.

The third chapter discusses the results found and interpreted from the data collection. The final chapter, fourth, consists of the general conclusions derived from the research. This chapter also discusses the implications of this research, including any future research that can be continued from this specific study.

Chapter 1: Literature Review

This chapter reviews the previous research on several important aspects of siblings and their unique relationship that will provide the background for the analysis of how sibling composition affects closeness in young adulthood. First, it is important to understand the previous aspects of sibling relationships that have been explored which is why the chapter begins with research on sibling size, birth order, age spacing, similarities, family resources, educational attainment, and lastly, sex composition. The second category of research will discuss how gender influences the sibling configuration and their relationship. It is also important to recognize the different time frames in which siblings are studied, therefore the different developmental stages experienced with siblings is discussed followed by how closeness has been measured amongst siblings. Lastly, it is important to understand the more theoretical aspects of sibling relationships, which is why the chapter closes with research on the evolutionary perspectives, followed by psychological perspectives, as well as social learning theories of siblings. Understanding all of these aspects of sibships is vital to drawing a conclusion of how the gender of a sibling configuration influences closeness in young adulthood.

Beginnings of Understanding Siblings

The term *family* seems like an obvious term to define, but the meaning of family varies from one group of people to another and changes over time. Traditionally, family has been defined as a unit made up of two or more people who are related by blood, marriage, or adoption; form an economic unit; and bear and raise children (Benokraitis 2011). The definition of family can also affect people's lives by expanding or limiting their options. For example, many employers' health

benefits only cover a spouse and legal children; this excludes heterosexuals or homosexuals who are unmarried but are cohabitating in a committed relationship (Benokratis 2011). A more current definition of the family written by Nijole Benokraitis is an intimate group of two or more people who live together, care for one another and any children, and share activities and close emotional ties (2011). If this doesn't seem complicated enough, the definition of the family may become even more convoluted, and controversial, due to reproductive technology advances in the future.

Although the family may seem like an almost indefinable structure, the institution of the family exists worldwide. In all societies families fulfill five important functions: regulation of sexual activity, procreating and socialization, economic security, social class placement, and emotional support (Benokratis 2011). In understanding emotional support, American sociologist Charles Cooley came up with the concept of primary groups, those characterized by close, long-lasting, intimate, and face-to-face interactions. The family is the most important primary group because it provides the love, nurturance, and emotional sustenance that all members of it need to be happy, healthy and secure. Different members of one individual family are someone's unwavering and long lasting emotional anchors throughout life. Later, sociologists introduced the idea of secondary groups, those characterized by impersonal and short-term relationships in which people work together for a common goal (Benokraitis 2011). Unlike primary groups, members of a secondary group have few emotional ties to one another, and typically end after attaining the specific goal.

Seeing that the familial structure is constantly changing with society, the consequences it has on children is vast. In most research familial structure is commonly seen in terms of the relationship among adults, leaving another important component of family structure out; sibling configuration and the relationships amongst them (Steelman *et al* 2002). It can be argued that the

sibling relationship is the most enduring of human relationships, lasting close to a lifetime.

Coleman (1966) concluded that factors outside of school, such as family, have a greater influence on children than schools and Walters (1987) showed that the time spent interacting with siblings has been estimated to exceed the time spend with parents; yet it remains an understudied relationship (Fowler 2009).

Previous Research on Sibling Configuration (Sibling Constellation)

In trying to decompose the effect of sibship influence on specific siblings, researchers have looked at a variety of measures in the family constellation such as family size, birth order, age spacing, similarities/differences, sibling access, socioeconomic status, educational attainment and sex composition.

According to Dalton Conley (2004), “family size is what really matters (23).” Family size has shrunk considerably since the turn of the century; in 1900 it was not uncommon to have four or five siblings, but seeing that the size of families has shrunk, siblings cannot be ‘locked in’ to relationships that are intense and made up of an almost cult size group of individuals. The evidence of a negative relationship between size of sibling group and academic success in the United States is unequivocal; the more children, the less resources and success they have. There are two theoretical perspectives used when looking at the influence of group size on families influence on children: the confluence theory and the resource dilution model.

The confluence theory, introduced by Zajonc and Markus in 1975, claims that the intellectual atmosphere to which he/she is exposed in the family setting molds the developing child. This theory claims that firstborn children have the advantage over their siblings in part because they enjoyed some uninterrupted time with their parents, which leads to a more intellectually sophisticated environment. The confluence theory originally received much praise because it

accounted for many patterns commonly found in the existing literature such as family size, spacing, and being born a twin. However, the theory did not measure up to its praise due to its limited scope focused only on educational attainment rather than success in other aspects of life.

The resource dilution model states the family as a unit that is modified by its structure. The family acts as a conduit to dispense valuable resources for children, but this theory explains that the larger the family, the greater the dilution of resources, and in turn the lower progress for the child (Steelman *et al.* 2002). Although this theory is more broad than the confluence model, and can be easily extended beyond its original focus of educational advancements, it is predicated on the assumption that parental resources are always positive; excluding negative experiences such as parental abuse.

Although birth order has its importance in understanding siblings, Conley emphasizes that the size of one's family matters a lot more than what order the children were born (2004). With the knowledge that birth order is completely random, countless case studies show that the random birth-date seems to have an odd and arbitrary power all its own (Kluger 2011). Interest in birth order has gone through several cycles beginning with Galton's discussion of the eminence of the firstborn in the late 1800's, Adler's ideas on the 'dethronement' of the firstborn in the early 1900's, and Zajonc and Markus's confluence model in the early 1980's (Steelman *et al.* 2002). The claims of the importance of birth order are commonly followed by many counterclaims, and the mountains of data reveal inconsistent results (Bank and Kahn 2003).

Some evidence concludes that firstborn children have an advantage over their later born counterparts in reference to parental time, energy and engagement (Powell and Steelman 1990), which can be shown through one study that revealed that 66 percent of incoming students in Ivy League colleges were firstborns (Kluger 2011). Although this advantage goes beyond their four

years at college, due to the knock-on effects later in life, later born children are more likely to be the beneficiaries of resources that require economic outlays.

In his popular book, *The Pecking Order*, Conley explains that birth order is important as a ‘stand-in’ for the number of siblings an individual shares a home with (2004:23). He states that firstborns and lastborns spend at least some of their time being only children, while middleborns experience the crunch of sibling competition for parental resources (2004).

A different view of birth order is expressed in *Born to Rebel: Family Dynamics, and Creative Lives* by Sulloway (1996) in which he uses historical data in an attempt to prove that later born children are more likely risk-takers and innovative thinkers than are firstborns; showing the exaggeration of the importance of being a firstborn child. Sulloway explains that firstborns become conservative in their outlooks and behavioral patterns in order to preserve the status quo. Sulloway believes laterborn children recognize their disadvantageous position and develop alternative strategies of survival, in Sulloway’s words *born to rebel*.

Although most find Sulloway to be overstating the influence of the threshold effect, the seemingly inconsequential variable that leads to big results (Kluger 2011), birth-order science is filled with similar examples that support his ideas. Natural advantages of being the oldest sibling are reinforced by culturally invented ones as well (Kluger 2011); firstborns are likelier to inherit the family business, control the family’s wealth, and be fawned over by all family members for being the first born child (Kluger 2011).

A large issue is that the majority of research done on birth-order is between-families studies, comparing firstborns in one family with those in others. Kluger, (2011) explains that the research done comparing one eldest sibling to a hundred others is similar to comparing apples to shoes; the proper way to conduct this work would be to use an in-family study in which the investigator

compares every child in the family amongst the others. He argues this is not done because it takes a much longer time to reach a conclusion even though the data would be more reliable.

Today's children are born much closer together than children of previous centuries. The narrow age spacing can force children into contact dependence, and competition and heightens opportunities for mutual influence (Bank and Kahn 2003). The closer children are in age, the greater the opportunity for sharing developmental events in similar ways (Bank and Kahn 2003). Although this variable seems to have an influence on the siblings involved it has received almost no empirical attention (Pollet and Nettle 2007). This lack of information had been evident over four decades ago when Alfred Adler, the most widely quoted author in the birth order literature, said that birth order effects among siblings are "absent when the gap between their ages is great and they the relationships are stronger the narrower the gap" (1956:235). Years later Zajonc (1976) recognized the failure to consider the effect of age spacing between siblings as a major reason for the inconsistent findings in both the family size and birth order research.

In a popular study Koch (1954) reported differences in the interactions of siblings less than two years apart compared to siblings more than two years apart. She found that more widely spaced siblings experienced more competitive and stressful relationships. Abromavich and her colleagues (1979) found that siblings that are less than two years apart are more likely to possess similar abilities and skills as well as share the same friends than those spaced further apart. .

Over the past twenty years a considerable body of research has addressed the question of why some siblings are similar and others are vastly different. In general, findings show that sibling similarities in domains such as personality, intelligence, and psychopathology have strong genetic components (Dunn and Plomin 1990) while another line of research highlights environmental influences on sibling similarities (Bank *et al.* 1996).

There are two processes of direct influence through which siblings can influence one another, therefore categorizing them as high identifiers. The first, modeling and imitation have been thought of as an important basis for similarities between siblings' activities and behaviors (Rowe and Gulley 1992) and the second, siblings fostering similarities through shared settings, companions and resources (Rowe and Gulley 1992).

Social learning theories suggest that, in addition to learning through their own behaviors, individuals form ideas about new behaviors through the observation of others (Bandura 1977). Bandura explains that in order for observational learning to occur, the model that is being observed must possess qualities that attract the observer. Because youth spend so much time with their siblings the older siblings are potentially very salient models. Bandura also explained that models that are similar to the self are more likely to be successfully imitated (1977). In order for observational learning to be successful there must be motivation to produce the learned behavior; sometimes siblings may be sources of both direct and vicarious reinforcement. In their focus of antisocial behaviors Patterson and colleagues (1984) referred to the sibling relationship as a training ground because younger siblings were thought to learn these actions through modeling and reinforcement in interactions with the older siblings.

Along with social and observational learning mechanisms, research also highlights two more ways in which older siblings foster similarities between themselves and their younger siblings. The first, by providing opportunities for engaging in particular behaviors and the second by providing a network of peers who act as models of the new activities (Rowe and Gulley 1992).

While social learning operates to make siblings alike, sibling de-identification makes siblings different. Research in the field of behavioral genetics shows that personality, intelligence, and well being tend to be no more similar to siblings than other unrelated youth (Dunn and Plomin

1990). Besides genetics, siblings differentiate through de-identification; the tendency for siblings to consciously, or unconsciously, select different niches and develop different personality qualities in order to define themselves as unique from their other sibling (Whiteman, Becerra, and Killoren 2009). Many explanations have been offered for sibling de-identification and the common theme throughout all is that de-identification helps protect siblings from social comparison, rivalry, envy, and possible resentment (Feinberg *et al.* 2000). Psychodynamic theories suggest that identifying with siblings serves to exacerbate sibling rivalry, therefore sibling de-identification is a defense mechanism that mitigates sibling competition and rivalry (Schachter et al 1976). It has also been argued through the self-esteem maintenance theory (Tesser 1980) that sibling de-identification acts as a defense against the possible loss of self-esteem by reducing social comparison on traits important to self-definition (Whiteman *et al* 2009).

The emotional bond between siblings depends on *access*. Low access siblings go through life *not* resonating to one another, while high access siblings have an undying need that allows them to have large influences amongst each other throughout their years (Bank and Kahn 2003). High access is most common when siblings have a similarity in age and sex because they experience common life events. The earlier access begins, and the more prolonged, the more intense the relationships between the siblings will be (Bank and Kahn 2003).

The process of finding our own identities in relation to parents and siblings is a challenge; this identity of siblings is closest in same sex pairs, so for them the challenge of forming distinct identities is greatest (Klagsbrun 1992).

Previous research (Conley, 2004) suggests that among disadvantaged households, sibling differences seem to increase, since limited opportunities and resources may elicit parenting strategies that accentuate sibling differences by directing family resources to the better-endowed

siblings (Conley and Glauber, 2008). This strategy, investing in the human capital of the best endowed offspring, is done in hopes of the highest possible returns and in hopes that the offspring will make wealth transfers to less endowed siblings (Conley and Glauber, 2008). By disadvantaged families investing more in the child for whom they expect high returns the families reinforce sibling differences.

An alternative theory proposed by Becker and Tomes (1986) argues that with capital constraints, low-income parents may not be able to optimally invest in their children's human capital. This underinvestment may lead to higher degrees of sibling resemblance at lower income since the high ability child from the poor family may receive the same low level of education as the sibling that less is expected of (Becker and Tomes 1986).

Interestingly enough, when studying academic success among siblings, sociologists have attributed size of sibling group as important influences (Steelman *et al* 2002). In the United States, there is a negative relationship between the size of the sibling group and academic success (Downey 2001, Gailbraith 1982). Not only are these negative patterns consistent, but strong. In their analysis of the High School and Beyond dataset, Powell and Steelman (1993) found that the relative influence of sibship size on the likelihood of high school graduation and on college attendance generally was at least as strong, and sometimes stronger, than that of family income, gender, race, and parental structure.

Sex Composition

Introduced several decades ago as a new element of sibship (Brim 1958, Koch 1955), sex composition has resurfaced as a topic that is capturing the imagination of sociologists. Steelman and her colleagues (2002) explain that the resurfacing of topics “is a pattern that can be attributed to the discipline of sociology's increasing recognition of the importance of gender in general,

especially the link between gender and socialization and the consequences of sex composition of groups, organizations, and societies (259).” Due to such a wide and diametric set of predictions and empirical findings regarding the effect of sex composition of the sibling group in the United States, conclusions remain vague (Steelman *et al* 2002).

Gendered Principles

Like most important relationships, siblinghood is subject to gender influences. The differences in masculine and feminine gender socialization can translate into differences in the ways male and female siblings interact. No variable seems to appear in research on intimacy or closeness more often than gender. Sandmaier (1994) explained that it is *within* childhood families that individuals first learn the meaning of being female and male in our culture, and the bonds between sisters and brothers reflect and help to shape each individual.

Overall, findings suggest that although siblings may be more influenced by their familial ties, they are not completely immune to the effects of gender role prescriptions (Floyd 1996).

Three principles have been used in previous research to explain the differences in relationships by gender: the femaleness principle, the same sex principle, and the gendered closeness perspective.

The femaleness principle theorizes that sex differences in personal relationships are a function of the femaleness of the dyad; that is the more women included in the dyad the closer the relationship (Akiyama *et al.* 1996). Studies of sibling relationships in old age have shown that sisters are the closest and most involved sibling dyads (Akiyama *et al.* 1996). Because of this it can be hypothesized that sisters are more likely to assist each other than brothers or mixed-sex siblings.

Pulakos (1989) reported that female siblings were significantly more likely than male siblings to engage in self-disclosive and emotionally expressive behaviors in their relationship.

The principle of sex commonality claims that same-sex dyads are closer than cross-sex dyads. In a study of helping networks, Stoller (1990) observed that, when an older person identified support providers other than a spouse, they showed tendency to name someone of the same sex. Also, sons were more likely than daughters to provide advice to father; which suggests that people do feel especially at ease to same-sex relationships. Same-sex siblings are also noted in the literature for having the most intense feelings for one another (Bank and Kahn 1982; Cicirelli, 1993; Gold, 1989).

The gendered closeness perspective suggests that men's relationships are not inherently less close than women's, but that men manifest closeness in ways that are more instrumental and less verbally oriented (Floyd 1995).

This perspective was tested by Swain (1985), who asked a sample of male and female undergraduates to describe their close same-sex friendships and to indicate what made them close. He then identified a number of referents for closeness that were unique among male respondents. Similarly, Floyd (1995) found that women were much more likely than men to consider talking about fears, hugging, and sharing on a deep personal level as important to the closeness of their relationships. Similarly, men were more likely to value shaking hands, talking about sexual activities, and drinking together as ways to manifest closeness.

Although Floyd and Swain's research have focused most on friends rather than family, Floyd notes that siblinghood is subject to gender role influences, as are most other relationships (1995).

Sibling Configurations

The sexual composition of the sibling dyad has been found to affect sibling interaction (Minnet *et al* 1983). In home observations of siblings, agnostic encounters were more common in

mixed-sex dyads (Dunn and Kendrick 1981), while prosocial and imitative behaviors were more prevalent in same-sex dyads (Minnet *et al* 1983).

Same Sex Dyads

A burning question in sibling studies is whether relationships among sisters differ from that among brothers. Many siblings of the same sex continue in adult life to define and redefine themselves in relation to one another. According to Klagsbrun's survey (1992) the answer is definitely. Sisters differ in their relationships with each other from brothers in their relationships in one major area: their closeness to one another. Women reported themselves closer to their sisters in significantly greater numbers than did men to their brothers or did brothers and sisters to one another (Klagsbrun 1992). 61 percent of the women reported feeling 'close' or 'very close' to their sisters. Contrasted by less than half of the men, 48 percent, reporting feeling 'close' or 'very close' to their brothers, and less than half the men and women, 46 percent, reported feeling 'close' or 'very close' to their opposite-sex siblings (Klagsbrun 1992). Also, more than two-thirds of the women saw or spoke to their sisters monthly or more, and brother-brother pairs as well as opposite-sex pairs of siblings reported less than half had such contact.

The responses to specific questions designed to measure closeness were even more revealing. When asked 'how much do you share your inner feelings?' with a sibling, sisters responded 'some' or 'very much' 77 percent of the time whereas men only answered 'some' or 'very much' only 61 percent.

Klagsbrun recognized that the findings fit directly into the gender stereotypes of society; women being more concerned about relationships and men being more aggressive and less prone to talking (1992). Nancy Chodorow, a sociology professor at Berkeley, suggests that growing up, girls identify closely with their mother's nurturing and caregiving attributes, while boys must turn away eventually and establish their own identity by defining themselves as different from their mothers

(Klagsbrun 1992). Supporting her theory, one can conclude that in the repression of the identification with their mothers, brothers lose some of the ease that sisters have in forming relationships.

Although sisters were overwhelmingly the closest, Klagsbrun found two caveats. The first, closeness sisters enjoy does not necessarily eliminate aggressiveness. The closeness sisters share may exacerbate their competitive and aggressive feelings because they are entwined in the details of each other's lives. The second caveat concerns the brother-brother relationship; while saying men are less close to their brothers than women are to sisters is not to say that men are not close at all to their brothers or operate only on the level of competition. In general, when compared to attachments among sisters, those among brothers may be less intimate and more directly competitive (Klagsbrun 1992).

Mix Sex Dyads

There are many benefits to growing up with a sibling of the opposite sex. Becoming sensitive to the opposite sex and knowing what is pleasing in the opposite sex and to the opposite sex gives these individuals in mixed-sex sibling pairs, a good start toward finding satisfaction later in love and marriage (Klagsbrun 1992). Another benefit is Rosenberg's sex minority hypothesis (1965) in which he argues that if an individual is a 'minority' in respect to gender in his/her sibling constellation, then he/she will enjoy a special status (Conley 2000).

An older brother and younger sister mirror the traditional social order. And even though older brothers or sisters tease and torment younger ones, there appears to be a particular quality of cruelty to the type of behavior inflicted when the older is a boy and younger is a girl. Girls with older brothers report that they felt as if the parents did not take the older boy's teasing seriously. This push and pull teasing has an influence on adult life; some sisters explain that as a reaction they have little to do with their older brothers and maintain the most minimal sibling ties, while for other

sisters the positives from the relationship such as attachment and admiration can overshadow childhood aggression and lead to warm adult ties (Klagsbrun 1992). Through a study of college-aged brothers, Shulman (1987) found that older brothers of sisters have fewer inner conflicts over their wishes to dominate than do older brothers of brothers.

Opposite the relationship between an older brother and younger sister, the relationship between an older sister and younger brother is the most contradictory of all sibling combinations. Carol Holden (1986) conducted a study among college students on what it means to be a sister that parallels the previous study (Shulman 1987), on being a brother. Holden found that older sisters of brothers feel guiltier about their treatment of their younger siblings than do older sisters of sisters (Klagsbrun 1992). This shows the underlying conflict faced by older sisters with younger brothers, because they know that they are expected to protect their younger siblings and feel conflicted about their extra attempts at dominating them (Klagsbrun 1992).

It's been found that when some younger brothers feel themselves being dominated, or attempted to be dominated, by their older sisters, they make a point of asserting their maleness by acting aggressive and superior towards their sisters.

Life Course Perspective

The life course perspective emphasizes the importance of time, context, process, and meaning on human development and family life (Bengtson and Allen 1993). For many years family developmentalists have used the term 'life cycle' as the focus on pattern stages of family composition and change that affect members' behavior over time. More recently, sociologists have added the importance of social meanings that are applied to life events, individual development, and the development of relationships over time (Bengtson and Allen 1993). Hagestad (1990) explains, "There is a difference between the span of a life time and the course of a life. The 'life-course'

reflects how society gives social and personal meaning to the passage of biological time” (2). The life-course perspective emphasizes the ways in which pathways and transitions are socially organized. When the life-course perspective is applied to families, the family is seen as a micro social group within a macro social context, a collection of individuals within a shared history who interact within ever-changing social contexts and space and time (Bengtson and Allen 1993).

“The lifespan is the total time of an individual's life from conception to birth to death” (Cicirelli 1995:14). It is the longest possible time period from which to view siblings in order to understand their relationships with each other. It allows an individual to view and evaluate changes in the relationship and also allows one to interpret the significance of these relationships at different points amongst the lifespan (1995).

This perspective has gained popularity due to the shift from a focus on children to a focus on people of all ages (Lamb and Sutton-Smith 1982). For the most part, life-span developmental psychologists have focused on the formative significance of ‘critical events’ that take place throughout a lifetime. Family relationships are important and distinctive in that they themselves last over large portions of the lifespan, and furthermore, siblings, unlike a parent-child relationship, are not predictably terminated by death, rather this relationship often lasts an entire lifetime.

Development and Aging

From the understanding of the importance of changes across a lifespan it is then necessary to understand the differences in development and aging of siblings in four basic ways: as synonymous terms, aging as a part of the general concept of development, development and aging as distinct independent concepts, and development as part of the concept of aging. Cicirelli supports the third, from which the course of sibling relationships can be studied not only in terms of their formation and maintenance, but also in terms of aging relationships in the later part of the lifespan.

Studying the relationships of siblings in the first portion of the life span, infancy, early childhood, childhood, or adolescence, is important. They can be major influences in each other's lives because they live in an environment that is different by virtue of the influence of the other sibling as well as that of other family members (Cicirelli 1995). The sibling relationship begins when one sibling first becomes aware of the existence of the other and as the sibling pair increases in age, the younger sibling becomes a more active participant in the relationship.

Two sets of factors determine the influences siblings have on one another early in life. The first are outside of the child's control such as social factors and emotional factors. The second set of factors are subtle ones operating *within* each child and *between* the children. Between a child's birth and the age of three the siblings develop special feelings about one's siblings and oneself that are unspoken aspects of a sibling relationship and difficult to detect. These feelings are less obvious when siblings are young and *innocently* playing together; but become more noticeable when the siblings become adolescents and begin to act *compulsively* with each other, acting out the scripts that they forged early in childhood (Bank and Kahn 2003).

A common explanation for understanding the growing relationship between young siblings can be understood in terms of the attachment theory. To the extent that an infant finds comfort and security in the presence of the attachment figure, the infant forms a secure attachment to the figure as responsive and supportive. Many researchers have concluded that young children's behaviors toward their older siblings imply a sibling attachment (Bank 1992; Cicirelli 1995). Convincing evidence of the young child's attachment to the older sibling was provided by Stewart (1983) in which over half of a group of older siblings aged 30 to 58 months were observed to provide caregiving and nurturance to their younger siblings when they showed distress. In response to the

care of the older sibling, the younger sibling showed attachment behaviors by approaching and maintaining proximity to the older sibling when the mother was gone (Cicirelli 1995).

The sibling relationship is a continuous process, and throughout all of childhood and adolescence, a complex interplay of psychological forces steadily grow within each child that contributes to the development of the sibling bond (Bank and Kahn 2003). The middle childhood, ages six – nine, are generally the most uneventful period in the sibling connection, which leaves many sibling pairs under the illusion that their relationship will never change (Bank and Kahn 2003).

The second popular developmental focus is on adult/elderly siblings. Two explanations for adult sibling relationships have been explored; family solidarity and adult attachment. Solidarity is a multidimensional concept involving a group's structure, contact, affection, and adherence to norms of behavior (Cicirelli 1995). The notion of early socialization of siblings within the family to norms of appropriate sibling behavior is used as an explanation for their continuing relationship in adulthood (1995). The second theory is the adult attachment theory, which attempts to explain the adult sibling relationship through an adaptation of adult attachment theory (Cicirelli 1995). To explain the maintenance of the sibling bond of extended separations in space and time, it is argued that the need for closeness and contact with the sibling is satisfied on a symbolic level through the process of identification (1995). This theory is rooted in evolutionary biology, incorporating ideas such as biologically determined development of social attachments (Cicirelli 1995).

Relationships between specific sibling pairs appear to wax and wane with individual life circumstances (Connidis 1992; Bedford 1990), but for most people, sibling relationships continue in some form throughout life. Due to improved nutrition and medical care, siblings now spend a much longer period of their lives together. A sibling relationship lasts as long as the sibling is alive and

there is growing evidence through current research that siblings provide a highly supportive social network in old age (Cicirelli 1977; Townsend 1957).

It has been found that over time, siblings tend to become more accepting and approving of one another (Seltzer 1989). Seltzer found that the quality of sibling relationships tended to improve in old age due to increased solidarity (Seltzer 1989).

“At present, the greatest gap in knowledge about the course of sibling relationships across the life span is in young adulthood” (Cicirelli 1995:218). More focus in this area of life would not only contribute to an awareness of young adult sibling relationships but also to a more whole understanding of sibling relationships across the life course (Weaver *et al* 2003).

This lack of research into young adult siblings implies that the relationships between siblings during early adulthood is inconsequential to the functioning of individuals and their family; but this is false. Researchers such as Cicirelli (1980), Newman (1991), and Pulakos (1989) have found that these relationships are important to the involved individuals, and that siblings are in relatively constant contact with each other (Weaver *et al.* 2003).

Goetting (1986) proposed that siblings typically serve as companions and sources of emotional support, work together to care for parents, and provide assistance and direct services to each other during young and middle adulthood. Similarly, Cicirelli (1980, 1995) believes that siblings in young adulthood may serve as confidantes, teachers, role models, and friends to each other.

In young adulthood different forces are pulling siblings together and as they become more independent they often forge strong alliances. These siblings exchange secrets and confidence that they would never dare tell their parents. They also share criticism of their parents that they would never acknowledge alone or when they were younger (Klagsbrun 1992). As teenagers and young

adults, siblings also offer each other encouragement in striking out on their own and begin to notice common areas of interest that were not noticed earlier (303).

The Grant Study (Vaillant and Vaillant 1990), a long-range study on a group of men who attended Harvard in the 1940's, discovered the factors in the men's lives that led to physical and emotional health, as they grew older. High on the list of elements important for men's adjustment was being close to one's siblings at college age. Vaillant's findings suggest that the closeness siblings develop in their youth is important later in life. As siblings bond more through their life cycle the degree of closeness they experience varies, but when feelings of warmth are established at a young age, they rarely disappear completely (Klagsbrun 1992).

When siblings leave adolescence it is the last time they will be living in the same conditions together, under one roof. Their experiences together become memories, entwined with layers of feelings that have grown over the years, these form the underpinnings for sibling attitudes and actions for years to come (Klagsbrun 1992). Because of these examples, I believe that the relationship between siblings in young adulthood is a time of great transitions, and an important timeframe to research.

Sibling Closeness

This present study focuses on sibling closeness – an important aspect of how the sibling relationship is functioning during the transition into young adulthood. Researchers have been split as to whether closeness of siblings decreases, increases, or remains the same over the early and middle adult stages (Connidis, 1992). Some scholars, such as Atchley (1977), have found that siblings' feelings of closeness have a curvilinear relationship; with siblings' feelings of closeness during childhood/adolescence and later adulthood as strong, and the least close during early and

middle adulthood. These findings are realistic, seeing that in early and middle adulthood individuals are starting their careers, beginning families, and becoming more independent.

Closeness is among the most studied variables in research on same-sex relationships. According to Berscheid and his colleagues (1989) a close relationship is one in which there is regular interaction between the participants, diversity in their interaction, and strength in their influence on each other.

Closeness does not negate all of the problems and difficulties siblings experience; but the problems do not necessarily rule out feelings of closeness. The relationships build and develop throughout childhood, which helps to determine the level of warmth, or distance, siblings will carry with them into adulthood. One way that has been used to examine early sibling relationships is to apply the attachment theory. The attachment theory emphasizes the need children have for a warm, close bond with a parent (Klagsbrun 1992). What is true about attachments between children and parents is true in its own way of attachments among children themselves; siblings form strong bonds by identifying with each other and by responding to each other. Research by Klagsbrun (1992) has shown that a comfortable compatibility and strong early attachment among siblings leads to closeness later in childhood and throughout adulthood.

Deborah Gold (1989 37-51) suggested through her research of older people that sibling relationships can be classified into five types: intimate, congenial, loyal, apathetic, and hostile (284). Gold described intimate siblings as those who see themselves as 'best friends', congenial siblings describe themselves as 'good friends' rather than 'best friends', loyal siblings as close based on the family 'blood is thicker than water' view, apathetic as siblings who have little interest and a lack of loyalty, and hostile siblings as those that keep their distance out of resentment (285). Gold recognized that many siblings do not fall neatly into one of those five types but these definitions

offer a broad overview of the continuum from closeness to distance on which sibling relationships exist. Klagsbrun (286) picked up where Gold left off through her survey focusing on the continuum by asking subjects to choose from several responses to the degree of closeness they felt toward their siblings. To the question ‘how close are you?’ most respondents checked ‘close’ (31 percent), and ‘somewhat close’ (31 percent). Despite all of the complaints siblings make about each other, relatively few (17 percent), placed themselves in the ‘not close at all’ category.

Through their research on perceived closeness in adult sibling relationships, Ross and Milgram recognized that individuals were more likely to report closeness as a family rather than reporting closeness to a sibling (1982). Family closeness increased or decreased over time only in a few cases while increases and decreases of closeness were the predominant lifespan patterns in sibling relationships (Ross and Milgram 1982).

The most powerful influence to feelings of closeness between individual siblings was the family in which siblings grew up. The sense of belonging and being close to a particular sibling was permanently affected by experiences shared in childhood. Besides family experiences, experiences shared with particular siblings while they lived together were the most often cited in instances originating feelings of closeness in childhood (Ross and Milgram 1982).

The factors contributing to closeness in childhood were found to be an important influence as long as the children remained in their parent’s home. Adolescents was a time when siblings grew together forging their identities by similarity and contrast. Through these interactions close personal relationships developed between the siblings. (Ross and Milgram 1982).

In their study of closeness amongst siblings in young adulthood, **Short and Gottman (1997)**, focused on family structure variables and closeness. None of the family structure variables – consisting of gender composition of dyad, age interval between siblings, and number of siblings

in the family – related to the difference in the level of closeness reported among siblings. They discovered contradictions amongst studies that examined differences between sister-sister, brother-brother, and brother-sister dyads. These findings are important because they illustrate that family structure variables may not be as important to sibling closeness as past researchers have believed.

Gender

Researchers have also been interested in closeness as it relates to other factors such as gender. Connidis and Campbell (1995) found that sibling ties with women were more involved than those of men. Overall, they found that sister-sister relationships were closer than relationships including both brothers and sisters. They also concluded that sisters were generally in greater contact with their siblings, whether male or female.

Among researchers of relational closeness in same-sex dyads, an overwhelming consensus has been found that women's relationships are inherently closer than men's (Floyd 1997). This is due to the assumption among relationship scholars that verbal self-disclosure is a definitive referent for closeness. Recent critiques of the closeness literature have recognized this wrongful assumption and have hypothesized an alternative explanation of this pattern of findings that women dyads are closer than male dyads; verbal self-disclosure may not be as important in men's same-sex relationships as it is in women's. Evidence suggests that men do not judge the closeness of their same-sex relationships according to the level of disclosing nearly to the degree that women do (Parks and Floyd 1996). Men judge the closeness of their relationship on more instrumental relational qualities, such as interdependence and commitment rather than by verbal self-disclosure.

Similarly to the importance of accountability between same-sex male dyads, Ihinger-Tallman's (1987) theory of sibling bonding shows that strong sibling bonds are likely to form when siblings rely on each other and meet each other's needs within the relationship.

Connidis (1989) found that sisters were more likely than brothers or brother-sister dyads “to be close friends or mutual confidants” (p. 91). Interestingly enough, Cicirelli (1989) found that men are much closer to their sisters than to brothers, but that women’s closeness to a sister was not greater than men’s closeness to sisters. In a study looking at individuals age 55 or older, results showed that women were closer than men and that single siblings provide more support than married siblings (Campbell, Connidis, & Davies 1999). These results are not surprising, seeing that sisters were found to be closer than brothers and that single siblings are able to provide more support since they do not have as many commitments as married siblings.

The question of how closeness might change over time has been addressed by a number of relational development models and empirical findings. The first model, by Altman and Taylor (1973) predict a linear progression of relational intimacy. According to this model, closeness should be relatively low at the beginning of the relationship but progress as the relationship develops. An alternative model, the relational dissolution, supported by Knapp (1984), Krug (1982), and Wood (1982) suggests that the closeness of a relationship will increase in intimacy over time, but only to a specific point where it will decrease as the relationship starts to dissolve. The third perspective (Troll 1985) from the sibling literature predicts that the degree of such interdependence is likely to change as the siblings mature. As the individuals mature and begin to pursue individual goals they may depend on each other less, therefore predicting that the closeness of a relationship is negatively correlated with age.

Theoretical Perspectives on Sibling Relationships

Much of the empirical work on sibling relationships focuses on their role in *individual* psychological development and behaviors. The following three theoretical perspectives move away from the focus on the individual and identify the central dimensions of sibling relationships as well

as account for changes in the characteristics of those relationships over the lifespan (Whiteman, McHale, and Soli 2011). Theory is a necessary component in understanding siblings because much of what we know about societies and social behavior is due to them.

Two theories have been used to explain sibling relationship dynamics from the field of Psychoanalysis: Bowlby's (1969) attachment theory and Adler's theory of individual psychology. (Should the theory's talked about throughout the paper be capitalized? I'm not sure!)

The attachment theory attempts to explain developmental changes in social relationships and is grounded in the early writings of John Bowlby. This perspective focuses on the early bond between infants and their primary caregivers as crucial to the infants' survival (Whiteman *et al* 2011). Across the first year of life in humans, an attachment relationship forms, and this relationship varies in its degree of security depending on the sensitivity and responsiveness of the infant's caregiver. In the second year, the attachment figure can become a secure base from which children explore the world around them but return to in stressful circumstances for comfort and security (Whiteman *et al* 2011). From this perspective, children's relationships with a primary caregiver have long-term implications for the qualities of their sibling relationships: "Emotionally secure caregiver – child relationships are thought to lead to close and trusting relationships with others, whereas insecure relationships may lead to conflicting, distant, or otherwise less satisfying relationships, including with siblings" (Whiteman *et al* 125:2011).

In addition to their primary caregiver, children can form attachments to a range of familiar others in their social world, and given their constant interactions in everyday life, siblings are prime candidates for attachment relationships. It is important to recognize that attachment does not automatically lead to a positive relationships, but implies a deeper bond that varies in the extent to which a relationship partner serves as a source of emotional security (Whiteman *et al* 2011).

Another important aspect of the sibling relationship is the idea that with maturity, individuals increasingly form mutual relationships characterized by both hierarchical and reciprocal elements. As siblings mature, shared experiences and empathy may also undergird attachment relationships between siblings (Neyer 2002).

Much of the empirical works on siblings within an attachment paradigm have found that there are group differences in harmony, with higher rates found among same-gender pairs (van Ijzendoorn *et al* 2000). Stewart (1983) found that a child's gender also play a role in sibling attachment bonds. He found that older siblings were more likely to serve as a source of comfort in mixed dyads as opposed to same-gender dyads. He also found that siblings in same-gender dyads were more sensitive to issues of rivalry and competition therefore possibly not responding as readily to the needs of their sisters and brothers (Stewart 1983). Just as attachment to parents play an important role in childhood sibling relationships, Fortuna and her colleagues (2011) proved that the attachment is also an influential factor in young adults' sibling relationships. Through their examination of adult attachment and sibling relationships they found that attachment representations influence the ways in which siblings interact with each other and perceive the support and closeness in their relationship in early adulthood (2011).

Adler's theory of individual psychology focuses on the causes of personality by highlighting the important role of external social influences on personality development (Ansbacher and Ansbacher 1956). One of the key constructs of Adler's theory was the inferiority complex, and he was especially interested in how such psychological dynamics had implications for individuals' style of life and management of their self-esteem. From this perspective, social comparisons and power dynamics in families were central in the individual's sense of self.

His ideas about the centrality of sibling experiences in personality development were a basis for his interest in birth-order effects as well as sibling relationship processes. Adler believed that the rivalry between siblings was due to each child's need to overcome potential feelings of inferiority, which leads to 'de-identification', developing different personal qualities and that parental favoritism of one sibling over the other is linked to poorer sibling relationships (Whiteman *et al* 2011). Consequently, a growing body of evidence suggests that parental differential treatment is linked to less positive sibling relationships from early childhood through adolescence (Brody, Stoneman, and Burke 1987).

Building off Adler's ideas that stress the adaptive significance of behavior in competition for limited resources, Sulloway (1996) has argued that sibling differentiation serves to minimize sibling competition, and that siblings will select unique niches in the family that maximize their access to resources. Using the evolutionary perspective, the development of sibling differences is an adaptive process because variations in offspring traits increase the likelihood that at least one sibling will survive under adverse circumstances (Belsky, 2005).

Social psychosocial theories are directed at explaining how individuals influence each other rather than using early bonds in order to explain relationship influences. One perspective relevant to sibling dynamics is social comparison theory (Festinger 1954). This theory holds that individuals are intrinsically motivated to evaluate themselves based on how they measure up against others, particularly others whom they perceive as like themselves (Festinger 1954), and there are many studies that directly assess social comparison processes in siblings. Feinberg *et al* (2000) found that social comparison processes depended on birth order, with older siblings more likely to make downward comparisons and younger siblings more likely to make upward comparisons. Others have noted that the implications of social comparison dynamics depend on many other factors such

as age spacing, whether the domain of comparison is important to the individuals involved, and the nature and history of the sibling relationship (Connidis 2007).

The social comparison theory was built upon by the Equity Theory (Adams 1965) to explain social relationship processes and individuals' satisfaction with their relationships. From this perspective, individuals record their contributions to and the rewards they derive from their relationship relative to the contributions and rewards of their partners. Similarly, social exchange theory (Thibaut and Kelley 1959) also focuses on individuals' rewards from and investments in their social relationships. This perspective explains that when a relationship's costs outweigh its benefits, individuals will choose to withdraw from that relationship. Both equity and exchange theories were developed to explain dynamics in voluntary relationships. These two theories are helpful in explaining the differences between sibling dyads that remain close and those with more distant relationships because as siblings grow up, their relationships become more voluntary (Whiteman, *et al* 2011).

The third, and most common, set of mechanisms used to explain sibling relationship dynamics is the social learning process. According to these social learning theories, individuals acquire original behaviors, including cognitive behaviors such as attitudes and beliefs, through two key mechanisms, reinforcement and observation of others' behaviors (Bandura 1977). Siblings shape their own relationship in the context of their social exchanges and by observing and imitating one another. It is also believed that members of the family are salient models for social learning and that individuals are most likely to imitate models who are warm and nurturing, high in status, and similar to them (Bandura 1977). Social learning principles also imply that modeling processes in sibling relationships vary as a function of the sibling dyad constellation, with older and same-gender siblings more likely to serve as models (Whiteman, *et al* 2011).

In addition to observational learning processes that occur outside of their dyadic exchanges, siblings can also influence their relationship dynamics directly by virtue of their own behaviors in every day interactions (Whiteman, *et al* 2011). By serving as models for one another this may contribute to findings of similarity between siblings in many different domains.

When applied to siblings, the Social learning theory has commonly focused on the negative influences siblings have upon each other, even though it is just as applicable in understanding positive influences between siblings. First described by Patterson (1984) the ‘sibling trainer’ hypothesis suggests that siblings’ negativity or coercive interactions coupled with modeling are a context with a high likelihood of producing siblings with adjustment problems. Similarly, Bank, Patterson, and Reid (1996), found empirical support that the social learning theory is most relevant for explaining the development of externalizing behaviors, just as the internalizing of negative emotions is more relevant to understanding internalized problems (Gamble *et al* 2011).

General Conclusion

Sibling relationships are key in understanding social relationships because they are commonly an individual’s longest lasting relationship. Previous research on sibling relationships, gendered differences, developmental time frames, and measurements of closeness has allowed me to study an entirely new idea: Whether sex composition influences the perceived closeness among siblings in young adulthood. Not only does this study help explain why some sibling groups are closer than other, but also how important developmental timeframes and measurements all play a role in their ever-changing relationship. Using the limited previous research found on varying aspects of sibling relationships in young adulthood and measurements of closeness, it is possible to conduct a study on sibling groups and their reports of closeness among themselves.

The next chapter will focus on the methods used to measure closeness amongst sibling groups in young adulthood. This study will be conducted through surveys given to each member of a sibling group in which they will respond to focusing on each specific sibling and will begin to assess my hypothesis that siblings will report the highest feelings of closeness.

Chapter 2: Methods

Included in this section is the methodology of the entire research project on what composition of sibling dyads reports feeling the closest in young adulthood. Topics discussed in this chapter are the population and sample used for analysis, the research instrument used to obtain information about the particular population, and an outline of the exact procedure used to obtain the information and data collection. A discussion of how the private information was kept confidential is also discussed as well as sample questions from the research instrument in order to give the reader a foundation in which to understand the data. Findings will also be presented and discussed in length during the following chapter on results.

Population and Sample Analyzed

Seeing that this research project intended to study which, if any, sibling dyad reported feeling the closest in young adulthood; it made sense to begin my network analysis with a main sibling at Union College. It did not seem realistic to study a random sample of Union College students with siblings because this research required contact of each selected Union College student's siblings to participate as well. After studying previous survey research I decided that using personal connections would result in a higher response rate. In order to cover my multifaceted social network I emailed individuals that I viewed as leaders from each *hub* to contact their network of individuals asking if anyone would be willing to participate in my survey, and if so to contact me. The decision to use my social network biased the sample due to my network being made up of mostly middle to upper class Caucasian students, which is not typical of emerging adults, nor the Union College student population.

The survey was emailed to the main Union College sibling and they were asked to forward my message, with their own personal words of encouragement, to all members of their sibling

group to fill out and submit online. Many things interrupted my response rate, for example: losing the link, not having enough time to answer about each sibling, siblings not being of age, or not wanting to complete the survey. Overall, I contacted 99 sibling groups, 46 partial surveys were complete, but only 24 sibling groups fully completed the surveys and were observed for the results. Out of the 24 sibling groups, 33% of the responses were from eight female-sex sibling groups, 13% of the responses were from three male-sex sibling groups, and the remaining 54% of the responses were from thirteen mixed-sex sibling groups. The table (Found in Appendix E) shows the sibling groups and responses, sibling groups with a * completed all sections of the questionnaire and were included in the measured data. I discuss the research instruments in detail later in this methods chapter.

Procedure

In order to begin my data collection I sought the necessary approval from the Human Subjects Research Review Committee. I was also granted enough money to purchase a mini Ipad as an incentive for students to participate from the Student Research Grant Committee. I then emailed my survey to the main Union College sibling the day after Thanksgiving, a time I believed most families would be together and therefore more likely to participate together. The email (found in Appendix A) consisted of a brief description of the study and a link for the participant to begin. Even though the survey itself said that the responses were all anonymous, this point was reiterated multiple times to ensure that if a participants had hesitation of their sibling seeing their responses it would quickly be eradicated quickly. Once the sibling questionnaire was completed I calculated summary scales and then compared means across sibling groups by gender composition, as well as calculated sibling cluster scores made up of the averages and standard deviations within sibling clusters.

Research Instrument: Surveys

Two surveys, The Adult Sibling Relationship Questionnaire, Stocker, Lanthier and Furman 1997, and The Friendship Closeness Questionnaire, Gottman and Parer 1986, (found in Appendix B and Appendix C) consisting of many different types of questions and response methods were emailed to all siblings within the sibling groups chosen to participate in this study. The surveys allowed for a higher participant involvement rate and allowed for more generalizations to be made about the closeness in sibling composition based on a certain subgroup. The core concepts the following two surveys are intended to measure are similarities, intimacy, competition, support, acceptance, and influences.

A large benefit to using a pre-existing questionnaire is that they have been well validated and tested for reliability. On the other hand, a large negative to using a pre-existing questionnaire is that it does not always give complete results to the question at hand. Because of this negative, it was decided that two surveys used in tandem would best cover this research question.

A survey (found in Appendix B) was emailed to all participating siblings. The questionnaire included 81 items conceptually grouped into 14 scales: intimacy, affection, knowledge, acceptance, similarity, admiration, emotional support, instrumental support, dominance, competition, antagonism, quarreling, maternal rivalry, and paternal rivalry. All questions (excluding 11,12,23,24,38,39,51,65,66,77, & 78) involved an answer that required the participant to choose whether the statement related to themselves and their specific sibling “hardly at all”, “not too much”, “neutral”, “agree”, or “extremely much”. Questions 11,12,23,24,38,39,51,65,66,77, & 78 required the participants to choose whether in specific situations the “participant is usually favored”, “participant is sometimes favored”, “neither participant nor sibling is favored”, “sibling is sometimes favored”, or “sibling is usually favored”. Continuing after the completion of the first

survey (found in Appendix B) an ##-question survey (found in Appendix C) was to be completed by the participating sibling. All questions in this survey involved an answer that required the participant to select their degree of agreement or disagreement; “strongly disagree”, “disagree”, “neutral”, “agree”, or “strongly agree”. These surveys helped assess the respondents’ perceptions of their own behavior and feelings toward their sibling(s), as well as their perceptions of their sibling’s behavior and feelings toward them.

Chapter 3: Results and Discussion

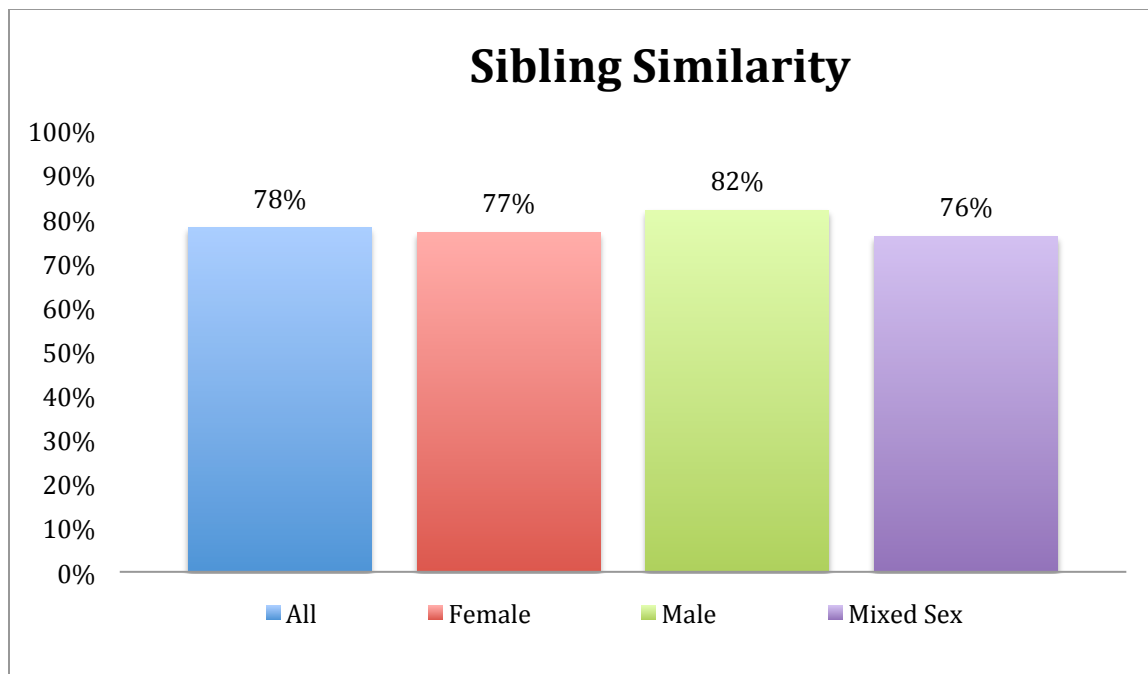
This chapter is made up of tables and charts derived from the survey. Results and implications are discussed in terms of findings as well as how much they support or conflict with the hypothesis. Frequency charts are supplied for each survey question and discussed in relation to the research found in the literature review.

Frequency Charts

Similarity

The first analysis examines how similar sibling groups perceive themselves to be, and whether this differs depending on whether the sibling group is brother-brother, sister-sister, or mixed sex. The measure of “similarity” is made up of four items (How much do you and this sibling have in common, How much do you and this sibling have similar personalities, How much do you and this sibling think alike, How much do you and this sibling lead similar lifestyles), each of which range from ‘very much’ (5) to ‘not at all’ (1). The measures were summed, and then averaged across sibling composition types. The scores were standardized by dividing the observed subgroup scale score by the maximum possible scale score (in this case $4 \times 5 = 20$). These standardized scores are presented in Figure 1.

Figure 1. Measuring Sibling Similarity



* female v. male $p > .05$; mixed v. male $p > .05$; mixed v. female, $p > .05$

As shown in Figure 1, there is relatively little variability in similarity scores. On the whole, similarity ratings were 78% of the maximum for all respondents, 77% for all-female sibling groups, 82% for all-male sibling groups, and 76% for mixed-sibling groups. None of the differences were statistically significant. The results of this measurement show that although siblings may be of the same sex, it does not mean they view their personalities as well as external qualities as similar to their counterpart(s). Although there is no definitively ‘more similar’ sibling composition it should be noted that all sibling compositions reported being over 75% similar to one another.

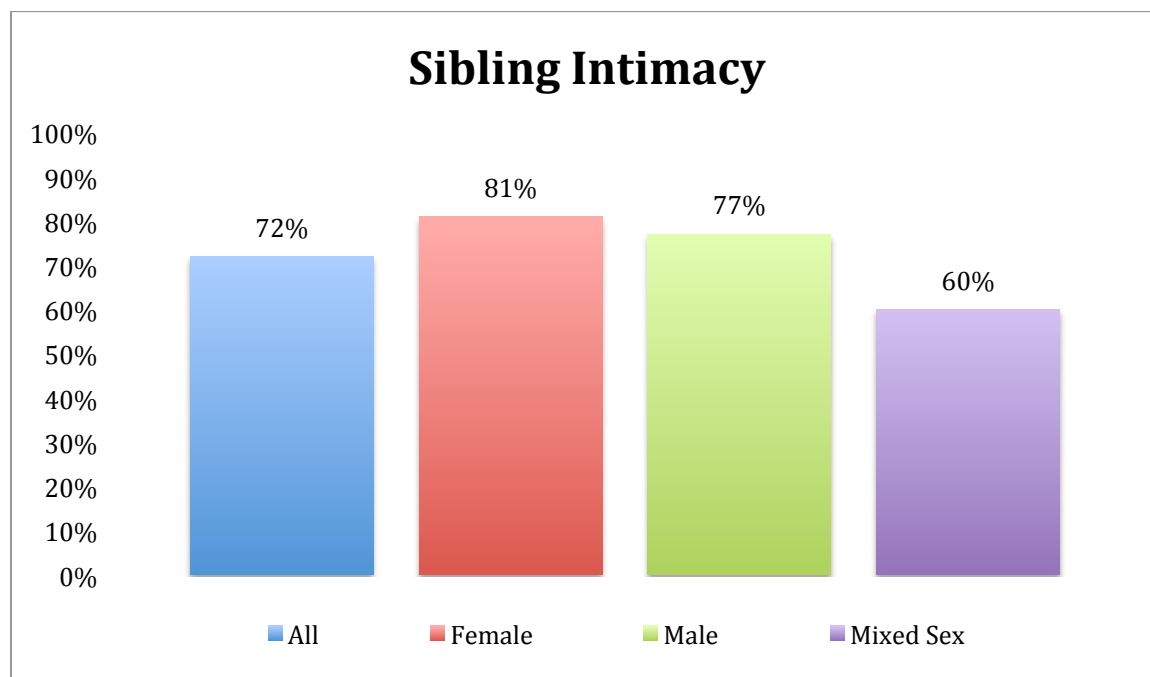
Intimacy

Intimacy

The next analysis examines how intimate sibling groups perceive themselves to be, and whether this differs depending on whether the sibling group is brother-brother, sister-sister, or mixed sex. The measure of “intimacy” is made up of six items (How much do you talk to this sibling about things that are important to you, How much does this sibling talk to you about things that are important to him or her, How much do you discuss your feelings or personal issues with

this sibling, How much does this sibling discuss his or her feelings or personal issues with you, How much do you really understand this sibling, How much does this sibling really understand you), each of which range from ‘very much’ (5) to ‘not at all’ (1). The measures were summed, and then averaged across sibling composition types. The scores, standardized by dividing the observed subgroup scale score by the maximum possible scale score (in this case $6 \times 5 = 30$). These standardized scores are presented in Figure 2.

Figure 2. Measuring Sibling Intimacy



*female v. male $p > .05$; mixed v. male $p > .05$; mixed v. female, $p > .05$

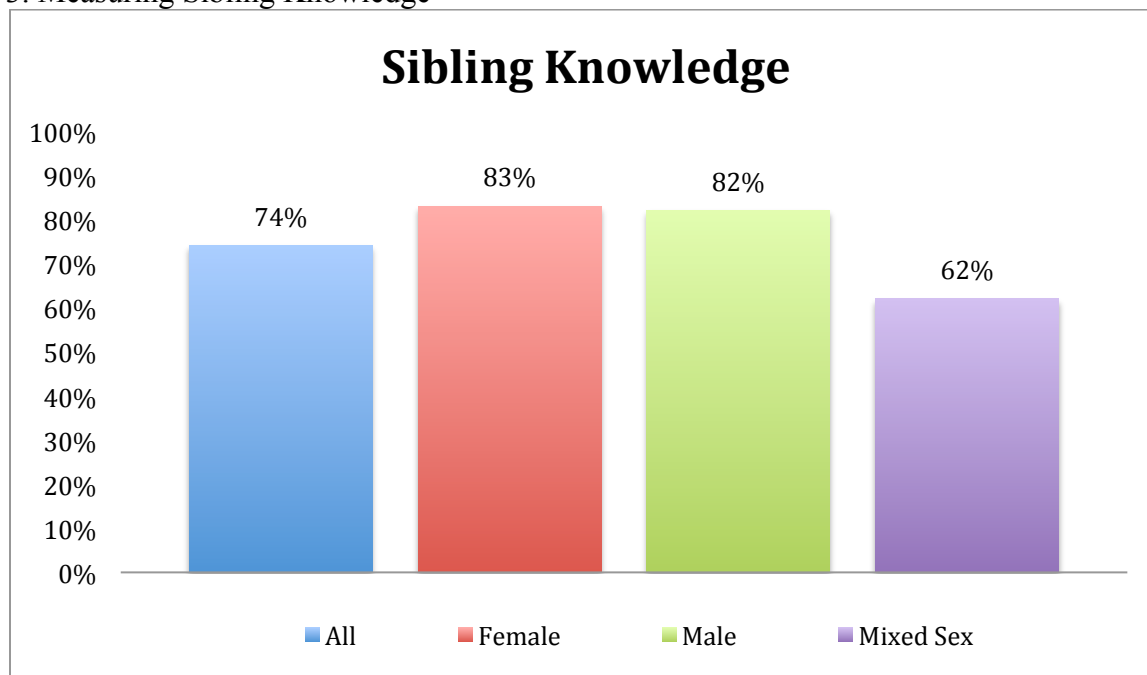
As shown in Figure 2, there is a twenty percentage-point difference in the scores. On the whole, intimacy ratings were 72% of the maximum for all respondents, 81% for all-female sibling groups, 77% for all-male sibling groups, and 60% for mixed-sibling groups. None of the differences were statistically significant.

Knowledge

Next, this analysis examines how much knowledge sibling groups perceive themselves to have, and whether this differs depending on whether the sibling group is brother-brother, sister-

sister, or mixed sex. The measure of “knowledge” is made up of six items (How much does this sibling know about you, How much do you know about this sibling, How much do you know about this sibling's relationships, How much does this sibling know about your relationships, How much do you know about this sibling's ideas, How much does this sibling know about your ideas), each of which range from ‘very much’ (5) to ‘not at all’ (1). The measures were summed, and then averaged across sibling composition types. The scores, standardized by dividing the observed subgroup scale score by the maximum possible scale score (in this case $5 \times 6 = 30$). These standardized scores are presented in Figure 3.

Figure 3. Measuring Sibling Knowledge



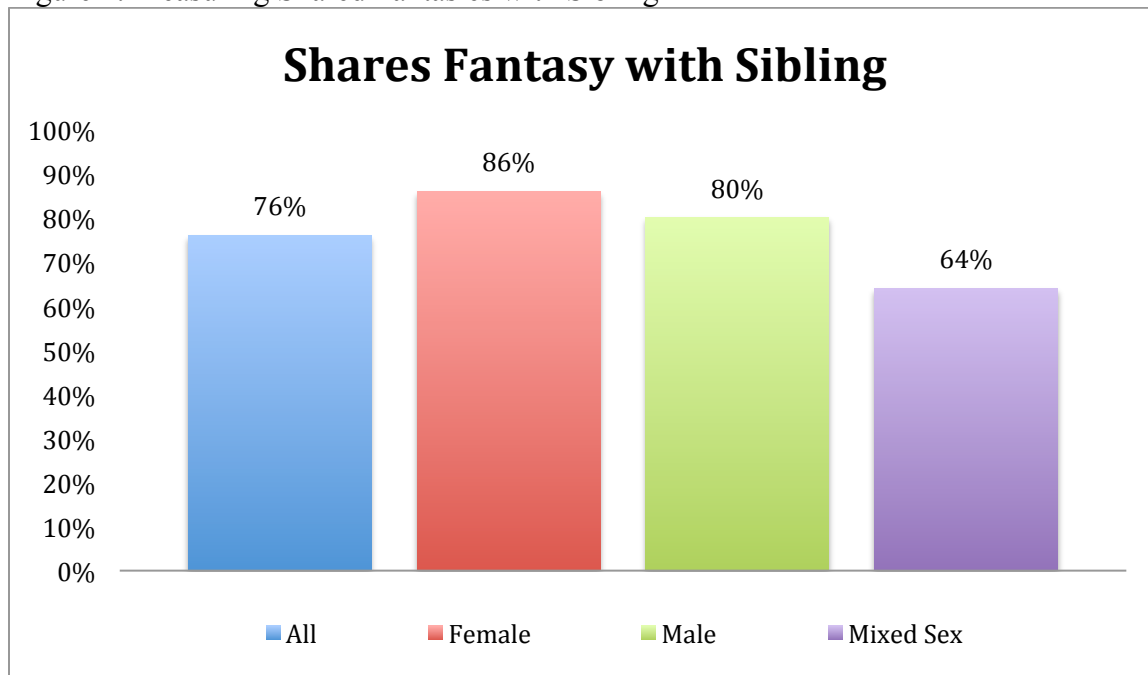
* female v. male $p > .05$; mixed v. male $p > .05$; mixed v. female, $p > .05$

As shown in Figure 3, there is over a 20 percentage-point difference in the scores. On the whole, knowledge ratings were 74% of the maximum for all respondents, 83% for all-female sibling groups, 82% for all-male sibling groups, and 62% for mixed-sibling groups. None of the differences were statistically significant.

Shared Fantasy

This analysis examines how much sibling perceive they share their fantasies to one another, and whether this differs depending on whether the sibling group is brother-brother, sister-sister, or mixed sex. The measure of “shared fantasies” is made up of seven items (My sibling is someone I can just play with, My sibling is someone with whom I can be completely silly, My sibling shares innermost thoughts with me, My sibling is someone with whom I discuss my dreams, My sibling tells me about his or her dreams, My sibling often includes me in things, My sibling is someone with whom I can pretend and explore fantasies), each of which range from ‘extremely much’ (5) to ‘hardly at all’ (1). The measures were summed, and then averaged across sibling composition types. The scores, standardized by dividing the observed subgroup scale scored by the maximum possible scale score (in this case $5 \times 7 = 35$). These standardized scores are presented in Figure 4.

Figure 4. Measuring Shared Fantasies with Sibling



* female v. male $p > .05$; mixed v. male $p > .05$; mixed v. female, $p > .05$

As shown in Figure 4, the notable differences in the variety in the scores is between female-siblings and mixed-sibling groups. On the whole, sharing fantasies ratings were 76% of the

maximum for all respondents, 86% for all-female sibling groups, 80% for all-male sibling groups, and 64% for mixed-sibling groups. None of the differences were statistically significant.

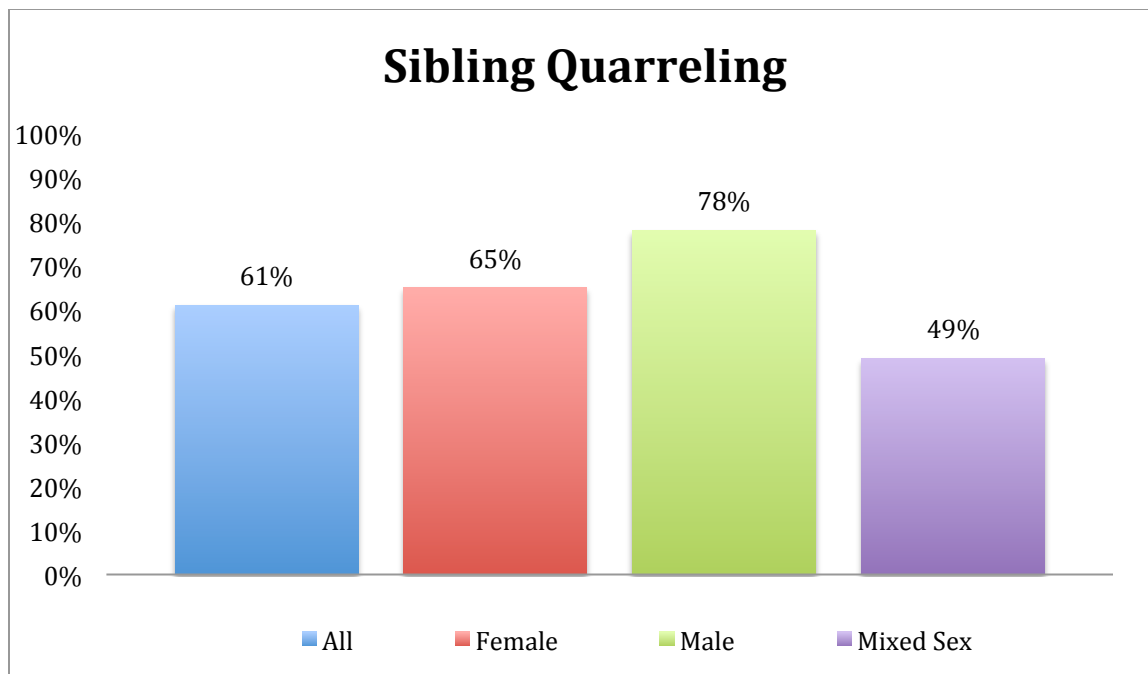
Although these results did not calculate as statistically significant it should be noted that siblings of the same sex report being almost 20 percentage-points more intimate than those siblings of opposite sexes. Similarly, when looking at shared fantasies siblings of the same sex report being over 15 percentage-points more intimate than those of mixed-sex siblings. This may be due to biological differences as well as societal expectations of each sex and is not surprising seeing that previous research such as Floyd, 1995, found that women were much more likely to talk and share on a deeper personal level about topics such as fears. Similarly, Connidis (1989) found that sisters were more likely than brothers or mixed-sex dyads “to be close friends or mutual confidants”(91).

Negative Measures

Quarreling

On the contrary, the following analysis examines how much sibling groups perceive themselves quarreling, and whether this differs depending on whether the sibling group is brother-brother, sister-sister, or mixed sex. The measure of “quarreling” is made up of five items (How much do you and this sibling argue with each other, How often does this sibling criticize you, How often do you criticize this sibling, How much does this sibling disagree with you about things, How much do you disagree with this sibling about things), each of which range from ‘very much’ (5) to ‘not at all’ (1). The measures were summed, and then averaged across sibling composition types. The scores, standardized by dividing the observed subgroup scale scored by the maximum possible scale score (in this case $5 \times 5 = 25$). These standardized scores are presented in Figure 5.

Figure 5. Measuring Quarreling between Siblings



* female v. male $p < .05$; mixed v. male $p < .05$; mixed v. female, $p > .05$

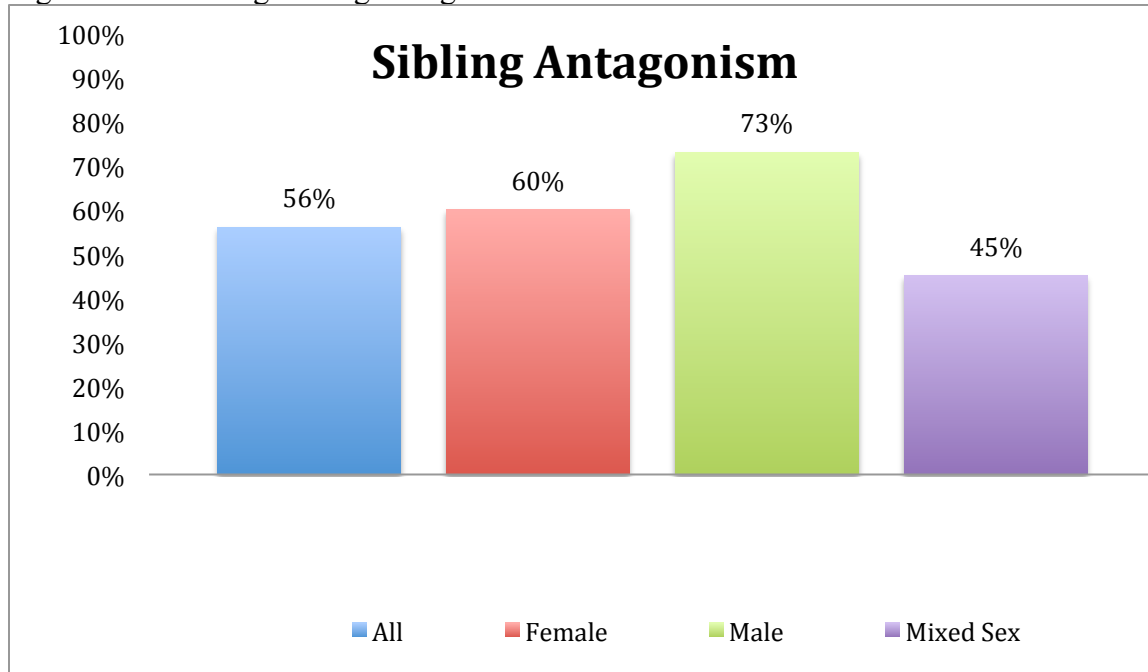
As shown in Figure 5, there is a notable variety in the scores. On the whole, quarreling ratings were 61% of the maximum for all respondents, 65% for all-female sibling groups, 78% for all-male sibling groups, and 49% for mixed-sibling groups. The differences between all-male sibling groups compared to all-female sibling groups ($t=3.11$) as well as the differences between all-male sibling groups compared to mixed-sibling groups ($t=3.76$) are statistically significant at the .05 level.

Antagonism

The next analysis examines how antagonistic sibling groups perceive themselves to be, and whether this differs depending on whether the sibling group is brother-brother, sister-sister, or mixed sex. The measure of “antagonism” is made up of six items (How much do you irritate this sibling, How much does this sibling irritate you, How often does this sibling do things to make you mad, How often do you do things to make this sibling mad, How much does this sibling put you down, How much do you put this sibling down), each of which range from ‘very much’ (5) to ‘not at all’ (1). The measures were summed, and then averaged across sibling composition types. The

scores, standardized by dividing the observed subgroup scale score by the maximum possible scale score (in this case $5 \times 6 = 30$). These standardized scores are presented in Figure 6.

Figure 6. Measuring Sibling Antagonism



*female v. male $p < .05$; mixed v. male $p < .05$; mixed v. female, $p > .05$

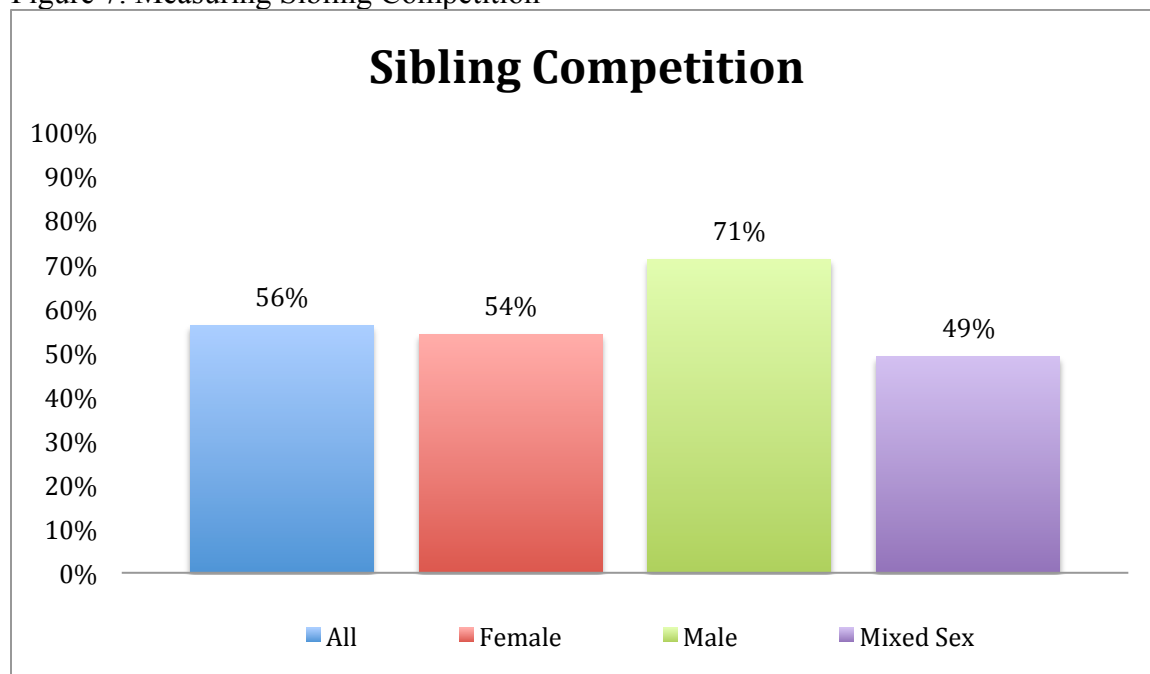
As shown in Figure 6, there is a notable variety in the scores. On the whole, antagonism ratings were 56% of the maximum for all respondents, 60% for all-female sibling groups, 73% for all-male sibling groups, and 45% for mixed-sibling groups. The differences between all-male sibling groups compared to all-female sibling groups ($t=4.01$) as well as the differences between all-male sibling groups compared to mixed-sibling groups ($t=6.09$) are statistically significant at the .05 level.

Competition

The next analysis examines how much competition sibling groups perceive themselves to have, and whether this differs depending on whether the sibling group is brother-brother, sister-sister, or mixed sex. The measure of “competition” is made up of six items (How competitive are

you with this sibling, How competitive is this sibling with you, How much does this sibling feel jealous of you, How much do you feel jealous of this sibling, How much does this sibling try to perform better than you, How much do you try to perform better than this sibling), each of which range from ‘very much’ (5) to ‘not at all’ (1). The measures were summed, and then averaged across sibling composition types. The scores, standardized by dividing the observed subgroup scale scored by the maximum possible scale score (in this case $5 \times 6 = 30$). These standardized scores are presented in Figure 7.

Figure 7. Measuring Sibling Competition



* female v. male $p < .05$; mixed v. male $p < .05$; mixed v. female, $p < .05$

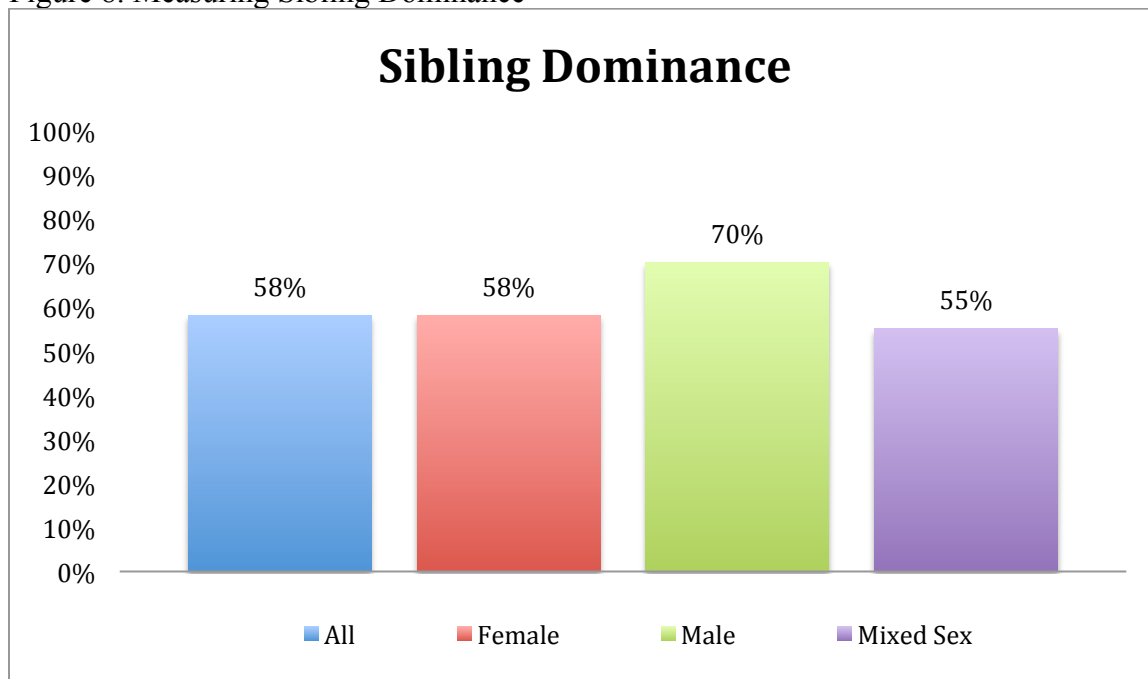
As shown in Figure 7, there is one notable difference in the variety in the scores; all-male sibling groups. On the whole, competition ratings were 56% of the maximum for all respondents, 54% for all-female sibling groups, 71% for all-male sibling groups, and 49% for mixed-sibling groups. All three differences amongst the groups are statistically significant. The differences between all-male sibling groups compared to all-female sibling groups ($t=2.60$), the differences between all-male sibling groups compared to mixed-sibling groups ($t=3.46$), and lastly the

differences between all-female sibling groups compared to mixed-sibling groups ($t=2.13$) are statistically significant at the .05 level.

Dominance

Next, this analysis examines how much dominance sibling groups perceive themselves to have, and whether this differs depending on whether the sibling group is brother-brother, sister-sister, or mixed sex. The measure of “dominance” is made up of six items (How much do you dominate this sibling, How much does this sibling dominate you, How much is this sibling bossy with you, How much are you bossy with this sibling, How much does this sibling act in superior ways to you, How much do you act in superior ways to this sibling), each of which range from ‘very much’ (5) to ‘not at all’ (1). The measures were summed, and then averaged across sibling composition types. The scores, standardized by dividing the observed subgroup scale score by the maximum possible scale score (in this case $5 \times 6 = 30$). These standardized scores are presented in Figure 8.

Figure 8. Measuring Sibling Dominance



* female v. male $p < .05$; mixed v. male $p < .05$; mixed v. female, $p > .05$

As shown in Figure 8, there is one notable difference in the variety in the scores; all-male sibling groups. On the whole, dominance ratings were 58% of the maximum for all respondents, 58% for all-female sibling groups, 70% for all-male sibling groups, and 55% for mixed-sibling groups. The differences between all-male sibling groups compared to all-female sibling groups ($t=2.6$) as well as the differences between all-male sibling groups compared to mixed-sibling groups ($t=3.46$) are statistically significant at the .05 level.

Some may find it out of place to have negative measurements but these, as well as positive measurements, allows the observer to understand the full relationship. Antagonism is synonymous with aggression and rivalry and therefore it is not surprising that male-sibling groups generally reported almost 20 percentage-point difference higher than the average of all sibling groups and over 10 percentage-point difference higher than female sibling groups.

These results follow the same patterns as previous research done by Klagsbrun (1992). In his results it was found that the closeness sister's share may exacerbate their competitiveness because they are entwined in the details of each other's lives, but brothers are more directly competitive lacking in a more intimate relationship. Seeing that mixed-sex sibling groups reported the overall lowest reported closeness it is not surprising that they feel less competitive; this may be due to their lack of entwined lives and less competitive feelings seeing that they are not as similar as same-sex siblings whom may feel the need to compete.

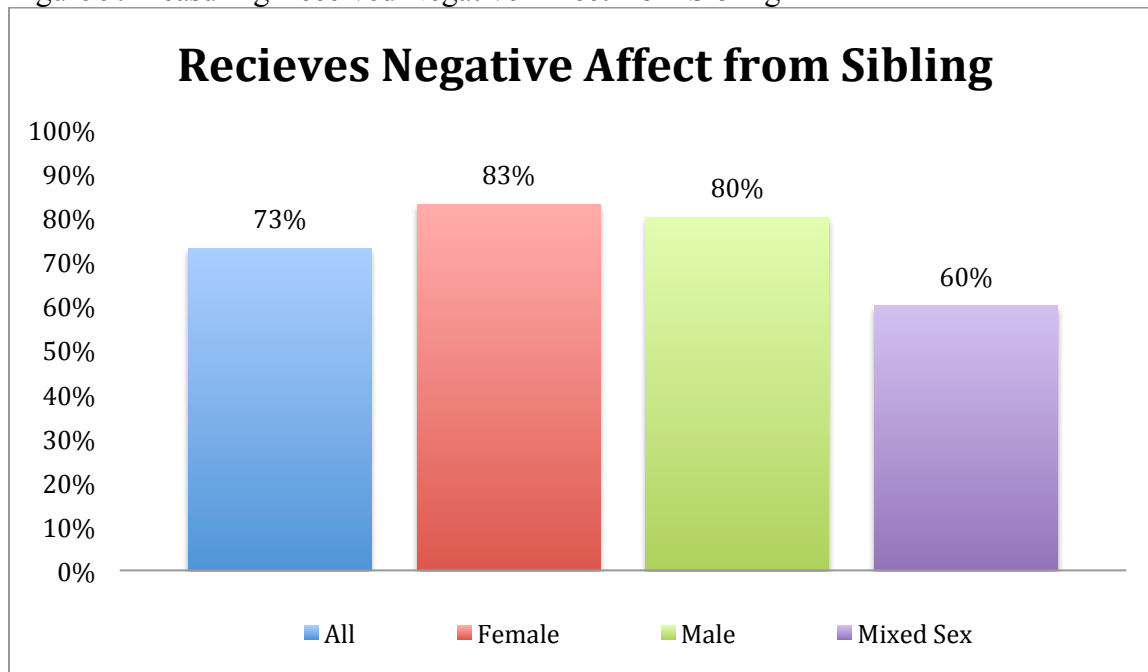
It should be noted that in both measurements, sibling quarreling as well as sibling antagonism, male-sex siblings pairs reported over 10 percentage-point differences higher than both female-sex and mixed-sex siblings. Also in both measurements the differences between all-male sibling groups compared to all-female sibling groups and mixed-sibling groups were statistically significant.

Negative Affection

Receives Negative Affection

The next analysis examines how much negative affect a sibling receives, how much each sibling group perceive themselves to have, and whether this differs depending on whether the sibling group is brother-brother, sister-sister, or mixed sex. The measure of “received negative affection” is made up of five items (My sibling lets me know when he or she is mad at me, My sibling tells me about his or her anxieties, My sibling is someone who starts fights with me, My sibling is willing to tell me about my faults, My sibling can be very nasty to me), each of which range from ‘extremely much’ (5) to ‘hardly at all’ (1). The measures were summed, and then averaged across sibling composition types. The scores, standardized by dividing the observed subgroup scale score by the maximum possible scale score (in this case $5 \times 5 = 25$). These standardized scores are presented in Figure 9.

Figure 9. Measuring Received Negative Affect from Sibling



* female v. male $p > .05$; mixed v. male $p > .05$; mixed v. female, $p > .05$

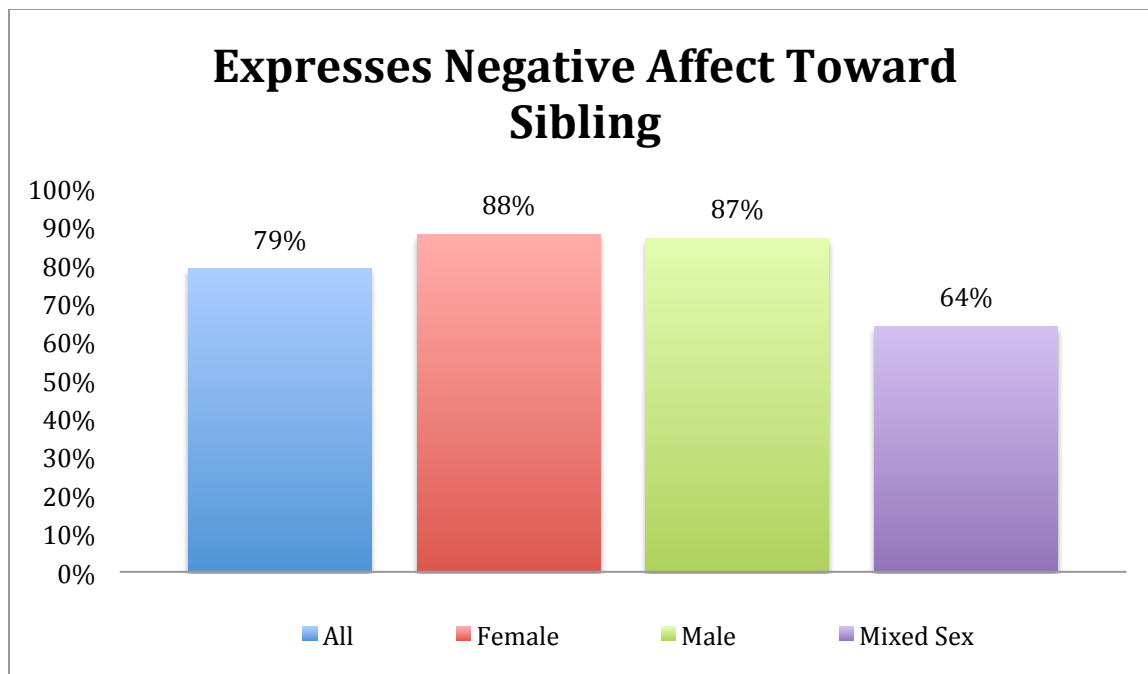
As shown in Figure 9, there is over a 20% variety in the scores. On the whole, received negative affect ratings were 73% of the maximum for all respondents, 83% for all-female sibling

groups, 80% for all-male sibling groups, and 60% for mixed-sibling groups. None of the differences were statistically significant.

Expresses Negative Affection

The next analysis examines how much negative affect sibling express towards one another, how much each sibling group perceive themselves to express this, and whether this differs depending on whether the sibling group is brother-brother, sister-sister, or mixed sex. The measure of “expressed negative affection” is made up of seven items (My sibling is someone I can argue with about ideas, My sibling is someone to whom I can express anger, My sibling is someone I can be very nasty to, My sibling is sensitive to my feelings, My sibling is someone with whom I don’t have to be polite, My sibling is someone I can confide in when I’m in trouble, My sibling is someone to whom I can express my fears and worries), each of which range from ‘extremely much’ (5) to ‘hardly at all’ (1). The measures were summed, and then averaged across sibling composition types. The scores, standardized by dividing the observed subgroup scale scored by the maximum possible scale score (in this case $5 \times 7 = 35$). These standardized scores are presented in Figure 10.

Figure 10. Measuring Expression of Negative Affect Toward Sibling



* female v. male $p > .05$; mixed v. male $p > .05$; mixed v. female, $p > .05$

As shown in Figure 10, there is over a 20 percentage-point difference in the scores. On the whole, expressing negative affect ratings were 79% of the maximum for all respondents, 88% for all-female sibling groups, 87% for all-male sibling groups, and 64% for mixed-sibling groups. None of the differences were statistically significant.

In both measurements of receiving and expressing negative affect toward and from siblings same-sex sibling groups had results varying by 3 percentage-point differences. It should be noted that mixed-sex sibling groups reported almost twenty percentage-point differences below both same-sex sibling groups and over ten percentage-point differences lower than the overall reported percentage of negative affect.

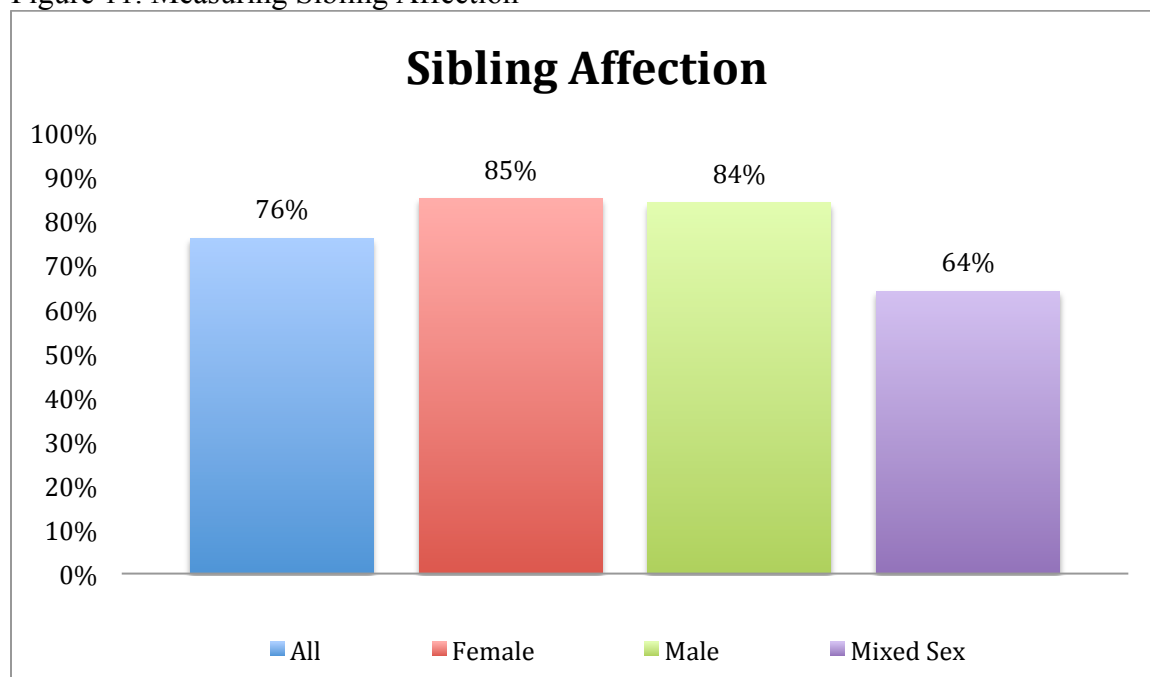
Positive Affection

General Positive Affection

The next analysis examines how affectionate sibling groups perceive themselves to be, and whether this differs depending on whether the sibling group is brother-brother, sister-sister, or mixed sex. The measure of “affection” is made up of six items (How much does this sibling think

of you as a good friend, How much do you think of this sibling as a good friend, How close do you feel to this sibling, How close does this sibling feel to you, How much do you let this sibling know you care about him or her, How much does this sibling let you know he or she cares about you), each of which range from ‘very much’ (5) to ‘not at all’ (1). The measures were summed, and then averaged across sibling composition types. The scores, standardized by dividing the observed subgroup scale score by the maximum possible scale score (in this case $5 \times 6 = 30$). These standardized scores are presented in Figure 11.

Figure 11. Measuring Sibling Affection



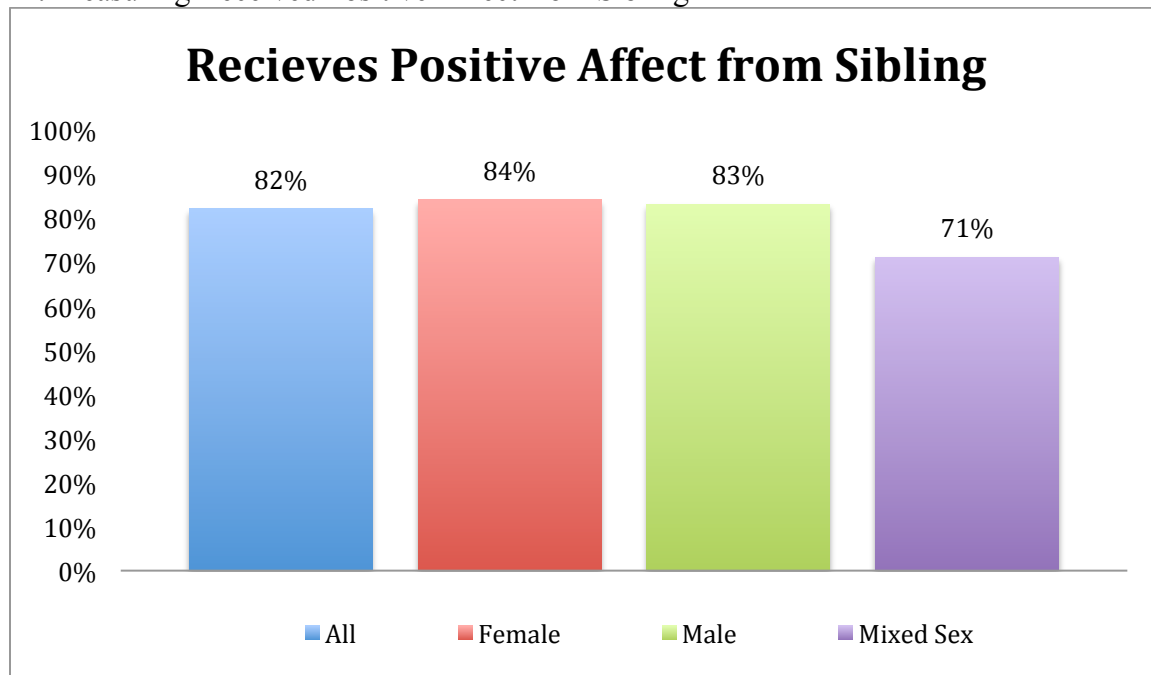
* female v. male $p > .05$; mixed v. male $p > .05$; mixed v. female, $p > .05$

As shown in Figure 11, there is a 20 percentage-point difference in the scores between same-sex and mixed-sex siblings. On the whole, affection ratings were 76% of the maximum for all respondents, 85% for all-female sibling groups, 84% for all-male sibling groups, and 64% for mixed-sibling groups. None of the differences were statistically significant.

Received Positive Affection

The next analysis examines how much positive affect a sibling receives, how much each sibling group perceive themselves to have, and whether this differs depending on whether the sibling group is brother-brother, sister-sister, or mixed sex. The measure of “received positive affection” is made up of six items (My sibling is someone who makes me feel needed, My sibling expresses liking for me, My sibling is empathetic toward me, My sibling cares about me, My sibling is someone I often include in things, My sibling is someone who sees my faults but likes me anyhow), each of which range from ‘extremely much’ (5) to ‘hardly at all’ (1). The measures were summed, and then averaged across sibling composition types. The scores, standardized by dividing the observed subgroup scale scored by the maximum possible scale score (in this case $5 \times 6 = 30$). These standardized scores are presented in Figure 12.

Figure 12. Measuring Received Positive Affect from Sibling



* female v. male $p > .05$; mixed v. male $p < .05$; mixed v. female, $p < .05$

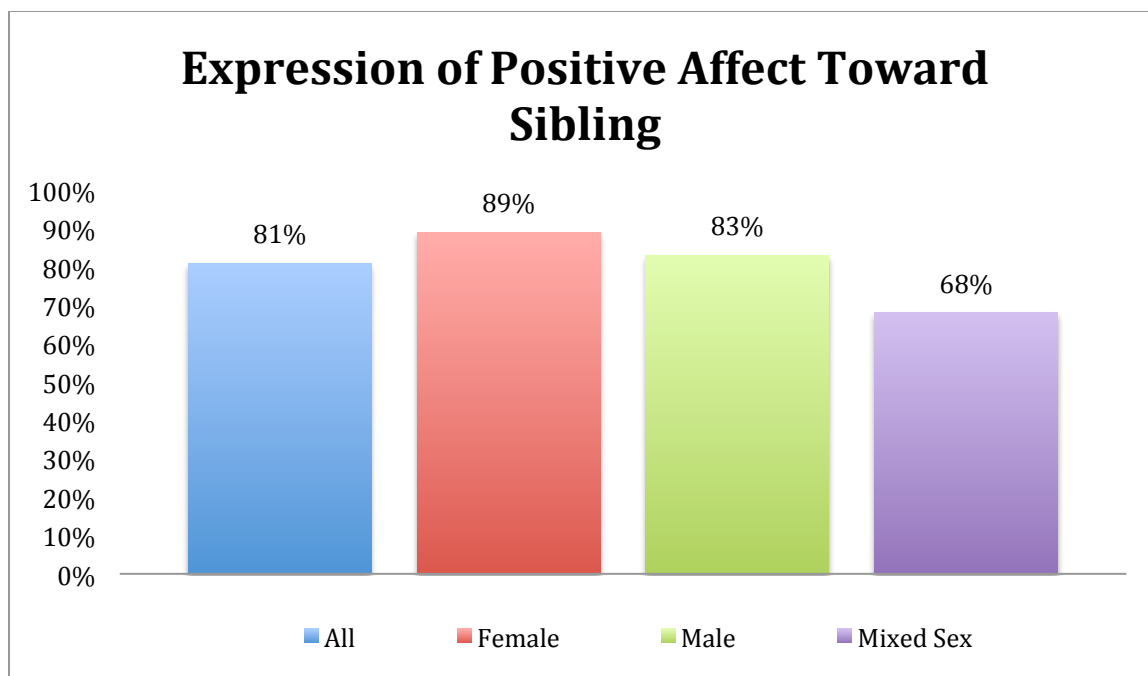
As shown in Figure 12, there is one notable difference in the variety in the scores; mixed-sibling groups. On the whole, receiving positive affect ratings were 82% of the maximum for all

respondents, 84% for all-female sibling groups, 83% for all-male sibling groups, and 71% for mixed-sibling groups. The differences between all-male sibling groups compared to mixed-sibling groups ($t=2.23$) as well as the differences between all-female sibling groups compared to mixed-sibling groups ($t=3.63$) are statistically significant at the .05 level.

Expressed Positive Affection

The next analysis examines how much positive affect sibling express towards one another, how much each sibling group perceive themselves to express this, and whether this differs depending on whether the sibling group is brother-brother, sister-sister, or mixed sex. The measure of “expressed positive affection” is made up of nine items (My sibling is someone to whom I can feel empathetic, My sibling is someone who brings out my deepest emotions, My sibling is someone who doesn’t make me feel embarrassed to show my feelings, My sibling is someone I tell I like, My sibling is someone who makes me laugh, My sibling is someone I can easily start a fight with, My sibling is someone who is interested in what I think, My sibling is someone to whom I can express affection, My sibling is someone I care about), each of which range from ‘extremely much’ (5) to ‘hardly at all’ (1). The measures were summed, and then averaged across sibling composition types. The scores, standardized by dividing the observed subgroup scale scored by the maximum possible scale score (in this case $5*9=45$). These standardized scores are presented in Figure 13.

Figure 13. Measuring Expression of Positive Affect Toward Sibling



* female v. male $p > .05$; mixed v. male $p > .05$; mixed v. female, $p > .05$

As shown in Figure 13, there is one notable difference in the variety in the scores; mixed-sibling groups. On the whole, expressing positive affect ratings were 81% of the maximum for all respondents, 89% for all-female sibling groups, 83% for all-male sibling groups, and 68% for mixed-sibling groups. None of the differences were statistically significant.

Seeing that same-sex siblings reported receiving and giving positive affect over eighty percent is extremely interesting seeing that many scholars assume that verbal self-disclosure is a definitive referent for closeness and the assumption that females disclose verbally more than males. These results challenge that theory and support the idea that same-sex siblings disclose positive affection towards one another over 10 percentage-points than mixed-sex siblings. These results also disagree with Chodorow's findings that grown up girls identify closely with their mother's nurturing and care-giving affectionate attributes, while boys turn away and establish their own identities from their mothers. Instead, the data from Figure 11 shows that both female and male same-sex siblings reported high rates of affection varying by only 1 percentage-point difference.

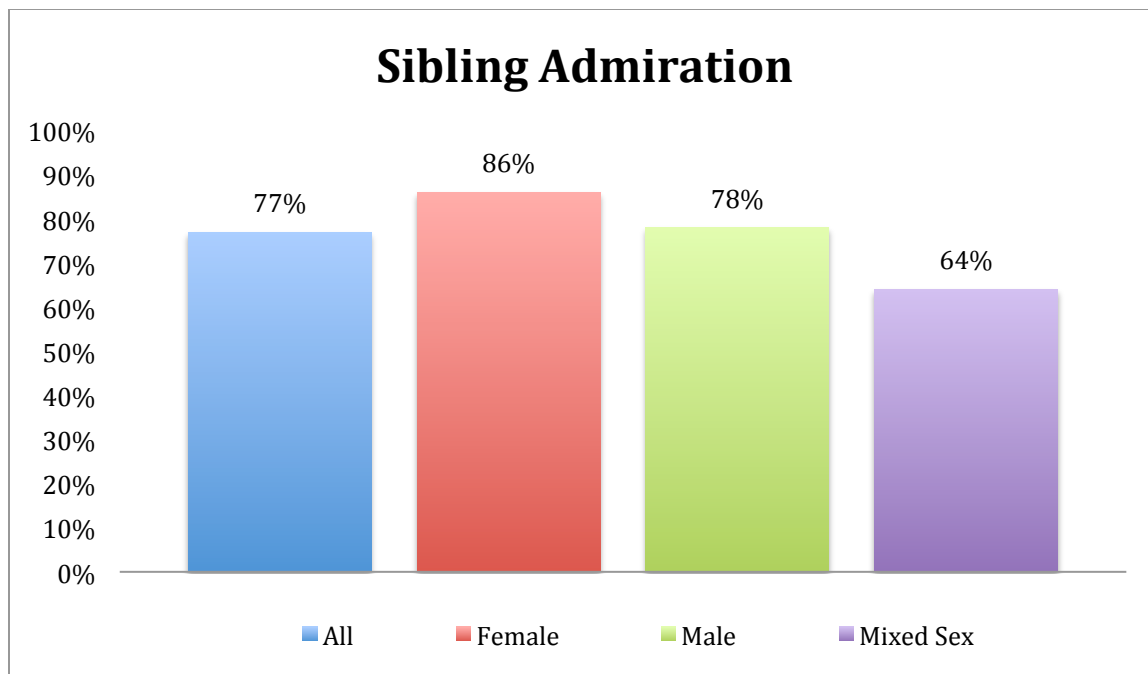
It is also interesting to note that while the measurement of siblings affection in Figure 11 and Figure 13 were not statistically significant, the measurement in Figure 12 was. An interesting question is why the measurements looking at receiving positive affect were statistically significant, but the measurement looking at expressing positive affect were not.

Approval

Admiration

The following analysis examines how admirable sibling groups perceive themselves to be, and whether this differs depending on whether the sibling group is brother-brother, sister-sister, or mixed sex. The measure of “admiration” is made up of six items (How much does this sibling admire you, How much do you admire this sibling, How much do you think that this sibling has accomplished a great deal in life, How much does this sibling think that you have accomplished a great deal in life, How much do you feel proud of this sibling, How much does this sibling feel proud of you), each of which range from ‘very much’ (5) to ‘not at all’ (1). The measures were summed, and then averaged across sibling composition types. The scores, standardized by dividing the observed subgroup scale score by the maximum possible scale score (in this case $5 \times 6 = 30$). These standardized scores are presented in Figure 14.

Figure 14. Measuring Sibling Admiration



* female v. male $p > .05$; mixed v. male $p > .05$; mixed v. female, $p > .05$

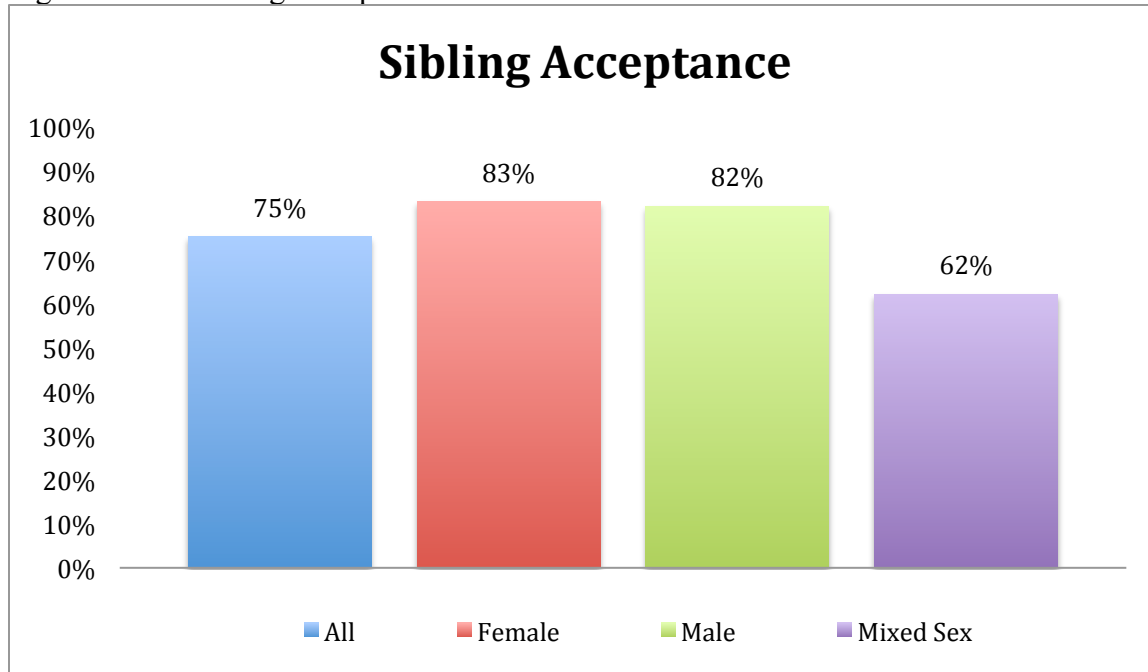
As shown in Figure 14, there is over a 20% variety in the scores. On the whole, admiration ratings were 77% of the maximum for all respondents, 86% for all-female sibling groups, 78% for all-male sibling groups, and 64% for mixed-sibling groups. None of the differences were statistically significant.

Acceptance

The next analysis examines how accepting sibling groups perceive themselves to be, and whether this differs depending on whether the sibling group is brother-brother, sister-sister, or mixed sex. The measure of “acceptance” is made up of six items (How much does this sibling accept your personality, How much do you accept this sibling's personality, How much do you accept this sibling's lifestyle, How much does this sibling accept your lifestyle, How much do you accept this sibling's ideas, How much does this sibling accept your ideas), each of which range from ‘very much’ (5) to ‘not at all’ (1). The measures were summed, and then averaged across sibling composition types. The scores, standardized by dividing the observed subgroup scale scored by the

maximum possible scale score (in this case $5 \times 6 = 30$). These standardized scores are presented in Figure 15.

Figure 15. Measuring Acceptance



* female v. male $p > .05$; mixed v. male $p > .05$; mixed v. female, $p > .05$

As shown in Figure 15, there is over a 20% variety in the scores. On the whole, acceptance ratings were 75% of the maximum for all respondents, 83% for all-female sibling groups, 82% for all-male sibling groups, and 62% for mixed-sibling groups. None of the differences were statistically significant.

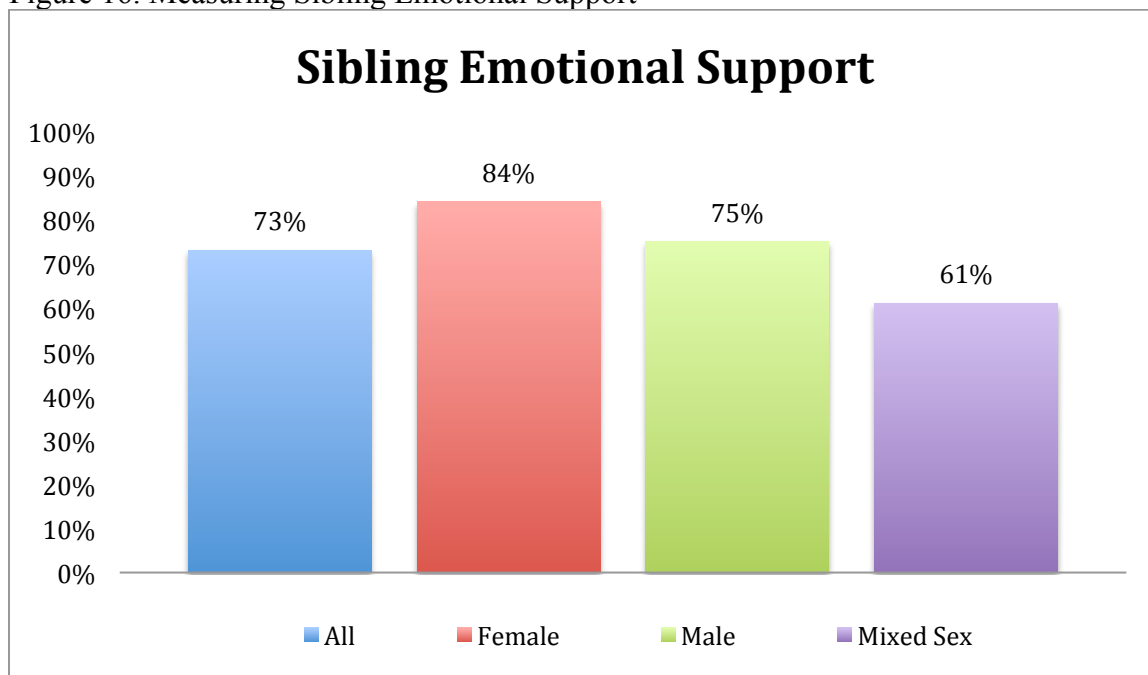
These results show that while female-sibling groups report about a 10 percentage-point difference higher than male-sibling groups in sibling admiration, when it comes to acceptance the two same-sex sibling groups vary by only 1 percentage-point. In both measurement, admiration and acceptance, same-sex sibling groups report over twelve percentage-points higher than mixed-sibling groups.

Support

Emotional Support

Next, the analysis examines how much emotional support sibling groups perceive themselves to be, and whether this differs depending on whether the sibling group is brother-brother, sister-sister, or mixed sex. The measure of “emotional support” is made up of six items (How much does this sibling try to cheer you up when you are feeling down, How much do you try to cheer this sibling up when he or she is feeling down, How much can you count on this sibling to be supportive when you are feeling stressed, How much can this sibling count on you to be supportive when he or she is feeling stressed, How much do you discuss important personal decisions with this sibling, How much does this sibling discuss important personal decisions with you), each of which range from ‘very much’ (5) to ‘not at all’ (1). The measures were summed, and then averaged across sibling composition types. The scores, standardized by dividing the observed subgroup scale score by the maximum possible scale score (in this case $5 \times 6 = 30$). These standardized scores are presented in Figure 16.

Figure 16. Measuring Sibling Emotional Support



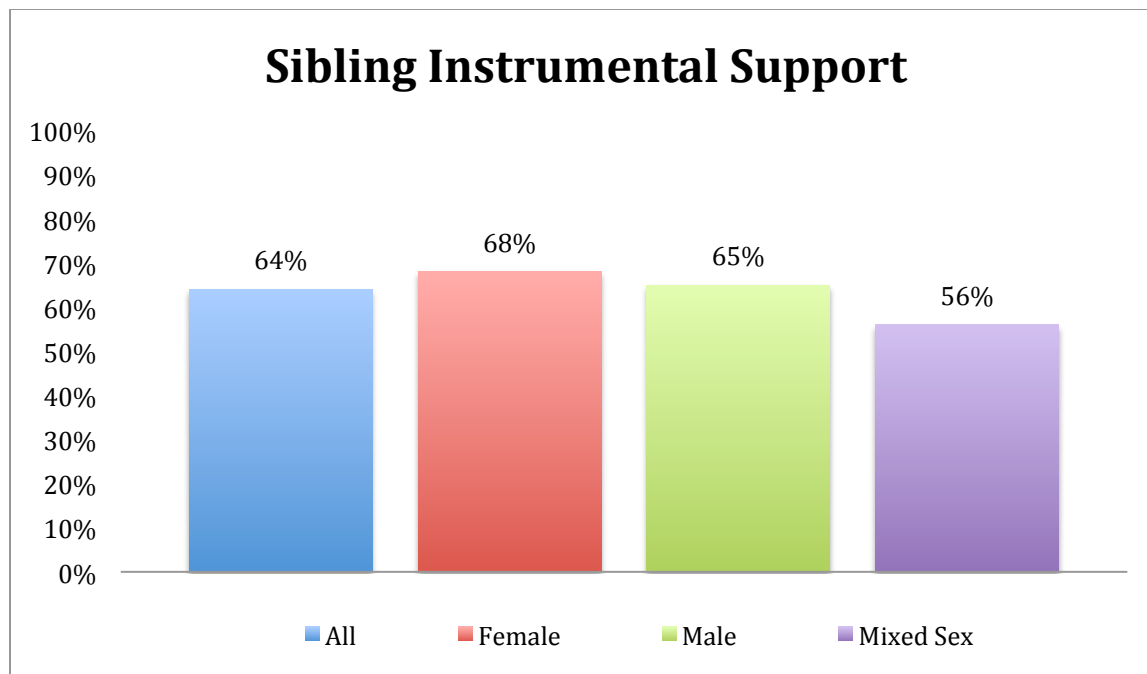
* female v. male $p>.05$; mixed v. male $p>.05$; mixed v. female, $p>.05$

As shown in Figure 16, there is over a 20 percentage-point difference in the scores. On the whole, emotional support ratings were 73% of the maximum for all respondents, 84% for all-female sibling groups, 75% for all-male sibling groups, and 61% for mixed-sibling groups. None of the differences were statistically significant.

Instrumental Support

The next analysis examines how much instrumental support sibling groups perceive themselves to have, and whether this differs depending on whether the sibling group is brother-brother, sister-sister, or mixed sex. The measure of “instrumental support” is made up of six items (How much does this sibling go to you for help with non-personal problems, How much do you go to this sibling for help with non-personal problems, How much do you give this sibling practical Advice? (e.g. household or car advice), How much does this sibling give you practical advice, How likely is it you would go to this sibling if you needed financial assistance, How likely is it this sibling would go to you if he or she needed financial assistance), each of which range from ‘very much’ (5) to ‘not at all’ (1). The measures were summed, and then averaged across sibling composition types. The scores, standardized by dividing the observed subgroup scale score by the maximum possible scale score (in this case $5*6=30$). These standardized scores are presented in Figure 17.

Figure 17. Measuring Sibling Instrumental Support



* female v. male $p < .05$; mixed v. male $p < .05$; mixed v. female, $p > .05$

As shown in Figure 17, there is little variety in the scores. On the whole, instrumental support ratings were 64% of the maximum for all respondents, 68% for all-female sibling groups, 65% for all-male sibling groups, and 56% for mixed-sibling groups. The differences between all-female sibling groups compared to mixed-sibling groups ($t=2.64$) as well as the differences between all-male sibling groups compared to mixed-sibling groups ($t=2.71$) are statistically significant at the .05 level.

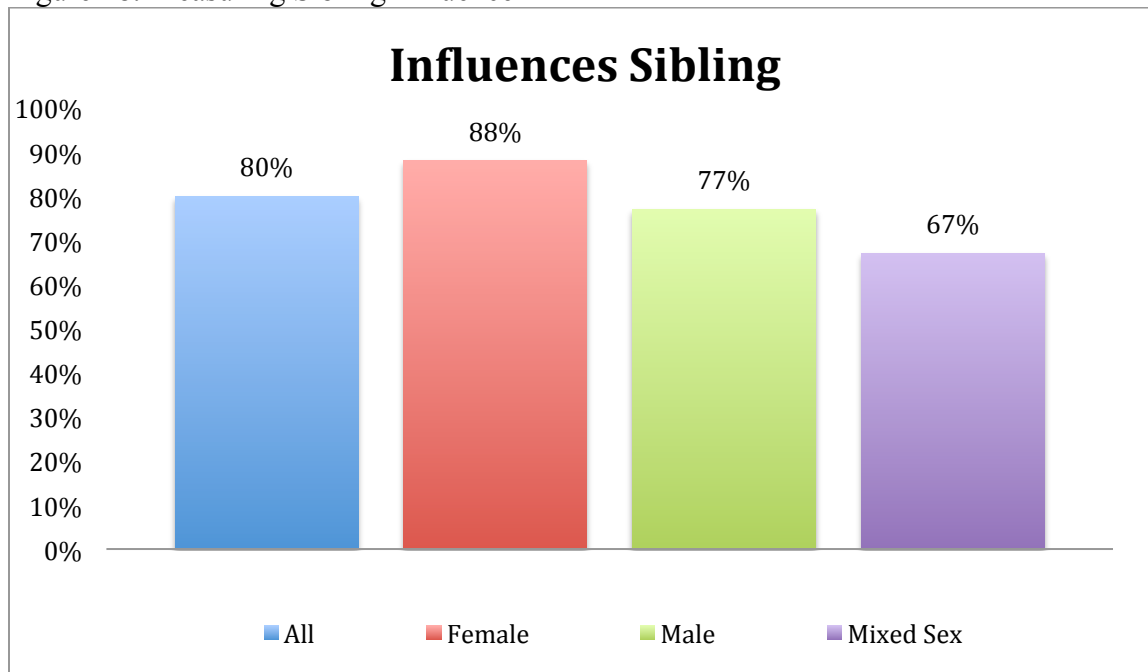
These measurements of support varied a significant amount. While emotional support ranged from 84 – 61%, the maximum reported percent of instrumental support was 68%. This may be due to location of siblings in young adulthood rather than lack of offering. Through studying young adults it has been found that different forces are physically pulling siblings apart, such as college and jobs, but emotional needs are pulling siblings together and often forging strong emotional alliances. The data completely supports this life-course idea.

Perception

Influence on Sibling

The next analysis examines how influential sibling groups perceive themselves to be, and whether this differs depending on whether the sibling group is brother-brother, sister-sister, or mixed sex. The measure of “influencing” is made up of seven items (My sibling has accepted my views on several issues, My sibling recognizes my capabilities, My sibling makes me feel smart, My sibling is someone with whom I can talk about plans for the future, My sibling treats my like an important person, My sibling asks me for advice, My sibling has changed his or her views on some things as a result of my influence), each of which range from ‘extremely much’ (5) to ‘hardly at all’ (1). The measures were summed, and then averaged across sibling composition types. The scores, standardized by dividing the observed subgroup scale scored by the maximum possible scale score (in this case $5 \times 7 = 35$). These standardized scores are presented in Figure 18.

Figure 18. Measuring Sibling Influence



* female v. male $p < .05$; mixed v. male $p < .05$; mixed v. female, $p > .05$

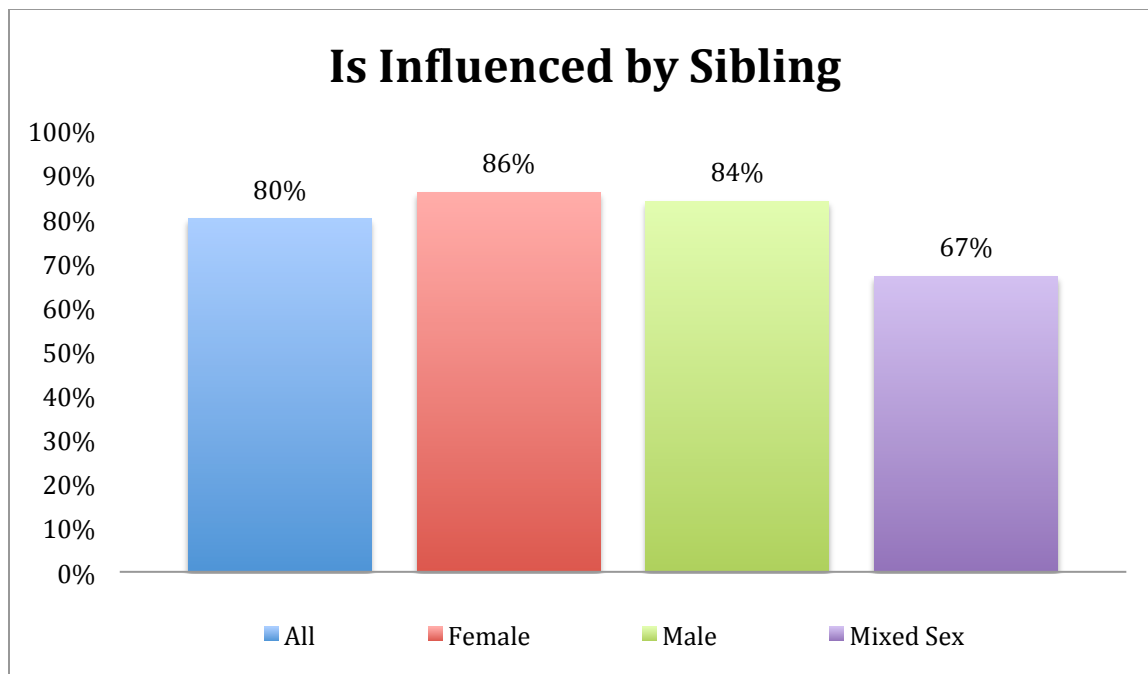
As shown in Figure 18, there is one notable difference in the variety in the scores; all-female sibling groups. On the whole, influencing ratings were 80% of the maximum for all respondents,

88% for all-female sibling groups, 77% for all-male sibling groups, and 67% for mixed-sibling groups. The differences between all-male sibling groups compared to mixed-sibling groups ($t=3.55$) as well as the differences between all-female sibling groups compared to all-male sibling groups ($t=2.48$) are statistically significant at the .05 level.

Influence of Sibling

The next analysis examines how much sibling groups perceive themselves to be influenced by one another, and whether this differs depending on whether the sibling group is brother-brother, sister-sister, or mixed sex. The measure of “being influenced” is made up of six items (My sibling is a capable individual, My sibling is someone I often turn to for advice, My sibling has my admiration, My sibling is someone whose thoughts and ideas I respect, My sibling has my respect, My sibling has changed my opinions on some things), each of which range from ‘extremely much’ (5) to ‘hardly at all’ (1). The measures were summed, and then averaged across sibling composition types. The scores, standardized by dividing the observed subgroup scale score by the maximum possible scale score (in this case $5 \times 6 = 30$). These standardized scores are presented in Figure 19.

Figure 19. Measuring Influence of Other Sibling



* female v. male $p > .05$; mixed v. male $p > .05$; mixed v. female, $p > .05$

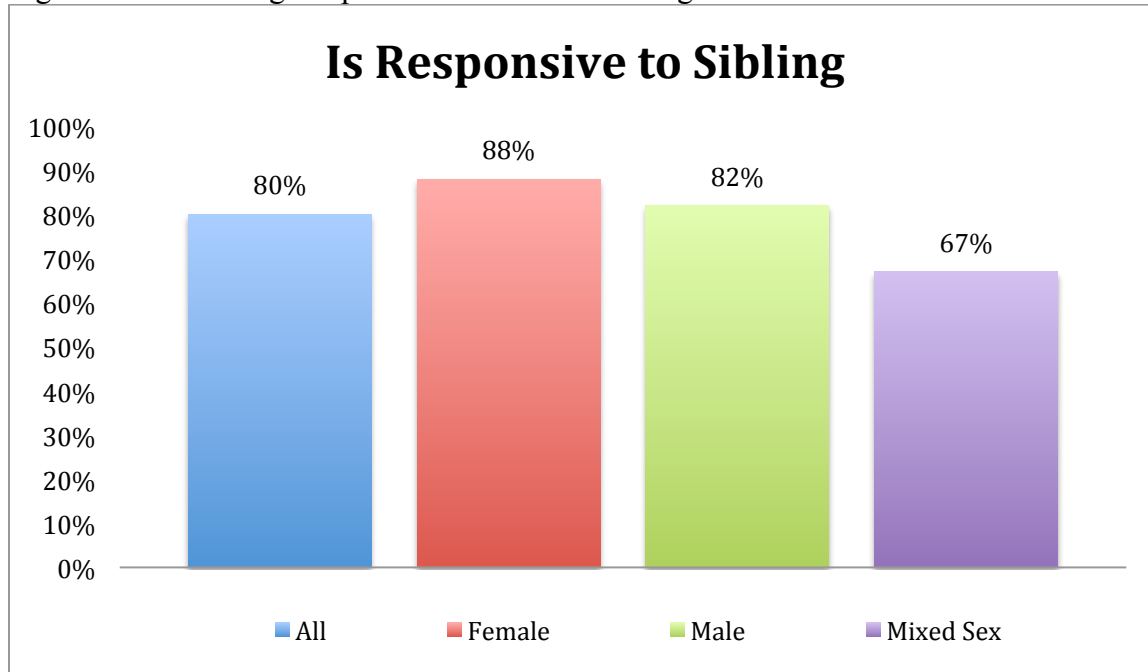
As shown in Figure 19, there is one notable difference in the variety in the scores; mixed-sibling groups. On the whole, influence of other sibling ratings were 80% of the maximum for all respondents, 86% for all-female sibling groups, 84% for all-male sibling groups, and 67% for mixed-sibling groups. None of the differences were statistically significant.

Responsive to Sibling

The next analysis examines how responsive sibling groups perceive themselves to be to one another, and whether this differs depending on whether the sibling group is brother-brother, sister-sister, or mixed sex. The measure of “responsiveness to siblings” is made up of nine items (My sibling is someone I can easily respond to, My sibling is someone I do things with, My sibling is someone I can share things with, My sibling is someone I find easy to pay attention to, My sibling is someone who feels good when with me, My sibling is someone whose thoughts and ideas I respect, My sibling is someone I can be sensitive to, My sibling is someone whose moods I can easily read, My sibling is someone to whom I can feel empathetic toward), each of which range from ‘extremely much’ (5) to ‘hardly at all’ (1). The measures were summed, and then averaged

across sibling composition types. The scores, standardized by dividing the observed subgroup scale scored by the maximum possible scale score (in this case $5 \times 9 = 45$). These standardized scores are presented in Figure 20.

Figure 20. Measuring Responsiveness toward Sibling



* female v. male $p > .05$; mixed v. male $p < .05$; mixed v. female, $p > .05$

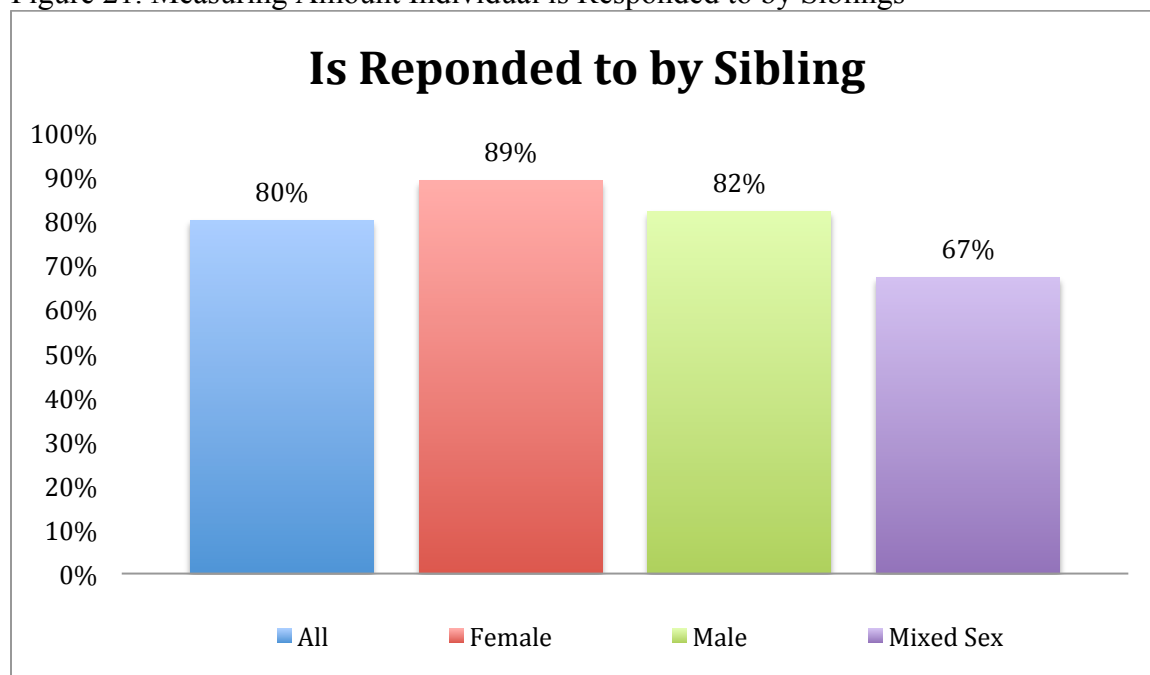
As shown in Figure 20, there is one notable difference in the variety in the scores; mixed-sibling groups. On the whole, responsiveness to sibling ratings were 80% of the maximum for all respondents, 88% for all-female sibling groups, 82% for all-male sibling groups, and 67% for mixed-sibling groups. The differences between all-male sibling groups compared to mixed-sibling groups ($t=2.23$) is statistically significant at the .05 level.

Responded to by Sibling

The next analysis examines how much sibling groups perceive themselves to be responded to by one another, and whether this differs depending on whether the sibling group is brother-brother, sister-sister, or mixed sex. The measure of “being responded to” is made up of fifteen items (My sibling is someone who understands what I mean without a lot of explanation, My sibling is

usually attentive to me when I'm talking, My sibling is aware of me and attentive to me when we're together, My sibling is someone who feels sad when I feel sad, My sibling is someone who relates to me well, My sibling is someone with whom I can communicate, My sibling is someone who always has time for me, My sibling is someone who is like me, My sibling will help me out when I'm in a bind, My sibling expresses affection toward me, My sibling is someone who is always there when I need help, My sibling can read my moods, My sibling shares things with me, My sibling shares my interests, My sibling responds to me), each of which range from 'extremely much' (5) to 'hardly at all' (1). The measures were summed, and then averaged across sibling composition types. The scores, standardized by dividing the observed subgroup scale score by the maximum possible scale score (in this case $5 \times 15 = 75$). These standardized scores are presented in Figure 21.

Figure 21. Measuring Amount Individual is Responded to by Siblings



* female v. male $p > .05$; mixed v. male $p < .05$; mixed v. female, $p > .05$

As shown in Figure 21, there is one notable difference in the variety in the scores; mixed-sibling groups. On the whole, responsive ratings were 80% of the maximum for all respondents, 89% for all-female sibling groups, 82% for all-male sibling groups, and 67% for mixed-sibling

groups. The differences between all-male sibling groups compared to mixed-sibling groups ($t=3.17$) is statistically significant at the .05 level.

It is not surprising to see that the reported percentages of influence and responsiveness to siblings match one another. In all four aforementioned figures same-sex siblings reported over a ten percentage-point difference higher than mixed-sex siblings. An interesting difference within the influence measurements is female-sex siblings reporting over a 10 percentage-point differences of influencing siblings compared to male-sex siblings, but only a two percentage increase when reporting being influenced by a sibling. This may be due to females being more aware of their influences over one another, or males being more modest about their influences. On the contrary, when looking at reports of being responsive and being responded to, the reported percentage point difference between female-sex siblings and male-sex siblings remain at about a six percentage-point difference showing that female-sex siblings may be better at communicating and understanding one another.

Chapter 4: Conclusions and Implications

Summary

This thesis explored whether sibling composition has a large influence on the perceived closeness between siblings throughout their young adulthood. It explained how sibling relationships were influenced and whether the sex composition of the sibship group influenced their perceived closeness throughout this lifecourse period. The focus on siblings in young adulthood was due to the lack of research which leads one to assume that these relationships are unimportant to the functioning of individuals and families. The reality is that in this period of life, ages 19 to 25, individuals face stress and change in their sibling relationships which may cause the relationship to strengthen or weaken.

Twenty-four sibling groups completed a survey measuring different elements resulting in an overall closeness score. By surveying all members of the sibling group results were able to show if feelings of reported closeness were mutual.

After considering the results from the twenty-four aforementioned figures showing the different measurement results of closeness by sibling composition it can be concluded that same-sex sibling groups report an extremely higher overall closeness score than mixed-sex siblings. These results support the principle of sex commonality that claims that same-sex sibling groups are closer than cross-sex sibling groups. These results echo those found by many previous researchers such as Stoller (1990) who found that individuals in later life courses showed a tendency to prefer a sibling of the same sex. Similarly, Bank and Kahn (1982), Cicirelli (1993), and Gold (1989) all found that same-sex siblings are noted throughout literature for having the most intense feelings for one another.

More specifically, all-male sex sibling groups reported high percentages of aggressive measurements such as antagonism, competition and dominance when compared to all-female sex

sibling groups. This difference is large enough to matter and shows that men are more aggressive and report higher negative influences from their male siblings. Although all-male sex sibling groups reported higher aggressive measurements than female-sex sibling groups and mix-sex sibling groups, they also reported higher positive measurements such as similarity, intimacy, acceptance, and support when compared to mix-sex siblings, but report similar percentages when compared to all-female sex sibling groups. This constant difference of same-sex sibling groups reporting higher levels/degrees of closeness is important and shows that when a sibling group is made up of the same sex they may receive more positive influences and experiences than siblings with mix-sex sibling groups.

Limitations

The results of this study should be interpreted in the context of a number of limitations. Due to the time constraints and requirements of the completed survey, I was only able to obtain 24 completed sibling group surveys. If reciprocity, between the individual siblings in the sibling groups, was not being considered as an important aspect of the reported closeness amongst sibling groups many more surveys would have been counted as valid, and those completed surveys would be represented in the sample. Seeing that only 24 full sibling groups were obtained there was also not a large enough representation of each sibling composition, female-sex siblings, male-sex siblings, and mix-sex siblings, as well as not enough representation of the different numbers of siblings in each group in order to properly represent the different responses by the specific compositions.

The time constraint made it difficult to remind participants enough times to motivate them; most of the surveying was done over winter break, a time where families are together. Because of this togetherness, it was assumed that the complete sibling groups would be more likely to influence

each other to complete it, but the distractions over the holidays and reuniting with family members was not considered.

Another limitation is that the sibling groups sampled represented only close siblings. This assumption can be made because all of the siblings surveyed were talking and went out of there way to complete the survey requested of their sibling. Finding siblings that are less closeness, and possibly not in contact would be difficult, but an important piece to ensure the full understanding of different levels of closeness.

Lastly, this sample of 24 sibling groups was not representative of a student body of over two thousand students and due to the use of my own social network the sample was relatively homogenous in terms of racial/ethnic background, income, and age.

Implications

This research is not only practically significant; it is socially significant as well. Understanding the patterns and trends of sibling relationships, may enable us to understand bigger patterns and trends in the family. For example, since research showed that sibling composition really does affect the reported feelings of closeness, these results can be used to predict how the children of an elderly parent decide to give care and whether one sibling does the brunt of the care, if it is evenly split amongst siblings, or if siblings decide to put a parent in a home.

In regard to other social scientists interested in sibling research, this gives a new spin on the never-ending question of figuring out why siblings act and react the way they do to one another. Taking the results of this data and compiling it with the previous knowledge about all different aspects of sibling relationships, I believe scientists will be a step closer to finding the answers because of the focus on siblings in young adulthood as well as closeness, something rarely measured in sibling research. This thesis will also provide a basis for social scientists hoping to

study a larger sample of siblings in order to measure closeness, which was something that was previously missing.

Another important implication for social scientists in the focus on sibling relationships was the ability to question all siblings in a sibling groups in regard to their relationship to their siblings. This current study focused on the entire sibling group, rather than an individual sibling reporting about their understanding of the relationship. It is extremely important to consider the sibling relationship not by only one member rather as a co-constructed relationship amongst the siblings.

According to Dalton Conley (2004), family size has shrunk considerably. From the research emphasizing the positive support reported by siblings I find the possibility of more only children to be at a disadvantage for the upcoming generations. On the other hand, if a family has only two children there may be a more beneficial relationship; this is something that should be further researched. Siblings have been most children's first interactions with others their age. Growing up and having different experiences with siblings benefits an individual because they are more experienced in social situations once they reach schooling age than only children. If this decline of children per family continues, and most of society grows up as only children, I believe the benefits of early socialization amongst siblings will be lost. Also, if siblings seem to be a family structure of the past, parents must look to other resources in order to socialize their children earlier than grade school.

This research on reported closeness amongst sibling compositions in young adulthood can also be applied to other issues in sociology. For example, seeing that siblings of the same-sex reported higher feelings of closeness than siblings of mixed-sex it may be applicable in understanding the different friendships made amongst same-sex individuals compared to relationships made amongst mixed-sex individuals. Since same-sex siblings reported feeling closer

than mix-sex siblings I find it reasonable to assume that this would be a similar result for friendships; this can be an interesting idea for future research.

Future Research

There are several suggestions that can be used for future research. It would be interesting to conduct this research on not only conventional siblings, those whom an individual shares the same biological parents with, but to expand the study to step siblings, half siblings, foster siblings well as fictive kin. Family and kinship forms have become more diverse with the years and social science research should be doing the same. Another suggestion would be to obtain a more representative sample of young adults throughout society, without relying on an individual's social network, which leads to large issues with population representation. The data could also be more accurate if there were larger samples of all compositions of sibling. Lastly, future research could also include interview questions to further understand the relationships amongst siblings in young adulthood.

General Conclusion

Several main conclusions were discovered through the analysis of the results. The most important and noteworthy discovery is that the data disproved the main hypothesis, that all-female sibling groups would be closest, as well as the alternate hypothesis, that mixed-sex sibling groups would be second closest. The results from the survey found that same-sex sibling groups, whether all-female sibling groups or all-male sibling groups, reported feeling the closest. While the sample size was small, it still amounts for a pretty significant conclusion on the closeness amongst sibling groups in young adulthood.

Another important finding was the high degree of similarity found between all compositions of siblings groups. When looking at 'similarity' measurements, all three sex compositions of sibling groups reported feeling over 60% similar to their sibling group. This is a very important factor,

because although same-sex sibling dyads reported feeling a higher amount of closeness overall, when focusing on similarity, all groups reported feeling similar no matter their sex composition. These general conclusions bring us one step closer to understanding the nature of sibling groups in young adulthood and provide a good starting off point for further research on this topic.

Appendix A: Original Contact Email

Dear *name*,

My name is Jenny Silvershein and I am a senior Sociology major at Union College. I am conducting research for my thesis looking at patterns of sibling relationships. Please forward this email to your siblings and CC me in an effort to survey entire sibling groups. I am looking to see if sibling composition, the sex of siblings, influences the degree of closeness in young adulthood and your answers to the following survey will help me in reaching my goal of complete data. It is especially important that I have all the siblings in a family participate in the survey. As an incentive, your name will be entered in a drawing for a chance to win an Ipad!

To ensure your privacy, your survey responses will be kept completely anonymous. No effort will be made to link your answers to your name or email. Sibling groups will only be identified by number.

[CLICK HERE FOR SURVEY!](#) (*link attached*)

** Your sibling i.d. code is ##A please have your siblings follow this pattern with ##B...##C etc.

Thank you in advance
Jenny

If you have any questions or concerns feel free to email or call me
silversj@garnet.union.edu
[\(908\) 358-8941](tel:(908)358-8941)

Appendix B: Adult Sibling Relationship Questionnaire Items

Sibling Relationships in Early Adulthood

Stocker, Lanthier, & Furman

Journal of Family Psychology 1997 Vol. 11 No. 2 210-221

Used Likert scales ranging from *hardly at all* (1) to *extremely much* (5)

Questions (11,12,23,24,38,39,51,65,66,77, & 78) rated as:

- 1 = participant is usually favored
- 2 = participant is sometimes favored
- 3 = neither participant nor sibling is favored
- 4 = sibling is sometimes favored
- 5 = sibling is usually favored

Adult Sibling Relationship Questionnaire – Please rate how each item represents yourself and your sibling

1. How much do you and this sibling have in common?
2. How much do you talk to this sibling about things that are important to you?
3. How much does this sibling talk to you about things that are important to him or her?
4. How much do you and this sibling argue with each other?
5. How much does this sibling think of you as a good friend?
6. How much do you think of this sibling as a good friend?
7. How much do you irritate this sibling?
8. How much does this sibling irritate you?
9. How much does this sibling admire you?
10. How much do you admire this sibling?
11. Do you think your mother favors you or this sibling more?
12. Does this sibling think your mother favors him/her or you more?
13. How much does this sibling try to cheer you up when you are feeling down?
14. How much do you try to cheer this sibling up when he or she is feeling down?
15. How competitive are you with this sibling?
16. How competitive is this sibling with you?
17. How much does this sibling go to you for help with non-personal problems?
18. How much do you go to this sibling for help with non-personal problems?
19. How much do you dominate this sibling?
20. How much does this sibling dominate you?
21. How much does this sibling accept your personality?
22. How much do you accept this sibling's personality?
23. Do you think your father favors you or this sibling more?
24. Does this sibling think your father favors him/her or you more?
25. How much does this sibling know about you?
26. How much do you know about this sibling?
27. How much do you and this sibling have similar personalities?
28. How much do you discuss your feelings or personal issues with this sibling?
29. How much does this sibling discuss his or her feelings or personal issues with you?
30. How often does this sibling criticize you?

31. How often do you criticize this sibling?
32. How close do you feel to this sibling?
33. How close does this sibling feel to you?
34. How often does this sibling do things to make you mad?
35. How often do you do things to make this sibling mad?
36. How much do you think that this sibling has accomplished a great deal in life?
37. How much does this sibling think that you have accomplished a great deal in life?
38. Does this sibling think your mother supports him/her or you more?
39. Do you think your mother supports you or this sibling more?
40. How much can you count on this sibling to be supportive when you are feeling stressed?
41. How much can this sibling count on you to be supportive when he or she is feeling stressed?
42. How much does this sibling feel jealous of you?
43. How much do you feel jealous of this sibling?
44. How much do you give this sibling practical Advice? (e.g. household or car advice)
45. How much does this sibling give you practical advice?
46. How much is this sibling bossy with you?
47. How much are you bossy with this sibling?
48. How much do you accept this sibling's lifestyle?
49. How much does this sibling accept your lifestyle?
50. Does this sibling think your father supports him/her or you more?
51. Do you think your father supports you or this sibling more?
52. How much do you know about this sibling's relationships?
53. How much does this sibling know about your relationships?
54. How much do you and this sibling think alike?
55. How much do you really understand this sibling?
56. How much does this sibling really understand you?
57. How much does this sibling disagree with you about things?
58. How much do you disagree with this sibling about things?
59. How much do you let this sibling know you care about him or her?
60. How much does this sibling let you know he or she cares about you?
61. How much does this sibling put you down?
62. How much do you put this sibling down?
63. How much do you feel proud of this sibling?
64. How much does this sibling feel proud of you?
65. Does this sibling think your mother is closer to him/her or you?
66. Do you think your mother is closer to you or this sibling?
67. How much do you discuss important personal decisions with this sibling?
68. How much does this sibling discuss important personal decisions with you?
69. How much does this sibling try to perform better than you?
70. How much do you try to perform better than this sibling?
71. How likely is it you would go to this sibling if you needed financial assistance?
72. How likely is it this sibling would go to you if he or she needed financial assistance?
73. How much does this sibling act in superior ways to you?
74. How much do you act in superior ways to this sibling?
75. How much do you accept this sibling's ideas?
76. How much does this sibling accept your ideas?

- 77. Does this sibling think your father is closer to him/her or you?
- 78. Do you think your father is closer to you or this sibling?
- 79. How much do you know about this sibling's ideas?
- 80. How much does this sibling know about your ideas?
- 81. How much do you and this sibling lead similar lifestyles?

Appendix C: Friendship Closeness Questionnaire

Conversations of Friends 1986

Gottman and Parer

1. My sibling is someone who makes me feel needed
2. My sibling is someone to whom I can feel empathetic
3. My sibling is someone who understands what I mean without a lot of explanation
4. My sibling is someone I can just play with
5. My sibling is a capable individual
6. My sibling is someone with whom I can be completely silly
7. My sibling is someone who brings out my deepest emotions
8. My sibling is someone I often turn to for advice
9. My sibling lets me know when he or she is mad at me
10. My sibling is someone I can argue with about ideas
11. My sibling is someone I can easily respond to
12. My sibling is usually attentive to me when I'm talking
13. My sibling is aware of me and attentive to me when we're together
14. My sibling has accepted my views on several issues
15. My sibling is someone who feels sad when I feel sad
16. My sibling expresses liking for me
17. My sibling is someone who relates to me well
18. My sibling is someone with whom I can communicate
19. My sibling tells me about his or her anxieties
20. My sibling is someone who doesn't make me feel embarrassed to show my feelings
21. My sibling is someone I tell I like
22. My sibling is someone I do things with
23. My sibling is someone I can share things with
24. My sibling is empathetic toward me
25. My sibling is someone who starts fights with me
26. My sibling is someone who always has time for me
27. My sibling recognizes my capabilities
28. My sibling is someone to whom I can express anger
29. My sibling shares innermost thoughts with me
30. My sibling makes me feel smart
31. My sibling is someone I can be very nasty to
32. My sibling is someone I find easy to pay attention to
33. My sibling cares about me
34. My sibling is someone who is like me
35. My sibling has my admiration
36. My sibling is someone who feels good when with me
37. My sibling is someone with whom I discuss my dreams
38. My sibling is someone who makes me laugh
39. My sibling tells me about his or her dreams
40. My sibling will help me out when I'm in a bind
41. My sibling is someone whose thoughts and ideas I respect

42. My sibling is someone I often include in things
43. My sibling expresses affection toward me
44. My sibling is sensitive to my feelings
45. My sibling is someone I can easily start a fight with
46. My sibling is someone who is always there when I need help
47. My sibling often includes me in things
48. My sibling is someone with whom I can talk about plans for the future
49. My sibling respects my thoughts and ideas
50. My sibling is someone who sees my faults but likes me anyhow
51. My sibling is someone I can be sensitive to
52. My sibling is someone with whom I don't have to be polite
53. My sibling can read my moods
54. My sibling is someone who is interested in what I think
55. My sibling has my respect
56. My sibling is willing to tell me about my faults
57. My sibling is someone whose moods I can easily read
58. My sibling makes me feel competent
59. My sibling shares things with me
60. My sibling shares my interests
61. My sibling is someone to whom I can feel empathetic toward
62. My sibling is someone I can confide in when I'm in trouble
63. My sibling treats me like an important person
64. My sibling responds to me
65. My sibling asks me for advice
66. My sibling is someone with whom I can pretend and explore fantasies
67. My sibling is someone to whom I can express my fears and worries
68. My sibling is someone to whom I can express affection
69. My sibling has changed his or her views on some things as a result of my influence
70. My sibling is someone I care about
71. My sibling can be very nasty to me
72. My sibling has changed my opinions on some things

Appendix D: Overall Percentages of Measurement

Measurement	Female-Siblings Average %	Male-Siblings Average %	Mixed-Siblings Average %
receives positive affect from sibling	84%	83%	71%
expression of positive affect toward sibling	89%	83%	68%
receives negative affect from sibling	83%	89%	69%
expresses negative affect toward sibling	88%	87%	64%
influences sibling	88%	77%	67%
is influenced by sibling	86%	84%	67%
is responsive to sibling	88%	82%	67%
is responded to by sibling	89%	82%	67%
shared fantasy with sibling	86%	80%	64%
Similarity Sibling	77%	82%	76%
Intimacy Sibling	81%	77%	60%
Quarreling Sibling	65%	78%	49%
Affection Sibling	85%	84%	64%
Antagonism Sibling	60%	73%	45%
Admiration Sibling	86%	78%	64%
Emotional Support Sibling	84%	75%	61%
Competition Sibling	54%	71%	49%
Instrumental Support Sibling	68%	65%	56%
Dominance Sibling	58%	70%	55%
Acceptance Sibling	83%	82%	62%
Knowledge Sibling	83%	82%	62%

Appendix E: Sibling Group Data

NUMBER	Respondents	Sex Composition of Completed Sibling Groups
01A*	ABC	FFF
02A*	ABC	FFF
03A	A	
04A		
05A		
06A*	AB	FF
07A*	AB	FM
08A		
09A		
10A	A	
11A	BC	
12A*	AB	MF
13A		
14A		
15A		
16A		
17A		
18A*	AB	FF
19A		
20A	A	
21A		
22A		
23A		
24A		
25A		
26A		
27A*	AB	FM
28A		
29A		
30A		
31A		
32A		
33A		
34A		
35A	A	
36A*	A B	FF
37A	B	
38A	A	
39A		
40A		

41A	A	
42	A	
43	A	
44		
45	A	
46		
47*	AB	FF
48*	A B	FF
49*	A B C	FFM
50		
51*	AB	FM
52		
53		
54		
55	B	
56		
57		
58*	AB	FM
59		
60	B	
61*	AB	FM
62*	AB	FM
63		
64		
65	BC	
66		
67*	AB	FM
68		
69		
70		
71	A	
72		
73*	AB	MM
74		
75	B	
76*	AB	MM
78		
79*	AB	MM
80		
81*	AB	FF
82		
83		
84*	AB	FM
85		
86	B	

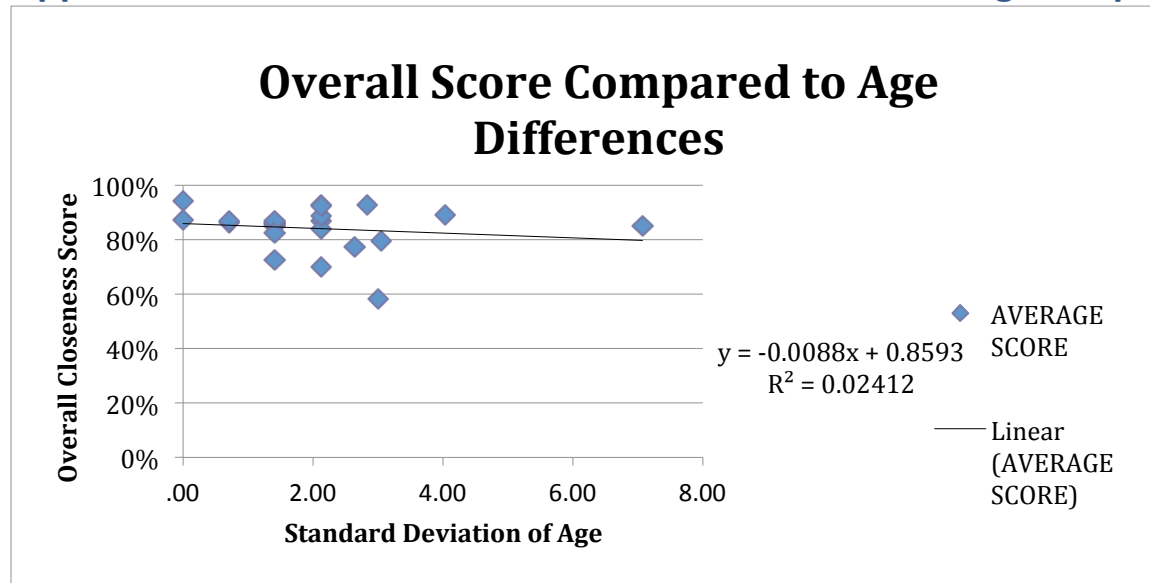
87	BC	
88		
89		
90*	ABCD	FMMM
91	ABD	
92		
93		
94	B	
95*	AB	FM
96	B	
97	A	
98*	ABC	FMM
99		

* completed all sections of the questionnaire and were included in the measured data

Appendix F: Sex Composition Representation

Sex Type	
Sisters	8
Brothers	3
Mixed	13
Total	24

Appendix G: Scatter Plot of Standard Deviation of Sibling Groups



Appendix H: T-test Results

Measurement	Female-sex v. mixed-sex	Male-sex v. mixed-sex	Male-sex v. female-sex
Similarity	1.360167047	0.568756502	-1.376430626
Intimacy	0.37800374	-0.842784567	0.992230292
Quarreling	0.222178336	3.762631965*	-3.115956781*
Affection	-0.543802845	-0.409300536	0
Antagonism	0.960902935	6.099715528*	-4.030948494*
Admiration	-0.516101228	-1.696158814	1.195790481
Emotional support	0.376318683	-1.431796971	1.521559054
Competition	-2.138109905*	2.289729494*	-3.394074867*
Instrumental support	-2.648538196*	-2.716129605*	0.632921146
Dominance	0.870209434	3.464955234*	-2.609623954*
Acceptance	0.190264562	1.440448062	-1.028408933
Knowledge	0.585845421	-0.203856931	0.692263571
Receive positive affect	-3.636729132*	-2.236356824*	-0.605291085
Express positive affect	-0.466671094	-2.138252638*	1.430338467
Receive negative affect	0.751277797	-0.166752078	0.651924359
Expresses negative affect	1.542666831	1.202736003	0.40700407
Influences	-0.710442359	-3.559879055*	2.484451409*
Influenced	-0.838288095	-0.959000014	0.097933674
Responsive	-0.217241893	-2.234692417*	1.713567342
Responded to	-0.760948549	-3.179761959*	1.951278835*
Fantasy	0.014987234	-1.162550932	1.020933386

* means statistically significant measurement

References

- Abramovitch, Rona, Carl Corter and Bella Lando. 1979. "Sibling Interaction in the Home." *Child Development* 50(4):997.
- Adler, Alfred. 1956. *The Individual Psychology of Alfred Adler; a Systematic Presentation in Selections from His Writings*. New York: Basic Books.
- Akiyama, Hiroko and Kathryn Elliot. 1996. "Same-Sex and Cross-Sex Relationships." *Journals of Gerontology Series B: Psychological Sciences & Social Sciences* 51B(6):P374.
- Altman, I. and D. Taylor. 1973. *Social Penetration: The Development of Interpersonal Relationships*. New York: Rinehart & Winston.
- Ansbacher, H. L. and R. R. Ansbacher. 1956. *The Individual Psychology of Alfred Adler*. New York: Basic Books.
- Atchley, R. C. 1977. *The Social Forces in Later Life*. Belmont, CA: Wadsworth.
- Bandura, A. 1977. *Social Learning Theory*. Englewood Cliffs, NJ: Prentice Hall.
- Bank, Stephen P. and Michael D. Kahn. 1982. *The Sibling Bond*. New York: Basic Books.
- Becker, G. S. and N. Toms. 1986. "Human Capital and the Rise and Fall of Families." *Journal of Labor Economics* 4(3):S1-S39.
- Bedford, V. H. 1989. "A Comparison of Thematic Apperceptions of Sibling Affiliation, Conflict, and Separation at Two Periods of Adulthood." *International Journal of Aging and Human Development* 28:53-66.
- Belsky, J. 2005. "Differential susceptibility to rearing influence: An evolutionary hypothesis and some evidence." Pp. 139-163 in *Origins of the Social Mind: Evolutionary Psychology and Child Development*, edited by B.J. Ellis and D.F. Bjorklund. New York: Guilford Press.
- Bengston, V. L. and K. R. Allen. 1993. "The Life Course Perspective Applied to Families Over Time." Pp. 469-499 in *Sourcebook of Families, Theories, and methods: A contextual Approach*, edited by P.G. Boss, W.J. Doherty, R. LaRossa, W.R. Scham and S.K. Steinmetz. New York: Plenum.
- Benokraitis, Nijole. 2011. *Marriages and Families: Changes, Choices, and Constraints*. Upper Saddle River, NJ: Pearson Education, Inc.
- Berscheid, Ellen, Mark Snyder and Allen M. Omoto. 1989. "The Relationship Closeness Inventory: Assessing the Closeness of Interpersonal Relationships." *American Psychological Association* 57(5):792-807.

Bertalanffy, L. V. 1950. "An Outline of General System Theory." *British Journal for the Philosophy of Science* 1:134-165.

Bowlby, J. 1969. *Attachment and Loss: Vol. 1*. New York: Basic Books.

Brody, G. H., Z. Stoneman and M. Burke. 1987. "Child Temperaments, Maternal Differential Behavior, and Sibling Relationships." *Developmental Psychology* 23:354-362.

Bronfenbrenner, U. 1979. *The Ecology of Human Development: Experiments by Nature and Design*. Cambridge, MA: Harvard University Press.

Campbel, L.D., Connidis, I.A., Davies, L. 1999. "Sibling Ties in Later Life." *Journal of Family Issues* 20:144-148.

Cicirelli, Victor G. 1980. "A Comparison of College Women's Feelings Toward their Siblings and Parents." *Journal of Marriage & Family* 42(1):111.

-----, 1989. "Feelings of Attachment to Siblings and Well-being in Later Life." *Psychology and Aging* 4:211-216.

-----, 1993. "Sibling Relationships in Adulthood." *Marriage and Family Review* 16:291-310.

-----, 1995. *Sibling Relationships Across the Life Span*. New York: Plenum Press.

Coleman, James S., United States and National Center for Educational Statistics. 1966. *Equality of Educational Opportunity*. Washington: U.S. Dept. of Health, Education, and Welfare, Office of Education; for sale by the Superintendent of Documents, U.S. Govt. Print. Off.

Conley, Dalton and Rebecca Glauber. 2008. "All in the Family? Family Composition, Resources, and Sibling Similarity in Socioeconomic Status." *Research in Social Stratification and Mobility* 26:297-306.

Conley, Dalton. 2000. "Sibship Sex Composition: Effects on Educational Attainment." *Social Science Research* 29(3):441.

-----, 2004. *The Pecking Order :Which Siblings Succeed and Why*. New York: Pantheon Books.

Connidis, I. A. 1989. "Siblings as Friends in Later Life." *American Behavioral Scientist* 33:81-93.

-----, 1992. "Life Transitions and the Adult Sibling Tie: A Qualitative Study." *Journal of Marriage & Family* 54(4):972-982.

-----, 2007. "Negotiating Inequality among Adult Siblings: Two Case Studies." *Journal of Marriage and Family* 69:482-499.

- Downey, Douglas R. 2001. "Number of Siblings and Intellectual Development." *American Psychologist* 56(6):497.
- Dunn, Judy and Carol Kendrick. 1981. "Social Behavior of Young Siblings in the Family Context: Differences between Same-Sex and Different-Sex Dyads." *Child Development* 52(4):1265-1273.
- Dunn, Judy and Robert Plomin. 1990. *Separate Lives :Why Siblings are so Different*. New York: Basic Books.
- Edwards, Rosalinda, Lucy Hadfield, Helen Lucy and Melanie Mauthner. 2006. *Sibling Identity and Relationships: Sisters and Brothers*. New York City: Routledge.
- Feinberg, M. E., J. M. Neiderhiser, S. J. Simmens, D. Reiss and M. E. Hetherington. 2000. "Sibling Comprison of Differential Parenting Treatment in Adolescence: Gender, Self-Esteem, and Emotionality as Mediators of the Parenting-Adjustment Association." *Child Development* 71:1611-1628.
- Feinberg, Mark B., David Reiss, Jenae M. Neiderhiser and E. M. Hetherington. 2005. "Differential Association of Family Subsystem Negativity on Siblings' Maladjustment: Using Behavior Genetic Methods to Test Process Theory." *Journal of Family Psychology* 19(4):601-610.
- Festinger, L. 1954. "A Theory of Social Comparison Processes." *Human Relations* 7:117-140.
- Floyd, K. 1995. "Gender and Closeness among Friends and Siblings." *Journal of Personal Relationships* 129:193-202.
- , 1996. "Brotherly Love I: The Experience of Closeness in the Fraternal Dyad." *Personal Relationships* 3:369-385.
- Floyd, Kory. 1997. "Brotherly Love II: A Developmental Perspective on Liking, Love, and Closeness in the Fraternal Dyad." *Journal of Family Psychology* 11(2):196-209.
- Fowler, Craig. 2009. "Motives for Sibling Communication Across the Lifespan." *Communication Quarterly* 57(1):51-66.
- Gailbraith, R. C. 1982. "Sibling Spacing and Intellectual Development: A Closer Look at the Confluence Model." *Developmental Psychology* 18:151-174.
- Goetteng, Ann. 1986. "The Developmental Tasks of Siblingship Over the Life Cycle." *Journal of Marriage & Family* 48(4):703.
- Gold, D. T. 1989. "Sibling Relationships in Old Age: A Typology." *International Journal of Aging and Human Development* 28:37-51.
- Gottman, John M. and Jeffrey G. Parker. 1986. *Conversations of Friends*. New York: Press Syndicate of the University of Cambridge.

Hagestad, G. O. 1990. "Social Perspectives on the Life Course." Pp. 151-168 in Handbook of Aging and the Social Sciences., edited by R.G. Binstock and L.K. George. San Diego: Academic Press.

Holden, Carol. 1986. Being a Sister: Constructions of the Sibling Experience. Ann Arbor, Michigan: University of Michigan.

Klagsbrun, Francine. 1992. Mixed Feelings : Love, Hate, Rivalry, and Reconciliation among Brothers and Sisters. New York: Bantan Books.

Kluger, Jeffrey. 2011. The Sibling Effect : Brothers, Sisters, and the Bonds that Define Us. New York: Riverhead Books.

Knapp, Mark L. 1984. Interpersonal Communication and Human Relationships. Boston: Allyn & Bacon.

Koch, Helen L. 1954. "The Relation of 'Primary Mental Abilities' in Five- and Six-Year-Olds to Sex of Child and Characteristics of His Sibling." Child Development 25(3):209.

Krug, L. 1982. "Alternative Lifestyle Dyads: An Alternative Relationship Paradigm." Alternative Communications 4:32-52.

Lamb, Michael E. and Brian Sutton-Smith. 1982. Sibling Relationships : Their Nature and Significance Across the Lifespan. Hillsdale, N.J.: L. Erlbaum Associates.

Minnett, Ann M., Deborah L. Vandell and John W. Santrock. 1983. "The Effects of Sibling Status on Sibling Interaction: Influence of Birth Order, Age Spacing, Sex of Child, and Sex of Sibling." Child Development 54(4):1064-1072.

Newman, R. H. 1991. "Tardive Dyskinesia: Risk Factors and Etiology." Current Opinion in Psychiatry 4:38-42.

Neyer, F. J. 2002. "Twin Relationships in Old Age: A Developmental Perspective." Journal of Social & Personal Relationships 19:155-177.

Nuckolls, C. W. 1993. "An introduction to the study of cross-cultural sibling relations." Pp. 19-44 in Siblings in South Asia., edited by C.W. Nuckolls. New York: Guilford Press.

Parks, M. R. and K. Floyd. 1996. "Meanings for Closeness and Intimacy in Friendship." Journal of Social & Personal Relationships 13:85-107.

Pollet, Thomas V. and Daniel Nettle. 2007. "Birth Order and Face-to-Face Contact with a Sibling: Firstborns have More Contact than Laterborns." Personality & Individual Differences 43(7):1796-1806.

Powell, Brian and Lala C. Steelman. 1990. "Beyond Sibship Size: Sibling Density, Sex Composition, and Educational Outcomes." Social Forces 69(1):181-206.

- , 1993. "The Educational Benefits of being Spaced Out: Sibship Density and Educational Progress." *American Sociological Review* 58(3):367-381.
- Pulakos, Joan. 1989. "Young Adult Relationships: Siblings and Friends." *Journal of Psychology* 123(3):237.
- Ross, J. G. and J. I. Milgram. 1982. "Important Variables in Adult Sibling Relationships: A Qualitative Study." in *Sibling Relationships: Their Nature and Significance Across the Life Span.*, edited by M.E. Lamb and B. Sutton-Smith. Hillsdale, NJ: Erlbaum.
- Rowe, David C. and Bill L. Gulley. 1992. "Sibling Effects on Substance use and Delinquency." *Criminology* 30(2):217-233.
- Sandmaier, Marian. 1994. *Original Kin : The Search for Connection among Adult Sisters and Brothers.* New York: Dutton.
- Seltzer, Mildred M. 1989. "The Three R's of Life Cycle Sibships." *American Behavioral Scientist* 33(1):107.
- Short J.W. , Gottman, J.M. 1997. "Closeness in Young Adult Sibling Relationships: Affective and Physiological Processes." *Social Development* 6:142-164.
- Shulman, Lee. 1987. "Knowledge and Teaching: Foundations of the New Reform." *Harvard Educational Review* 57:1-21.
- Steelman, Lala C., Brian Powell, Regina Werum and Scott Carter. 2002. "RECONSIDERING THE EFFECTS OF SIBLING CONFIGURATION: Recent Advances and Challenges." *Annual Review of Sociology* 28(1):243-269.
- Stewart, R. B. 1983. "Sibling Attachment Relationships: Child-Infant Interactions in the Strange Situation." *Developmental Psychology* 19:192-199.
- Stoller, E. P. 1990. "Males as Helpers: The Role of Sons, Relatives, and Friends." *The Grenotologist* 30:228-235.
- Sulloway, Frank J. 1996. *Born to Rebel: Birth Order, Family Dynamics, and Creative Lives.* New York: Pantheon Books.
- Swain, M. 1985. "Communicative competence: Some roles of comprehensible input and comprehensible output in its development." Pp. 235-253 in *Input in Second Language Acquisition.*, edited by S.M. Gass and C.G. Madden. Rowley, MA: Newbury House.
- Tesser, A. 1980. "Self-Esteem Maintenance in Family Dynamics." *Journal of Personality and Social Psychology* 39:77-91.
- Thibaut, J. W. and H. H. Kelley. 1959. *The Social Psychology of Groups.* New York: Wiley.

- Townsend, Peter. 1957. *The Family Life of Old People*. London: Routledge and Kegan Paul.
- Troll, L. E. 1985. *Early and Middle Adulthood*. Grove, CA: Brooks/Cole.
- Van Ijzendoorn, M. H., G. Moran, J. Belsky, D. Pederson, M. J. Bakermans-Kranenburg and K. Kneppers. 2000. "The Similarity of Siblings' Attachments to their Mothers." *Child Development* 71:1086-1098.
- Weaver, Shannon E., Marilyn Coleman and Lawrence Ganong. 2003. "The Sibling Relationship in Young Adulthood." *Journal of Family Issues* 24(2):245-263.
- Whiteman, S. D., J. M. Becerra and S. E. Killoren. 2009. "Mechanisms of sibling socialization in normative family development." Pp. 29-43 in *Siblings as agents of Socialization, New Direction for Child and Adolescent Development*. Vol. 126, edited by L. Kramer and K.J. Conger. San Francisco: Jossey-Bass.
- Whiteman, Shawn D., Julia M. Becerra and Sarah E. Killoren. 2009. "Mechanisms of Sibling Socialization in Normative Family Development." *New Directions for Child & Adolescent Development* 2009(126):29-43.
- Whiteman, Shawn D., Susan M. McHale and Anna Soli. 2011. "Theoretical Perspectives on Sibling Relationships." *Journal of Family Theory & Review* 3(June 2011):124-139.
- Wood, J. T. 1982. "Communication and Relational Culture: Bases for the Study of Human Relationships." *Communication Quarterly* 30:74-83.
- Zajonc, Robert B. 1976. "Family Configuration and Intelligence." *Science* 192:227-236.
- Zajonc, R. B. and Gregory B. Markus. 1975. "Birth Order and Intellectual Development." *Psychological Review* 82(1):74-88.