The Relationship between Sibling Relationship Quality
and Psychological Outcomes in Emerging Adulthood

Ashley Kronen Marotta

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ABSTRACT

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This dissertation focuses on the impact of sibling relationship quality on psychological outcomes in 1361 emerging adults between the ages of 18 and 29. Previous research has demonstrated a strong link between sibling relationship quality and psychosocial well-being; however, these studies have focused mostly on children, adolescents, and later life adults. There has been little research exploring the effects of sibling relationship quality on psychological well-being in emerging adults. Because emerging adulthood is a time of considerable change, it has been deemed important to better understand the association between the perceived quality of the sibling relationship (warmth, conflict, and/or rivalry) and both sibling relationship variables (age difference, gender concordance, sibling contact, and minority status) and psychological variables (positive affect, negative affect, self esteem, and altruism) during this developmental time period. Results suggest that, in this sample, the quality of the sibling relationship, as measured by warmth, conflict, and rivalry is significantly related to measures of psychological outcome, specifically affectivity, self-esteem, and altruism, while controlling for demographic and familial structural variables (age difference, gender concordance, sibling contact, and minority status) in emerging adulthood.

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<div align="right">A.K.M.</div>

Chapter I

INTRODUCTION

This study is designed to explore the relationship between sibling relationship quality and psychological outcomes in emerging adults, aged 18 to 29. The study aimed specifically to investigate to what extent the quality of the sibling relationship, as measured by levels of warmth, conflict and rivalry in the sibling relationship, is related to measures of psychological well-being, including positive and negative affectivity, self-esteem, and altruism in emerging adults.

It has been argued that sibling relationships are among the most durable relationships in people's lives (Riggio, 2000). The sibling relationship, beginning from the birth of the younger child and continuing until the end of the lifespan, has a longer duration than most other relationships (Cicirelli, 1991; Stocker, Lanthier, & Furman, 1997). A preponderance of sibling research in the past two decades has focused mainly on the sibling relationship in childhood and adolescence (Scharf, Shulman, & Avigad-Spitz, 2005) or the sibling relationship among older adults (Midlarsky, Hannah, Shvil, & Johnson, 2008). The majority of research studies that have looked at the quality of the sibling relationship in children have related it to numerous factors such as, but not limited to, temperament, gender, birth order, and other family constellation variables, examining how these factors predict relationship quality. Sibling relationship quality in children has then been linked to differences in individual development and psychosocial adjustment (Brody, Stoneman, & Burke, 1987; Dunn & Kendrick, 1982; Furman & Giberson, 1995; Hannah & Midlarsky, 2005; Riggio, 2000; Stormshak, Bellanti, & Bierman, 1996). Overall, positive sibling relationships are generally linked to positive psychosocial

outcomes (Brody, 1998; Hannah & Midlarsky, 1999). Research investigating the quality of the sibling relationships in older adulthood has generally involved looking at caregiving behaviors, social support, and siblings as friends in later life. Findings suggest that elderly siblings are viewed as providers of support and sources of aid during times of crisis. Elderly people who have more frequent interactions with siblings have a greater sense of control in their lives, and elderly adults view siblings as sources of support and companionship (Cicirelli, 1980; Cicirelli, 1989; Cicirelli, 1990; Connidis, 1994; Riggio, 2000).

Similarly to the older population, there has been a great deal of work exploring the quality of the sibling relationship in childhood and adolescence. While research supports the meaningfulness of the sibling relationship to the individual throughout the lifespan, Cicirelli (1995) emphasizes that the greatest gap in knowledge about the sibling relationship across the lifespan is in the period of emerging adulthood. Furthermore, recent theoretical contributions by Arnett (2000) have suggested that there is a distinct developmental phase, termed 'emerging adulthood,' defined as the years following secondary school. Arnett argues that this time period should be viewed independently from adolescence and adulthood because of the dynamic and unpredictable quality of this age period. It is hypothesized that as individuals in this stage of development are experiencing many transitions, such as leaving home, completing school, and starting employment, their sibling relationships may be affected or transformed during the transition to adulthood (Conger & Little, 2010). It also stands to reason that sibling relationship quality may influence how an individual navigates these transitions.

Therefore, empirical investigations focusing on the quality of sibling relationships in emerging adulthood are warranted (Buist, Dekovic, & Prinzie, 2013; Cicirelli, 1995).

The limited work on the quality of the sibling relationship in emerging adults has focused on structural characteristics of the relationships that are associated with the quality of the sibling relationship, such as birth order, gender concordance, and age difference (Milevsky, 2004; Riggio, 2000; Stocker, Lanthier, & Furman, 1997). The largest void in the literature on sibling relationships in emerging adulthood is on the association between the quality of the sibling relationship and psychosocial well-being. In one study of sibling relationships and well-being in emerging adulthood, Stocker and colleagues (1997) found that sibling conflict was negatively correlated with psychological functioning. Milevsky (2005) found that emerging adults who reported receiving higher degrees of sibling support scored significantly lower on loneliness and depression, and significantly higher on self-esteem and life satisfaction than those reporting lower degrees of sibling support. Together, these findings suggest that there is a relationship between sibling relationship quality and well-being that needs to be further explored.

Affectivity refers to the expression of emotion or feeling (Chang & Sanna, 2001). According to Watson and Clark (1984), affectivity can be categorized as positive affectivity (PA) and negative affectivity (NA). Whereas positive affectivity generally reflects the extent to which individuals feel alert, enthusiastic, and active, negative affectivity generally reflects the extent to which individuals feel upset or unpleasantly aroused (Watson, Clark, & Tellegen, 1988). Additionally, PA and NA have been linked to Extraversion and Neuroticism, respectively (Tellegen, 1982). There is much debate in

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the literature regarding the stability of personality throughout the lifespan (Roberts & DelVecchio, 2000; Robins, Fraley, Roberts, & Trzesnewski, 2001). As emerging adulthood marks a period of time full of change and transition, it has been suggested that emerging adults may experience changes in affectivity (Arnett, 2000). Because the quality of the sibling relationship in emerging adults has been shown to have an effect on an individual's psychosocial well-being, it is important to understand how affectivity is predicted by the quality of the sibling relationship in emerging adults (Milevsky, 2005; Riggio, 2000; Stocker, Lanthier, & Furman, 1997).

In addition to affectivity, self-esteem has long been used in the literature as a marker of psychological well-being. An abundance of research has shown low self-esteem to be correlated with depression, in individuals of all ages (Robins & Trzesniewski, 2006). Self-esteem does not remain stable throughout the lifespan and it is has been shown to be influenced by a wide variety of factors, including social environmental changes and maturational changes (Robins & Trzesniewski, 2006). Additionally, it has been suggested that in adolescence, high levels of social support and positive interpersonal relations may positively affect self esteem (Galambos, Barker, & Krahn, 2006). Because emerging adulthood is by definition a time of extreme change and transition, it would be interesting to gain a better understanding of self-esteem and what may influence self-esteem during emerging adulthood, specifically the degree to which the quality of the sibling relationship may be associated with self-esteem.

Like self-esteem and affectivity, altruism has been shown to be positively related to psychological well-being in children, adolescents, and older adults (Midlarsky, 1991; Midlarsky & Hannah, 1985; Midlarsky & Kahana, 1994, 2007. However, little research

has focused on emerging adults' positive orientations, predictors of altruism, and/or altruistic behaviors that may influence altruism in emerging adulthood specifically. In general, research suggests that there is a strong need for frequent, affectively pleasant interactions with a few other people, and that these interactions must take place in the context of a stable and enduring framework of mutual affective concern (Baumeister & Leary, 1995). Therefore, it seems important to study the specific impact of the sibling relationship, because, by nature, it is generally a long-lasting interpersonal relationship. One study found that a specific facet of the sibling relationship, relationship closeness, was related to higher levels of empathic concern (Cialdini, Brown, Lewis, Luce, & Neuberg, 1997). Further research is needed to better understand the degree to which the quality of the sibling relationship is related to psychological well-being and altruism, specifically how altruism may be predicted by the quality of relationship with a sibling in emerging adulthood.

This study focused on the quality of the sibling relationship in emerging adults between the age of 18 and 29. Because the sibling relationship has been shown to be important for individuals throughout the lifespan, it is necessary to understand the association between sibling relationship quality and psychological outcomes in emerging adulthood. This study investigated the manner and extent to which sibling relationship quality affects positive and negative affectivity, self-esteem, and altruism in emerging adults.

Chapter II

Literature Review

It has been estimated that 85% of adults living in the United States have at least one sibling (Stocker, Lanthier, & Furman, 1997). Sibling relationships are typically the longest-lasting and most intimate in people's lives (Aquilino, 2006; Cicirelli, 1991; Riggio, 2000). Research has shown that qualitative and quantitative aspects of sibling relationships vary widely across sibling dyads (Stoneman, & Brody, 1993). While some siblings have warm, close relationships, others experience overt conflict and rivalry. It has been shown that in childhood, individual differences in the quality of sibling relationships are related to children's social, moral, and cognitive development, as well as to their mental health (Dunn, 1983; Furman & Buhrmester, 1985 Stocker, 1993). Additionally, many explanations for the variability in the quality of sibling relationships have been centered on family context variables such as sibling age, gender, and age spacing (Stoneman & Brody, 1993). Given the prevalence of sibling relationships, their importance throughout the lifespan, and the dearth of research focusing on the sibling relationship in emerging adulthood, it is important to examine the nature of the sibling relationship and its relationship to well-being in emerging adults.

Sibling relationships in Emerging Adulthood

Past research points to the importance of sibling relationships as pillars of support in adulthood (Cicirelli, 1991; Aquilino, 2006). During the time period termed as emerging adulthood (Arnett, 2000), young adults are moving toward independence from their families, moving away to separate residences, and establishing intimate

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relationships with romantic partners. At this stage of life, young adult siblings have newfound choices about whether they will remain involved with one another, making the sibling interaction more voluntary in both quantity and quality, rather than dictated by parental wishes or external conditions (Shortt & Gottman, 1997; Stewart et. al., 2001; Scharf, Shulman, & Avigad-Spitz, 2005). As individuals make the transition into adulthood, there may be a decrease in the intensity of interactions with family members (White & Riedmann, 1992).

It has been found that emerging adults report lower levels of conflict with their siblings than adolescents, which contributes to an increased sense of warmth and closeness between them (Stewart et. al, 2001). This also suggests that although the relationship may not be central on a daily basis, emerging adult siblings still feel close to one another. Cicirelli (1980) found that college women felt as much emotional support from the sibling they rated closest as they did from their mother. Other studies have shown that contact and closeness with siblings decreases during the early adult years and then increases later in adulthood (White, 2001; Cicirelli, 1991). It is therefore suggested that the task for emerging adult siblings is to maintain a relationship that is strong enough to form the basis for a long-term relationship (Aquilino, 2006).

It is likely that sibling relationships are transformed to address the developmental changes and life progress that take place during the unique emerging adulthood (Scharf, Shulman, & Avigad-Spitz, 2005). However, the literature on sibling relationships in emerging adulthood is sparse, and therefore not much is known about the nature and the extent to which sibling relationships in emerging adulthood differ from those in childhood and adolescence. Like child and adolescent siblings, one study suggests that

emerging adults do report feelings of warmth, conflict, and rivalry toward their siblings (Stocker et. al., 1997). However, Buhrmester and Furman (1990) suggest that because of the decreased intensity of the relationship, conflict and rivalry may be lower among emerging adult siblings than among adolescent siblings. Furthermore, warmth may increase as day-to-day competition decreases. Overall, more research examining the quality of sibling relationships in emerging adulthood is called for.

Quality of the sibling relationship and psychosocial functioning

Research on the quality of the sibling relationship in childhood has suggested that intense, pervasive conflict in sibling relationships has a lasting, negative influence on psychosocial adjustment (Stocker, 1994). High conflict sibling relationships have been found to be associated with higher depression, lower self-worth, and poorer conduct, while warmer sibling relationships were associated with lower degrees of loneliness, higher self-worth, and better conduct (Stocker, 1994). Furthermore, a study of children with behavior problems reported that those children with cold, high-conflict sibling relationships showed significantly worse social adjustment than children with warm, low-conflict sibling relationships (Stormshak, Bellanti, & Bierman, 1996). Additionally, increased sibling intimacy in childhood has been shown to predict better peer relations, lower depression, and fewer externalizing problems in adolescence (Kim, McHale, Crouter, & Osgood, 2007). Poor sibling interactions and increased sibling conflict in middle childhood significantly predicted poorer peer relations, higher depression, higher anxiety, and more internalizing problems and delinquent behavior in adolescence (Branje, van Leishout, van Aken, & Haselager, 2004; Kim et. al., 2007; Stocker, Burwell, & Briggs, 2002).

Similar research has looked at the association between sibling relationships and psychosocial variables in adolescence. Findings have suggested that sibling relationship quality has lasting effects as children make the transition from childhood into adolescence. Positive adolescent sibling relationships have been significantly associated with positive adolescent peer relationships (Updegraff, McHale, & Crouter, 2002). While it appears that sibling support has a positive relationship with psychosocial adjustment in adolescence, there is evidence to support that sibling conflict has negative effects on psychosocial adjustment in adolescence (Brody, 1998).

One study has shown that sibling support is associated with psychosocial adjustment in emerging adulthood. Milevsky (2005) reported that sibling support among emerging adults may compensate for poor support from parents and peers. Sibling support has been significantly associated with lower degrees of loneliness and depression (characteristics associated with high negative affectivity and low positive affectivity), as well as higher degrees of self-esteem and life satisfaction (characteristics associated with high positive affectivity). Furthermore, research indicates that throughout adulthood, siblings may provide an important source of support during major life events, such as getting divorced, getting married, becoming widowed, or caring for an ill family member (Connidis, 1992; Conger & Little, 2010). In contrast, increased depression and illicit drug use in adulthood were predicted by distant or negative sibling relationships in childhood and adolescence (Waldinger, Vaillant, & Orav, 2007).

Research has shown mixed results regarding the mental health and well-being of emerging adults. In general, it has been shown that for most, well-being improves during emerging adulthood, as manifested by a decline in depressive symptoms and an increase

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in self-esteem (Arnett, 2007; Schulenberg & Zarrett, 2006). It has been suggested that increases in social support and marriage, common during this developmental time period, were associated with increased psychological well-being, as measured partly by self-esteem (Galambos, Barker, & Krahn, 2006). While emerging adulthood tends to be a time of improving psychological well-being, individual trajectories depend on specific individual and family characteristics, as well as role changes during this transitional stage of life. While mental health may improve, it has also been shown that psychopathology tends to increase in emerging adulthood as well (Schulenberg & Zarrett, 2006). Perhaps the rise in antisocial behavior and depressive affect during emerging adulthood is associated with the nature of this time period as a major life transition; during emerging adulthood, individuals experience more individual and contextual changes than at any other time in life (Arnett, 2007; Schulenberg & Zarrett, 2006).

Based on previous research, it can be inferred that affectivity (PA and NA) is related to psychosocial functioning or well-being (Costa & McCrae, 1980, Lanthier, 2007; Milevsky, 2005). Studies have specifically shown that measures of psychological adjustment (e.g., depressive and anxious symptoms) are strongly associated with affectivity (Lanthier, 2007; Watson, Clark, & Carey, 1988). Additionally, Bradburn (1969) found the Positive Affective Scale and the Negative Affective Scale to be significantly correlated with avowals of "very happy" and "not too happy," respectively. Furthermore, a strong association between happiness and subjective well-being is well documented (Pavot, Diener, & Fujita, 1990). Research has shown that individuals who have close relationships with friends and/or family are generally happier (Myers & Diener, 1995). Additionally, people report more positive affect when they are with others

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than when they are alone (Pavot, Dienerm & Fujita, 1990). Because there is a strong

association between affectivity and well-being, and between relationship quality and

well-being, it is important to develop a greater understanding of the relationship between

the quality of the sibling relationship and affectivity in emerging adulthood.

Affectivity in Emerging Adulthood

Positive affectivity (PA) is a dimension reflecting one's level of pleasurable

engagement with the environment. High PA is marked by emotions reflecting

enthusiasm, energy level, mental alertness, interest, joy, and determination. Trait PA

represents a predisposition to experience positive emotions and reflects one's generalized

sense of well-being and competence, as well as effective interpersonal engagement

(Watson & Clark, 1984). In contrast, Negative affectivity (NA) is a general factor of

subjective distress and unpleasant engagement, and assumes a broad range of negative

mood states, including fear, scorn, disgust, hostility, and anxiety. It has also been shown

that depressive mood states such as loneliness, lethargy, and sadness have substantial

loadings on NA. NA represents a predisposition to experience negative emotions

(Crawford & Carey, 2004; Watson & Clark, 1984)

PA and NA have been shown to have associations with depression and anxiety,

and the Positive and Negative Affect Schedule (PANAS) has been shown to be effective

at differentiating between depression and anxiety in clinical samples (Crawford & Henry,

2004). Dyck, Jolly, and Kramer (1994) found that the NA factor, but not the PA factor is

significantly related to anxiety, but both factors predict depression. Additionally, when

they controlled for NA, depression, but not anxiety, was negatively related to PA scores.

In contrast, when PA was controlled, both depression and anxiety explained a substantial

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amount of variance in NA scores. Overall, these results indicate that PA is related to depression and not to anxiety, whereas NA is highly related to both. Watson, Clark, and Carey (1988) also found measures of psychological adjustment (e.g., depressive and anxious symptoms) to be strongly associated with NA and to a lesser degree PA. Overall, past literature shows that high NA is associated with more negative psychosocial outcomes (Chang & Sanna, 2001; Watson, Clark, & Carey, 1988; Watson & Pennebaker, 1989). On the contrary, others have suggested that high PA is associated with happiness and well-being (Lyubomirsky, King, & Diener, 2005). The authors explained this with the rationale that the characteristics related to positive affect include confidence, optimism, self-efficacy, sociability, effective coping with challenge and stress, originality and flexibility (Lyubomirsky, King, & Diener, 2005).

Additionally, NA has been strongly and broadly linked to Neuroticism, while PA has been strongly associated with Extraversion (Rusting & Larsen, 1997). Strong empirical associations have led researchers to conclude that Neuroticism and Extraversion represent temperament-based traits that reflect individual differences in the predisposition to experience negative and positive affective states, respectively (Tellegen, 1985; Vaidya, Gray, Haig, Mroczek, & Watson, 2008). Mixed findings have been documented regarding Extraversion and Neuroticism in emerging adults. For example, several studies have found that Extraversion generally increases in young adulthood (Carmichael & McGue, 1994; Holmlund, 1991; Stewart, 1964), while other studies have found that Extraversion generally decreases in young adulthood (Robins, Fraley, Roberts, & Trzesniewski, 2001). The results for Neuroticism have been mixed as well. Although mixed, the majority of evidence shows general decreases in Neuroticism-related traits

from adolescence to emerging adulthood (Robins, Fraley, Roberts, & Trzesniewski, 2001; Roberts, Walton, & Viechtbauer, 2006). Given the very transitional nature of this developmental period, emerging adulthood may be a time which personality is subject to change. This is a controversial topic and there is an ongoing debate concerning, when in the life course personality traits remain stable (Roberts & DelVecchio, 2000; Robins, Fraley, Roberts, & Trzesnewski, 2001). Most theorists argue that personality continues to develop during emerging adulthood, and several studies have reported evidence of significant personality changes during this time (McGue, Bacon, & Lykken, 1993; Watson & Walker, 1996). That being said, it is interesting to understand the potential impact the sibling relationship quality may have in one's experience of positive affectivity (extraversion) and/or negative affectivity (neuroticism).

Self-Esteem in Emerging Adulthood

Self-esteem is often used in the literature as a marker of psychological well-being (Pyszczynski, Greenberg, Solomon, Arndt, & Schimel, 2004). A great deal of research has shown a strong association between low self-esteem and depression, with much research showing low self-esteem to be a defining feature of depression (Orth, Robins, & Roberts, 2008). It is important to note that self-esteem does not remain stable throughout one's lifetime, but it inevitably waxes and wanes, reflecting changes in one's social environment as well as maturational changes (i.e., puberty in adolescence, cognitive decline in old age) (Robins & Trzesniewski, 2005). Research has shown that in general, children have relatively high self-esteem, and that self-esteem declines in adolescence, gradually rises throughout adulthood, reaching a peak sometime around the late 60s, and declines again in old age (Robins & Trzesniewski, 2005).

There are many factors that can influence one's self-esteem, especially during the transitional and fluctuating development stage of emerging adulthood. Knowledge about what may influence self-esteem development in emerging adults can have important implications for the timing of interventions (Robins & Trzesniewski, 2005). In general, the importance of positive relations with others is stressed as a marker of well-being, as social support buffers the individual from negative effects of stress (Galambos, Barker, & Krahn, 2006; Ruff, 1989). Research has suggested that the quality of relationships with parents is important. In an adolescent sample, less parental support and more conflict with parents contributed to increased depression and low self-esteem, whereas increases in self-esteem were associated with close and positive relations with parents (Galambos, Barker, & Krahn, 2006). It can be hypothesized that support from siblings, in addition to parents, would have a positive effect on one's self esteem and well-being in emerging adulthood; however, there is limited research in this domain. Therefore, research is warranted on the association between social support from siblings and psychological well-being (e.g., self-esteem) in emerging adulthood.

Altruism in Emerging Adulthood

Emerging adulthood is also a noteworthy developmental stage of life during which identity exploration and development may occur (Arnett, 2000). A great deal of the literature on emerging adulthood has focused on risky behaviors such as binge drinking, unprotected sex, and drug use (Schulenberg, O'Malley, Bachman, & Johnston, 2005). On the other hand, little research has focused on emerging adults' proactive orientations and altruistic and/or prosocial behaviors (Padilla-Walker, McNamara, Barry, Carroll, Madsen, & Nelson, 2008). While altruism has been shown to be positively

related to positive effects on well-being for mental health in children, adolescents, younger adults, and older adults (Midlarsky, 1991; Midlarsky & Hannah, 1985; Midlarsky & Kahana, 1994, 2007), the literature on emerging adults is limited.

Research has suggested a linear relationship between altruism throughout childhood and adolescence (Midlarsky & Bryan, 1967; Midlarsky & Hannah, 1985). Additionally, altruism has associated with more positive well-being, as past research has shown that individuals who engage in helping behaviors have reported helping to be especially rewarding. Furthermore, helping others has been linked to feelings of inner satisfaction, feelings of competence and usefulness, and increased self-esteem (Midlarsky & Hannah, 1985; Midlarsky & Kahana, 2007). As these findings reflect the results of research focusing on children and later-life adults, there is a need to explore and understand altruism in emerging adults.

Demographic and Familial Structural Variables and the Sibling Relationship

Many studies of sibling relationships have focused on childhood and adolescence. Previous research attempts to understand the differences in sibling relationships have focused on the influence of family structural variables, like age difference and birth order (Furman & Buhrmester, 1985; Kim, McHale, Osgood, & Couter, 2006; Minnett, Vandell, & Santrock, 1983; Stocker, Dunn, & Plomin, 1989). Results from these studies have been inconsistent and have yielded little insight into the roles of birth order and age difference and the effect on the quality of the sibling relationship.

Birth order, or ordinal position in the nuclear family, is often used as a research variable within the literature on sibling relationships (Kammeyer, 1966; Sulloway, 1995). It has been suggested that individuals' experiences with siblings differ greatly depending

on whether they are older or younger. Research has shown that older siblings inherit positions of authority and responsibility in some families. Additionally, children were found to be more satisfied with and quarreled less with older siblings than with younger siblings (Furman & Buhrmester 1985; Buhrmester & Furman, 1990). Other researchers found older siblings to be described as sources of support and advice (Seginer, 1998; Tucker et. al., 1997). Although birth order has been investigated in the literature on sibling relationships in childhood, Minnett, Vandell, and Santrock (1983) pointed out a need to further understand the relationship between birth order and the quality of sibling interactions and relationships.

As with research on children, the research on the sibling relationship in adolescence also includes an investigation of birth order. It has been observed that an adolescent's position within the family as the older or younger sibling may account for attributions within the sibling (Branje, van Lieshout, van Aken, & Haselager, 2004). Thus, Furman and Buhrmester (1992) reported that adolescents tend to perceive older siblings as both more domineering and more nurturing than younger siblings. Additionally, they reported that younger siblings express greater admiration for and more intimate relations with older siblings than older siblings express for younger siblings. As noted previously, the findings on the effect of birth order have been inconsistent overall with some studies showing that older siblings exhibit less intimacy or more negativity (e.g., Stewart, Verbrugge, & Beilfuss, 1998) and others showing that older siblings display more warmth (e.g., Dunn et. al, 1994). Future research should aim to clarify the relationship between birth order and sibling relationship and should also take into account the finding that structural characteristics (e.g., birth order, age difference) may have

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different implications for the quality of the sibling relationship at different points in development.

Along with birth order, past research has investigated the relationship between the age difference in the sibling dyad and relationship quality of the sibling dyad. Results have been inconsistent. An older study found that among siblings, those who are more widely spaced experience more competitive and stressful relationships (Koch, 1956). This finding is interesting in that siblings closer in age are more likely to share the same friends, have similar abilities and skills, and share more similar interests than siblings more widely spaced in age. It would seem these circumstances would be likely to increase rivalry and conflict, rather than to lessen it. Support for the opposite, emphasizing among siblings closer in age has been found in studies whose findings suggested that siblings were in fact more intimate and experienced less conflict when age differences between them were larger (Buhrmester & Furman, 1990; Milevsky, et. al., 2005; Stocker et. al., 1997). Participants reported more conflict with siblings who were closer in age (within two years) than with siblings who were much older or younger (two years of more). It had been suggested that the differing results of previous research might be due to developmental differences in sibling relationships; perhaps, the closeness in age between siblings contributes to conflict specifically during adolescence and emerging adulthood because of the individuation process that takes place during this time (McHale, Updegraff, Helms-Erikson, & Crouter, 2001).

In a study of 247 college students, Milevsky, Smoot, Leh, & Ruppe (2005) found that in the sibling relationship in emerging adulthood, older-sibling (birth order) participants were less likely to report conflict within their sibling relationships.

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Additionally, younger sibling participants reported more warmth in their sibling relationships than older sibling participants (Milevsky, Smoot, Leh, & Ruppe, 2005). The authors note that siblings' age mediated the relationship between the participant's age and sibling conflict. They go on to explain that perhaps with age comes a maturity that helps the siblings navigate through relationship difficulties contributing to the reported lower levels of conflict in the sibling dyad.

The preponderance of past research on the effect of gender on the sibling relationship has focused on the sibling relationship in childhood. Furman and Buhrmester (1985) found that same sex siblings report a higher degree of childhood companionship than siblings of the opposite sex. Additionally, same sex sibling pairs in early childhood have been shown to direct more positive behavior toward one another than mixed sex sibling pairs (Dunn & Kendrick, 1982).

Research on emerging adults focusing on the sex composition of the sibling dyad has found a higher degree of closeness and emotional intimacy between sister dyads than between brother or sister-brother dyad (Riggio, 2000). Stoneman and Brody (1993) reported that male sibling pairs engaged in more negative interactions than female sibling pairs. These results are consistent with the finding that among older adults, that the sister-sister relationship is the closest and most satisfying, followed by sisters with their brothers, and with brothers being the least close (Wilson, Calsyn, & Orlofsky, 1994). In a study of 711 participants, Riggio (2000) found that adult women reported significantly more positive emotions, more frequent and more positive behavioral interactions, and more positive overall attitudes toward their siblings than did men. Furthemore, in a study by Milevsky, Smoot, Leh, and Ruppe (2005), females reported more warmth in their

sibling relationship than males and participants who listed a female as their 'most important sibling' reported more warmth in their relationship than participants who listed a male.

Female-female sibling pairs have been shown to have the most contact and are more likely to interact on a weekly basis. Additionally, females were more likely than males to report contact with siblings as discretionary (Lee, Mancini, & Maxwell, 1990). These findings are in line with the previous research findings showing that females assume the role of maintaining kinship ties within the family (Adams, 1968; Townsend, 1963). Research has shown that women are more likely to initiate ties with kin, including siblings (White & Riedmann, 1992).

As mentioned previously, the increasing independence of adolescents and young adults may also result in a decrease of sibling contact, as the relationship becomes voluntary; the relationship is no longer inescapable as it may have been during childhood (White & Riedmann, 1992; Stewart et. al., 2001; Scharf, Shulman, & Avigad-Spitz, 2005; Aquilino, 2006). A longitudinal study of 9,000 adults with siblings over a 7-year period found that siblings' proximity, contact, and frequency of helping behaviors all significantly decreased as siblings made the transition into adulthood, but then remained stable in middle adulthood and increased as siblings made the transition into later life (White, 2001). Despite the decrease in contact and helping behaviors, it was shown that siblings do continue to reach out to one another for emotional support, advice, and help in emergency situations throughout this developmental stage. This was shown in White and Riedmann's (1992) study of 7, 730 adults with siblings. They found that although sibling contact was low, nearly 30% of the sample reported that in an emergency situation, they

would reach out to a sibling first. There is a great deal of evidence to suggest that adult siblings may continue to be a source of support and advice regarding life plans and personal problems (Tucker, Barber, & Eccles, 1997).

Past research on the motivations behind sibling contact have shown that sibling dyads with high contact were those dyads who were both emotionally and geographically close and who also had expectations about sharing life responsibilities (Lee, Mancini, & Maxwell, 1990). Additionally, past work indicates that the sibling relationship improves as individuals make the transition from adolescence to emerging adulthood. Emerging adult siblings have been found to be significantly warmer, more emotionally involved, less conflicted, and less rivalrous with one another than adolescent siblings (Stocker, Lanthier, & Furman, 1997; Stewart et. al., 2001; Scharf, Shulman, & Avigad-Spitz, 2005). It has been suggested that this could be a result either of growing maturity, the limited time that emerging adult siblings spend together, or, of the fact that emerging adult siblings who do not get along choose to have less contact with one another (Stocker, Lanthier, & Furman, 1997).

Although the sibling relationship in emerging adulthood may not be intense on a daily basis, Stewart et. al (1998) suggested that young adults may still feel close to their siblings regardless of decreased contact. Additionally, college women reported feeling as much emotional support from their siblings as from their mothers (Cicirelli, 1980), suggesting the sibling relationship continues even in the absence of daily contact (Voorpostel & Van Der Lippe, 2007). However, it has been shown that contact is important for support exchange (White & Riedmann, 1992), and therefore it can be expected that siblings can provide more support when there is a higher degree of contact.

Results from previous studies are mixed, as Lee, Mancini, and Maxwell (1990) report, siblings who live close to one another have more contact, and because of that greater contact, experience more conflict in the relationship. As the results on how amount of contact influences the quality of the sibling relationship in emerging adults are mixed, more research on siblings in this developmental stage of life is warranted to help clarify the relationship.

There is a dearth of research that has looked at the relationship between race/ethnicity and the quality of the sibling relationship. Eriksen and Gerstel (2002) found no significant differences between African American and white participants in their study on adult siblings; however, in their sample, 89% of siblings were white and 12% of siblings were African American. It has been suggested that kinship ties are more salient among African American and Hispanic families (Scott & Black, 1991; Stack, 1974). However, findings have been mixed as African Americans were shown to be less likely than Whites and Hispanics to rely on siblings for support in an emergency (Taylor, Chatters, & Mays, 1988). White and Riedmann (1992) reported that African Americans see their siblings more than any other racial or ethnic group and that this result is independent of geographical proximity or social class. Furthermore, the authors note that African Americans are not more likely to feel close to their siblings, to exchange aid with them, or to expect aid from them. Indeed, they found that African Americans exchange less with their siblings than do others. It is difficult to obtain a clear picture of how race/ethnicity affects the quality of the sibling relationship because of the limited past research and the employment of non-representative samples.

Present Study

In summarizing the domain of research on sibling relationships, much of the past research on the quality of the sibling relationship has centered on the sibling relationship in childhood, adolescence, and later life. There is a gap in the literature on the quality of the sibling relationship in emerging adulthood. The limited research on the sibling relationship in this developmental period focuses mainly on various family structural (e.g., birth order, age difference) and demographic variables and how they may or may not predict the quality of sibling relationships in emerging adults. Because the sibling relationship has been shown to be of great importance, it is necessary to understand its potential impact on psychological outcomes (i.e., affectivity, self-esteem, and altruism) in emerging adults. This study will explore this pattern of associations in the hopes of achieving a better understanding of the relationships between sibling relationship quality, psychological well-being, and altruism in emerging adulthood.

Hypotheses and Research Questions

After reviewing the literature, several hypotheses about the associations between the quality of the sibling relationship and psychological outcomes in emerging adults were explored. In general, positive facets of the sibling relationship are proposed to be related to both positive well-being and altruism, and the reverse is proposed regarding negative facets of the sibling relationship and well-being. Hypothesis 1: Higher warmth in the sibling relationship is associated with higher self-esteem, higher positive affectivity, lower negative affectivity, and higher degrees of altruism. Hypothesis 2: Higher conflict in the sibling relationship is associated with lower self-esteem, lower

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positive affectivity, higher negative affectivity, and less altruism. Hypothesis 3: Higher rivalry in the sibling relationship is associated with lower self-esteem, lower positive affectivity, higher negative affectivity, and less altruism. Hypothesis 4: Warmth is associated with self-esteem, positive affectivity, negative affectivity, and altruism after controlling for conflict and rivalry. Hypothesis 5: Conflict is associated with self-esteem, positive affectivity, negative affectivity, and altruism after controlling for warmth and rivalry. Hypothesis 6: Rivalry is associated with self-esteem, positive affectivity, negative affectivity, and altruism after controlling for warmth and conflict.

In the literature reviewed here, results indicate that siblings have reported certain family structural and demographic variables (e.g., age difference, birth order, gender concordance, amount of contact, income/education level) which in turn are associated with the quality of the sibling relationship; however, as previously noted, much of the literature focuses on individuals in childhood, adolescence, and later life. Nevertheless, results of a limited set of studies show these variables to have similar effects on the sibling relationship in emerging adults. Therefore, these structural and demographic variables will be held constant in the analyses.

Chapter III

Method

Participants

As presented in Table 1 below, participants in this study were 1,361 emerging

adults between the ages of 18 and 29, with a mean age of 22.81. The sample consisted of

1068 females (78.5%) and 282 (20.7%) males. The sample was 67.5% White, 14.3%

Asian, 6.2% Hispanic, 4.2% African American, .5% Native American, and 7.3% Other.

In terms of education level, 14.5% of the sample had a high school degree or less, 61.4%

of the sample attended college or obtained a college degree, and 23.5% of the sample

attended some graduate school or completed a graduate degree.

Table 1. *Descriptive Data for Study Demographics*

Demographic	%	Range	*M*	*SD*
Age		18-29	22.81	3.29
Gender				
Male	78.5			
Female	20.7			
Ethnicity				
White	67.5			
Asian	14.3			
African American	4.2			
Hispanic/Latina	6.2			
Native American	.5			
Other	7.3			
Highest Level of Education				
High school or less	14.5			
Some Undergraduate study	61.4			
Some Graduate study or Graduate degree	23.5			

Measures

Adult sibling relationship quality:

Adult sibling relationship quality was measured by the Adult Sibling Relationship

Questionnaire (ASRQ), an 81-item scale designed to measure three dimensions (warmth,

conflict, and rivalry) within the adult sibling relationship (Stocker, Lanthier, & Furman,

1997). For the sibling warmth and sibling conflict subscale items, participants rated how

much they engage in warm interactions or conflictual interactions with their siblings

using a Likert-type scale from 1 (Hardly At All) to 5 (Extremely Much). Examples of the

sibling warmth subscale items included, "How much does this sibling try to cheer you up

when you are feeling down?" and "How much does this sibling accept your lifestyle?"

Examples of the sibling conflict subscale items included, "How much do you and this

sibling argue with each other?" and "How much does this sibling irritate you?" For items

on the rivalry subscale, participants rated the extent to which they and their sibling

differed in terms of maternal and paternal attention using a 5-point Likert-type scale (1 =

I am usually favored, 2 = I am sometimes favored, 3 = Neither of us is favored, 4 = This

sibling is sometimes favored, & 5 = This sibling is usually favored). Examples of sibling

rivalry subscale items included, "Do you think your father favors you or this sibling

more?" and "Do you think your mother favors you or this sibling more?" The resulting

variables were coded so that higher numbers indicate higher sibling warmth, higher

sibling conflict and higher sibling rivalry. Cronbach's alpha for the ASRQ in the present

data set was 0.95, and previous research has also demonstrated the satisfactory

psychometric properties of this measure (Stewart, Kozak, Tingley, Goddard, Blake, &

Cassel, 2001; Stocker, Lanthier, & Furman, 1997). In particular, for the Warmth, Conflict

and Rivalry subscales, Stocker et al. (1997) reported internal consistency coefficients of 0.97, 0.93, and 0.88 (respectively) as well as two-week test-retest reliability coefficients of 0.95, 0.89, and 0.87 (respectively). Furthermore, the Warmth and Rivalry subscales were not significantly correlated with a measure of social desirability, the Impression Management Scale (Paulhus & Reid, 1991), while a weak but nevertheless significant correlation (r = -0.16) was observed between Sibling Conflict and Social Desirability (Stocker et al., 1997). Stocker et al. (1997) also demonstrated ASRQ's convergent validity by correlating their subjects' ASRQ responses with reports by their siblings, and found significant agreement between siblings on the warmth (r = .60, p < .01), conflict (r = .54, p < .01), and rivalry subscales (r = .33, p < .01). In this study, Cronbach's alphas were respectively, .975, .922, and .841 for the warmth, conflict, and rivalry subscales.

Positive and Negative Affectivity

Positive and negative affectivity were measured by the Positive and Negative Affect Schedule (PANAS), a 20-item measure, comprised of two mood scales, one measuring positive affectivity and the other measuring negative affectivity (Watson, Clark, & Tellegen, 1988). Each item, or emotion, is rated on a 5-point scale ranging from 1 (*very slightly or not at all*) to 5 (*very much*) to indicate the extent to which the respondent generally feels this way. Examples of items on the Positive Affectivity Scale include: "proud," "determined," and "active." Examples of items on the Negative Affectivity Scale include: "upset," "jittery," and "irritable." Watson et. al. (1998) reported Cronbach's alphas for the positive scale ranging from .86-.90 and for the negative scales ranging from .84-.87. In the study reported here, Cronbach's alphas were .90 and .878 respectively for the positive and negative scales. Additionally, Watson et.

al. (1998) reported evidence for the validity of the PANAS; measures of general distress and dysfunction, depression, and state anxiety were more highly correlated with the Negative Affectivity Scale than with the Positive Affectivity scale.

Self-Esteem

Self-esteem was measured using the Rosenberg Self-Esteem Scale (RSE), a 10-item measure designed to measure global self-worth by measuring both positive and negative feelings about the self (Rosenberg, 1979). Each item is rated on a 4-point Likert scale format ranging from *strongly agree* to *strongly disagree*. Examples of items on the scale include: "I feel I have a number of good qualities," "I am able to do things as well as most other people," and "I certainly feel useless at times." The RSE has been shown to have excellent internal consistency as shown by a Guttman scale coefficient of reproducibility of .92 (Rosenberg, 1979). Additionally, test-retest reliability over a 2-week period yielded a correlation of .88, indicating excellent stability (Rosenberg, 1979). Cronbach's alpha for the RSE in the current study was .887.

Altruism

Altruism was measured using The Altruistic Orientation Scale, a 10-item measure (Midlarsky & Kahana, 1994). Each item is rated on a 6-point Likert scale format ranging from 1 (*strongly agree*) to 6 (*strongly disagree*). Examples of items on the scale include: "I try to help others, even if they do not help me," "These days you need to look out for yourself," and "I place the needs of others ahead of my own." In this study, Cronbach's alpha was .794.

Demographic Variables:

Subjects were asked to provide responses to several questions pertaining to demographic information. Subjects were asked the age of both themselves and their siblings. This information was used to calculate both the age difference between the siblings and the birth order of the sibling respondent. Subjects were asked about their race/ethnicity, their highest level of education, and their income. They were also asked to provide their gender and that of their sibling, and this information was used to produce a variable of gender concordance or discordance.

Sibling Contact:

Contact between siblings was measured by a 4-item scale designed to measure the frequency with which siblings see each other in person, meet for holidays and special occasions, and speak over the telephone (Stocker et al., 1997). Participants rated responses using a Likert-type scale in which response choices ranged from 1 (Hardly At All) to 5 (Extremely Much). The four items listed are: "How much do you and your sibling see each other?" "How much do you and this sibling see each other for holidays and family gatherings?" "How much do you phone this sibling?" and "How much does this sibling phone you?" Previous research has demonstrated the satisfactory psychometric properties of this measure, with Stocker et al. (1997) reporting an internal consistency coefficient of 0.78, and a test-retest reliability coefficient of 0.85 over a two-week time interval. In the current study, Cronbach's alpha was .717.

Procedure

This study utilized a secondary analysis of a data set previously collected under the auspices of Elizabeth Midlarsky, Ph.D. This study analyzed the sibling relationship quality (i.e., warmth, conflict, and rivalry) and its relationship to several psychological

variables in emerging adulthood, specifically positive affectivity, negative affectivity, self-esteem, and altruism. Data collection was conducted using an Internet survey, which obtained a sample of 1,361 emerging adult participants (between the ages of 18 and 29). After approval by the Institutional Review Board, the survey research instrument was placed on the Columbia University website. The informed consent procedure notified participants that the study was being conducted by a team of researchers at Columbia University and it the study was explained as an "exploration of how sibling relationships change across the lifespan and influence well-being." Participants were required to be 18 years of age or older; there were no other exclusion criteria. The study was advertised via classified ads using online message boards, forums, and public websites such as craigslist.com and facebook.com. The study was advertised across the United States.

Chapter IV

Results

Preliminary Analyses

General measures descriptors

Prior to performing the analyses required to assess the present study's hypotheses, preliminary analyses were performed. Participants' mean scores on the outcome and independent variables are presented in Table 2.

Table 2
Descriptive Data

Measures	*M*	*SD*	Range
Sibling Relationship Warmth	147.36	36.58	51-226
Sibling Relationship Conflict	52.30	15.92	23-105
Sibling Relationship Rivalry	34.77	7.48	12-60
Positive Affectivity	30.87	8.52	10-50
Negative Affectivity	22.90	8.21	10-48
Self-Esteem	29.99	5.14	13-40
Altruism	46.11	6.44	17-60

Intercorrelations of sibling relationship variables

Intercorrelations were run on the adult sibling relationship scales (i.e., warmth, conflict, and rivalry), to test for associations among the scales. Results are presented in Table 3. The results reveal that sibling relationship warmth and sibling relationship conflict are significantly associated in the expected direction ($r = -.131$, $p < .01$).

Interestingly, sibling relationship warmth and sibling relationship rivalry were significantly correlated in an unexpected direction; greater warmth was associated with greater rivalry ($r = .110$, $p < .01$). Although the correlation between sibling relationship warmth and sibling relationship conflict and the correlation between sibling relationship warmth and sibling relationship rivalry were significant in the expected directions, the correlations were small. Finally, sibling relationship conflict and sibling relationship rivalry were not significantly related to one another ($r = .002$, ns). These results suggest that the warmth, conflict, and rivalry scales are different constructs and can be analyzed as separate predictor variables.

Table 3. *Bivariate Correlations of Sibling Relationship Scales*

Variable	1	2	3
1. Warmth	--		
2. Conflict	-.131**	--	
3. Rivalry	.110**	.002	--

*Note. **p < .01.*

Intercorrelations of psychological variables

The intercorrelations are presented in Table 4. Results indicate that positive and negative affectivity are not significantly related ($r = .014$, ns). Additionally, the relationship between negative affectivity and altruism is not significant ($r = -.063$, ns). Significant associations were observed between positive affectivity and self-esteem ($r = .396$, $p < .01$), positive affectivity and altruism ($r = .194$, $p < .01$), self-esteem and

negative affectivity ($r = -.479$, $p <.01$), and altruism and self-esteem ($r = .182$, $p <.01$), all in the expected directions.

Table 4. *Bivariate Correlations of Study Outcome Variables*

Variable	1	2	3	4
1. Positive Affectivity	--			
2. Negative Affectivity	-.014	--		
3. Self-Esteem	.396**	-.479**	--	
4. Altruism	.194**	-.063	.182**	--

Note. **$p < .01$.

Primary Analyses

Sibling relationship and positive affectivity

In order to investigate whether sibling relationship quality was related to positive affectivity, several hierarchical regressions were run with sibling relationship quality (i.e., warmth, conflict, or rivalry) as the independent variable and positive affectivity as the dependent variable, controlling for age difference, gender concordance, sibling contact and minority status. Age difference and gender concordance did not significantly relate to positive affectivity. Sibling contact did significantly relate to positive affectivity in the regressions shown in tables 5-8. Minority status was significantly associated with positive affectivity in the regression for sibling relationship warmth predicting positive affectivity, but this relationship was not significant in the other regressions. To determine the contribution of independent variables contribution to positive affectivity,

an additional hierarchical multiple regression was run with variables warmth, conflict, and rivalry as predictor variables, and positive affectivity as the dependent variable. These results are presented in tables 5-8.

Table 5 shows the results of the regression examining the relationship between sibling relationship warmth and positive affect (β=.394, $t(712)$=8.659, p <.01), while controlling for age difference, gender concordance, sibling contact, and minority status. Higher warmth was associated with positive affect, accounting for 9.1% of the variance.

Tables 6 and 7 show the results of the hierarchical regressions examining the relationships between sibling relationship conflict and positive affectivity and sibling relationship rivalry and positive affectivity, respectively, while controlling for age difference, gender concordance, sibling contact, and minority status. Neither the relationship between sibling relationship conflict and positive affectivity (β= .056, $t(727)$=8.659, p >.05) nor the relationship between sibling relationship rivalry and positive affectivity (β= .012, $t(762)$= .335, p >.05) was significant.

Table 8 displays the results of hierarchical multiple regression analysis predicting positive affectivity from sibling relationship warmth, conflict, and rivalry, while controlling for age difference, gender concordance, sibling contact, and minority status. This analysis points out the unique contribution of each independent (i.e., warmth, conflict, rivalry) variable on the dependent variable, positive affectivity. As seen in the table, sibling relationship warmth (β= .387, $t(631)$= 7.824, p <.01) was significantly related to positive affectivity to a greater extent than were conflict and rivalry. Additionally, sibling relationship conflict (β=.108, $t(631)$=2.800, p <.01) was also significantly related to positive affectivity more than were warmth and rivalry. The

relationship between sibling relationship rivalry and positive affectivity ($\beta = -.001$,

$t(631) = -.036$, $p > .05$) was not significant. Overall, the three sibling relationship

variables together accounted for 8.7% of the variance in positive affectivity.

Table 5. *Regression Analysis for Sibling Relationship Warmth Predicting Positive Affectivity*

Block	Variable	B	SE(B)	β
Block 1				
	Age Difference	-.014	.066	-.008
	Gender Concordance	.305	.628	.018
	Sibling Contact	.535	.089	.221**
	Minority Status	-1.585	.699	-.083
Block 2				
	Age Difference	-.030	.063	-.016
	Gender Concordance	.204	.598	.012
	Sibling Contact	-.080	.111	-.033
	Minority Status	-1.261	.667	-.066
	Warmth	.091	.011	.394**

Note. Block 1 $R^2 = .056$; Block 2 $R^2 = .091$; **$p < .01$.

Table 6. *Regression Analysis for Sibling Relationship Conflict Predicting Positive Affectivity*

Block	Variable	B	SE(B)	β
Block 1				
	Age Difference	.010	.066	.005
	Gender Concordance	.713	.627	.042
	Sibling Contact	.470	.089	.193**
	Minority Status	-1.065	.698	-.056
Block 2				
	Age Difference	.005	.066	.003
	Gender Concordance	.575	.632	.034
	Sibling Contact	.468	.089	.192
	Minority Status	-1.131	.699	-.059
	Conflict	.030	.020	.056

Note. Block 1 $R^2 = .043$; Block 2 $R^2 = .003$; **$p < .01$.

Table 7. *Regression Analysis for Sibling Relationship Rivalry Predicting Positive Affectivity*

Block	Variable	B	SE(B)	β
Block 1				
	Age Difference	-.024	.064	-.013
	Gender Concordance	.714	.609	.042
	Sibling Contact	.490	.087	.201**
	Minority Status	-.903	.680	-.047
Block 2				
	Age Difference	-.028	.066	-.015
	Gender Concordance	.700	.611	.041
	Sibling Contact	.489	.088	.200
	Minority Status	-.896	.680	-.047
	Rivalry	.014	.042	.012

Note. Block 1 R^2 = .046; Block 2 R^2 = .000; **$p < .01$.

Table 8. *Regression Analysis for Sibling Relationship Warmth, Conflict, and Rivalry Predicting Positive Affectivity*

Block	Variable	B	SE(B)	β
Block 1				
	Age Difference	-.037	.072	-.020
	Gender Concordance	.462	.667	.027
	Sibling Contact	.525	.095	.217**
	Minority Status	-1.162	.750	-.060
Block 2				
	Age Difference	-.058	.070	-.031
	Gender Concordance	.061	.645	.004
	Sibling Contact	-.071	.118	-.029
	Minority Status	-1.061	.718	-.055
	Warmth	.091	.012	.387**
	Conflict	.057	.020	.108**
	Rivalry	-.002	.043	-.001

Note. Block 1 R^2 = .053; Block 2 R^2 = .087; **$p < .01$; *$p < .05$.

Sibling relationship and negative affectivity

In order to investigate whether sibling relationship quality was related to negative affectivity, several hierarchical regressions were run with sibling relationship quality (i.e., warmth, conflict, or rivalry) as the independent variable and negative affectivity as the dependent variable, controlling for age difference, gender concordance, sibling contact and minority status. To determine each independent variable's unique contribution to negative affectivity, an additional hierarchical multiple regression was run with all three independent variables (warmth, conflict, and rivalry) on the outcome variable (negative affectivity). These results are presented in tables 9-12.

Table 9 shows the regression for sibling relationship warmth predicting negative affectivity, controlling for age difference, gender concordance, sibling contact, and minority status (β= -.196, $t(712)$=-4.019, p <.01). The results show that sibling relationship warmth was significantly, negatively related to negative affectivity. Higher warmth was associated with lower negative affectivity, accounting for 2.2% of the variance.

Table 10 shows the regression for sibling relationship conflict predicting negative affectivity, controlling for age difference, gender concordance, sibling contact, and minority status (β= .237, $t(728)$=6.502, p <.01). The results show that sibling relationship conflict was significantly, positively related to negative affectivity. Higher conflict in the sibling relationship was associated with more negative affectivity, accounting for 5.5% of the variance in negative affectivity.

Table 11 shows the regression for sibling relationship rivalry predicting negative affectivity, controlling for age difference, gender concordance, sibling contact, and minority status (β= -.049, $t(764)$=-1.318, p >.05). This relationship was not significant.

Table 12 displays the results of the multiple hierarchical regression predicting negative affectivity from sibling relationship warmth, conflict, and rivalry, while holding constant age difference, gender concordance, sibling contact, and minority status. This analysis points out the unique contribution of each independent variable to the dependent variable, negative affectivity. As seen in the table, sibling relationship warmth (β= -.137, $t(631)$= -2.642, p <.01) had a significant negative relationship to negative affectivity, more so than did conflict and rivalry. Sibling relationship conflict (β=.209, $t(631)$=5.207, p <.01) was significantly, positively associated with negative affectivity more so than warmth and rivalry. Sibling relationship rivalry (β=-.014, $t(631)$= -.349, p >.05) was not significantly related to negative affectivity. Overall, the three sibling relationship variables together accounted for 6.4% of the variance in negative affectivity.

Table 9. *Regression Analysis for Sibling Relationship Warmth Predicting Negative Affectivity*

Block	Variable	B	SE(B)	β
Block 1				
	Age Difference	.050	.063	.030
	Gender Concordance	-.017	.616	-.001
	Sibling Contact	-.112	.088	-.048
	Minority Status	-.796	.684	-.044
Block 2				
	Age Difference	.054	.062	.032
	Gender Concordance	.093	.611	.006
	Sibling Contact	.180	.113	.077
	Minority Status	-.936	.678	-.051
	Warmth	-.044	.011	-.196**

Note. Block 1 R^2 = .006; Block 2 R^2 = .022; **p < .01.

Table 10. *Regression Analysis for Sibling Relationship Conflict Predicting Negative Affectivity*

Block	Variable	B	SE(B)	β
Block 1				
	Age Difference	.044	.062	.026
	Gender Concordance	-.097	.607	-.006
	Sibling Contact	-.090	.087	-.039
	Minority Status	-1.006	.675	-.055
Block 2				
	Age Difference	.028	.061	.017
	Gender Concordance	-.616	.596	-.038
	Sibling Contact	-.099	.084	-.043
	Minority Status	-1.240	.657	-.068
	Conflict	.121	.019	.237**

Note. Block 1 R^2 = .006; Block 2 R^2 = .055; **p < .01.

Table 11. *Regression Analysis for Sibling Relationship Rivalry Predicting Negative Affectivity*

Block	Variable	B	SE(B)	β
Block 1				
	Age Difference	.067	.063	.039
	Gender Concordance	-.188	.604	-.011
	Sibling Contact	-.101	.086	-.043
	Minority Status	-.744	.671	-.040
Block 2				
	Age Difference	.083	.064	.048
	Gender Concordance	-.144	.605	-.009
	Sibling Contact	-.095	.086	-.040
	Minority Status	-.776	.671	-.042
	Rivalry	-.054	.041	-.049

Note. Block 1 R^2 = .006; Block 2 R^2 = .002; **p < .01.

Table 12. *Regression Analysis for Sibling Relationship Warmth, Conflict, and Rivalry Predicting Negative Affectivity*

Block	Variable	B	SE(B)	β
Block 1				
	Age Difference	.032	.068	.019
	Gender Concordance	.207	.651	.013
	Sibling Contact	-.095	.093	-.041
	Minority Status	-.845	.728	-.046
Block 2				
	Age Difference	.020	.067	.012
	Gender Concordance	-.112	.639	-.007
	Sibling Contact	.095	.117	.041
	Minority Status	-1.103	.707	-.060
	Warmth	-.031	.012	-.137**
	Conflict	.105	.020	.209**
	Rivalry	-.015	.042	-.014

Note. Block 1 R^2 = .004; Block 2 R^2 = .119; **p < .01.

Sibling relationship and self-esteem

In order to investigate whether sibling relationship quality is related to self-esteem, several hierarchical regressions were run with sibling relationship quality (i.e., warmth, conflict, or rivalry) as the independent variable and self-esteem as the dependent variable, controlling for age difference, gender concordance, sibling contact and minority status. To determine the unique contribution of each independent variable to self esteem, an additional hierarchical multiple regression was run with self-esteem regressed onto all three independent variables (warmth, conflict, and rivalry). These results are presented in tables 13-16.

Table 13 shows the regression analysis for sibling relationship warmth predicting self-esteem (β =.393, $t(681)$= 8.277, p <.01), controlling for age difference, gender concordance, sibling contact, and minority status. Sibling relationship warmth was significantly, positively associated with self-esteem. Higher warmth was associated with higher self-esteem, accounting for 9.1% of the variance in self-esteem.

Table 14 shows the regression for sibling relationship conflict predicting self-esteem, controlling for age difference, gender concordance, sibling contact, and minority status. The results suggest that sibling relationship conflict was significantly, negatively related to self-esteem (β = -.172, $t(692)$= -4.566, p <.01). Higher conflict was associated with lower self-esteem, accounting for 2.9% of the variance in self-esteem.

Table 15 shows the regression for sibling relationship rivalry predicting self-esteem, controlling for age difference, gender concordance, sibling contact, and minority status. The results reveal that sibling relationship rivalry was significantly, negatively

related to self-esteem (β= -.104, $t(727)$=-2.754, p <.01). Higher rivalry was associated

with lower self-esteem, accounting for 1.0% of the variance in self-esteem.

Table 16 displays the results of the hierarchical multiple regression analysis

predicting self-esteem from sibling relationship warmth, conflict, and rivalry, while

holding constant age difference, gender concordance, sibling contact, and minority status.

This analysis points out the unique contribution of each independent variable on the

dependent variable, self-esteem. As seen in the table, sibling relationship warmth (β=

371, $t(608)$= 7.389, p <.01) was significantly, positively associated with self-esteem

above conflict and rivalry. Sibling relationship conflict (β=-.108, $t(608)$=-2.735, p <.01)

was significantly, negatively associated with self-esteem above warmth and rivalry.

Additionally, sibling relationship rivalry (β= -.142, $t(608)$= -3.615, p <.01) was also

significantly, negatively associated with self-esteem. Taken together, the three sibling

relationship variables accounted for 11.9% of the variance in self-esteem.

Table 13. *Regression Analysis for Sibling Relationship Warmth Predicting Self-Esteem*

Block	Variable	B	$SE(B)$	β
Block 1				
	Age Difference	-.019	.040	-.019
	Gender Concordance	.403	.395	.039
	Sibling Contact	.154	.056	.105
	Minority Status	.055	.440	.005
Block 2				
	Age Difference	-.028	.038	-.027
	Gender Concordance	.307	.377	.030
	Sibling Contact	-.214	.070	-.146
	Minority Status	.259	.421	.023
	Warmth	.055	.007	.393**

Note. Block 1 R^2 = .014; Block 2 R^2 = .091; **p < .01.

Table 14. *Regression Analysis for Sibling Relationship Conflict Predicting Self-Esteem*

Block	Variable	B	SE(B)	β
Block 1				
	Age Difference	-.021	.039	-.020
	Gender Concordance	.424	.391	.041
	Sibling Contact	.145	.056	.099*
	Minority Status	-.083	.436	-.007
Block 2				
	Age Difference	-.014	.039	-.014
	Gender Concordance	.662	.389	.065
	Sibling Contact	.148	.055	.101*
	Minority Status	.006	.430	.001
	Conflict	-.056	.012	-.172**

Note. Block 1 R^2 = .013; Block 2 R^2 = .029; **p < .01; *p < .05.

Table 15. *Regression Analysis for Sibling Relationship Rivalry Predicting Self-Esteem*

Block	Variable	B	SE(B)	β
Block 1				
	Age Difference	-.027	.039	-.026
	Gender Concordance	.519	.385	.050
	Sibling Contact	.163	.055	.110
	Minority Status	.135	.430	.012
Block 2				
	Age Difference	-.006	.039	-.006
	Gender Concordance	.590	.384	.057
	Sibling Contact	.168	.055	.113
	Minority Status	.093	.428	.008
	Rivalry	-.073	.026	-.104**

Note. Block 1 R^2 = .017; Block 2 R^2 = .010; **p < .01.

Table 16. *Regression Analysis for Sibling Relationship Warmth, Conflict, and Rivalry Predicting Self-Esteem*

Block	Variable	B	SE(B)	β
Block 1				
	Age Difference	-.042	.042	-.041
	Gender Concordance	.237	.415	.023
	Sibling Contact	.142	.059	.098*
	Minority Status	-.064	.468	-.006
Block 2				
	Age Difference	-.009	.040	-.009
	Gender Concordance	.334	.394	.033
	Sibling Contact	-.182	.072	-.125*
	Minority Status	.064	.441	.006
	Warmth	.053	.007	.371**
	Conflict	-.034	.013	-.108**
	Rivalry	-.096	.027	-.142**

Note. Block 1 R^2 = .012; Block 2 R^2 = .119; **$p < .01$; *$p < .05$.

Sibling relationship and altruism

In order to investigate whether sibling relationship quality is related to altruism, several hierarchical regression analyses were run with sibling relationship quality (i.e., warmth, conflict, and rivalry) as the independent variables and altruism as the dependent variable, controlling for age difference, gender concordance, sibling contact and minority status. Age difference and gender concordance were not significantly associated with altruism, whereas, sibling contact was significantly and positively associated with altruism. Minority status on the other hand, was significantly, negatively associated with altruism; minority group members were less likely to hold altruistic orientations. To determine the unique contribution to altruism of each independent variable, an additional hierarchical multiple regression was run with altruism regressed onto each of the three

independent variables (warmth, conflict, and rivalry). These results are presented in tables 17-20.

Table 17 shows that sibling relationship warmth predicted altruism, controlling for age difference, gender concordance, sibling contact, and minority status (β= .160, t(710)=3.346, p <.01). Higher warmth was associated with higher altruism, accounting for 1.5% of the variance in altruism.

Table 18 depicts the regression of altruism on sibling conflict, controlling for age difference, gender concordance, sibling contact, and minority status (β= -.099, t(724)=-2.683, p <.01). This result indicates that sibling relationship conflict had a significant, negative relationship to altruism. Higher conflict was associated with lower altruism, accounting for .9% of the variance in altruism.

Table 19 depicts the regression for altruism on sibling rivalry, controlling for age difference, gender concordance, sibling contact, and minority status (β= -.002, t(766)=-.050, p >.05). This relationship was not significant.

Table 20 displays the results of the hierarchical multiple regression predicting altruism from sibling relationship warmth, conflict, and rivalry, while holding constant age difference, gender concordance, sibling contact, and minority status. This analysis points out the unique contribution of each independent variable on the dependent variable, altruism. As seen in the table, sibling relationship warmth (β = .145, t(633)= 2.804, p <.01) was significantly, positively associated with altruism to a greater extent than conflict and rivalry. Neither sibling relationship conflict (β=-.070, t(633)=-1.739, p >.05), nor sibling rivalry (β=-.046, t(633)=-1.143, p >.05) was significantly associated

with altruism. Overall, the three sibling relationship variables together accounted for

2.2% of the variance in altruism.

Table 17. *Regression Analysis for Sibling Relationship Warmth Predicting Altruism*

Block	Variable	B	SE(B)	β
Block 1				
	Age Difference	-.056	.047	-.044
	Gender Concordance	-.350	.473	-.028
	Sibling Contact	.223	.067	.123**
	Minority Status	-2.029	.524	-.144**
Block 2				
	Age Difference	-.061	.047	-.047
	Gender Concordance	-.404	.470	-.032
	Sibling Contact	.037	.087	.021
	Minority Status	-1.966	.521	-.139
	Warmth	.028	.008	.160**

Note. Block 1 R^2 = .035; Block 2 R^2 = .015; **p < .01.

Table 18. *Regression Analysis for Sibling Relationship Conflict Predicting Altruism*

Block	Variable	B	SE(B)	β
Block 1				
	Age Difference	-.087	.046	-.069
	Gender Concordance	-.135	.460	-.011
	Sibling Contact	.180	.065	.101**
	Minority Status	-2.457	.509	-.177**
Block 2				
	Age Difference	-.082	.046	-.065
	Gender Concordance	.037	.462	.003
	Sibling Contact	.183	.065	.103
	Minority Status	-2.380	.507	-.171
	Conflict	-.039	.014	-.099**

Note. Block 1 R^2 = .043; Block 2 R^2 = .009; **p < .01.

Table 19. *Regression Analysis for Sibling Relationship Rivalry Predicting Altruism*

Block	Variable	B	SE(B)	β
Block 1				
	Age Difference	-.072	.047	-.055
	Gender Concordance	-.380	.462	-.030
	Sibling Contact	.189	.066	.103**
	Minority Status	-2.171	.511	-.152**
Block 2				
	Age Difference	-.072	.048	-.055
	Gender Concordance	-.379	.463	-.029
	Sibling Contact	.190	.066	.103
	Minority Status	-2.172	.512	-.152
	Rivalry	-.002	.032	-.002

Note. Block 1 R^2 = .034; Block 2 R^2 = .000; **p < .01.

Table 20. *Regression Analysis for Sibling Relationship Warmth, Conflict, and Rivalry Predicting Altruism*

Block	Variable	B	SE(B)	β
Block 1				
	Age Difference	-.116	.050	-.091
	Gender Concordance	-.081	.491	-.006
	Sibling Contact	.188	.070	.106**
	Minority Status	-2.196	.546	-.157**
Block 2				
	Age Difference	-.102	.051	-.080
	Gender Concordance	.000	.492	.000
	Sibling Contact	.034	.091	.019
	Minority Status	-2.130	.542	-.152**
	Warmth	.025	.009	.145**
	Conflict	-.027	.016	-.070
	Rivalry	-.038	.033	-.046

Note. Block 1 R^2 = .042; Block 2 R^2 = .022; **p < .01.

Chapter V

Discussion

The present study set out to explore the impact of sibling relationship quality on affectivity, self-esteem and altruistic orientations in emerging adults. Although previous research has demonstrated a strong association between sibling relationship quality and psychosocial well-being, the past studies focused mainly on children, adolescents, and older adults. The results of the present study suggest that sibling relationship quality in emerging adulthood, a developmental period marked by significant change and transition, has a significant and meaningful association with psychological variables.

On a whole, the results of the present study suggest significant associations between the quality of the sibling relationship, as measured by warmth, conflict, and rivalry, and psychological variables, positive affectivity, negative affectivity, self-esteem, and altruism, in an emerging adulthood population.

Warmth and Psychological Outcome

The prediction that increased warmth in the sibling relationship is associated with higher degrees of positive psychological well-being was fully supported. These findings suggest the that those individuals who perceive high levels of warmth in their sibling relationship may also experience a generalized sense of well-being and experience less subjective distress, depression, anxiety, and prolonged negative emotions, as compared to individuals who perceive less warmth in their sibling relationship. Warm and supportive relationships with siblings can boost one's happiness and self-esteem, helping to provide support and companionship throughout the lifespan (Bedford, 1996; Cicirelli, 1985; Hartup & Stevens, 1997; Sherman, Lansford, & Volling, 2006). The finding that warmth

is associated with more well-being in an emerging adult sample is consistent with research that has shown supportive sibling relationships to be related to increased happiness, sense of self-worth, and helping behavior in childhood (Stocker, 1994; Stormshak, Bellanti, & Bierman, 1996), adolescence (Brody, 1998; Updegraff, McHale, & Crouter, 2002), and older adulthood (Midlarsky & Hannah, 1985; Midlarsky & Kahana, 2007).

This study highlights that having a warm relationship with a sibling in emerging adulthood, a time marked by significant transition, may play a protective role, supporting past research that also found more positive attitudes toward the adult sibling relationship to be associated with emotional stability and psychological adjustment (Riggio, 2000). Milevsky (2005) found that highly supportive sibling relationships in emerging adulthood were more likely to compensate for low peer support than were highly supportive parental relationships. This was not found in studies of childhood and adolescence (Youniss & Smollar, 1985), suggesting a change in the potential role or impact of the sibling relationship in emerging adulthood. Just as individuals in emerging adulthood undergo multiple transitions on their journey to adulthood, so do sibling relationships. As late adolescents transition to emerging adulthood, they establish independence from their core family and acquire more adult roles (Conger & Little, 2010; Tanner, 2005). While it cannot be claimed that having a positive sibling relationship is essential for assuming adult roles in general, supportive relationships can be beneficial throughout any time of change (Conger et al., 2004).

As mentioned, emerging adulthood represents a developmental period of significant change and transition. Erikson (1968) acknowledged the idea of a prolonged

adolescence, "during which the young adult through free role experimentation may find a niche in some section of his society" (Erikson, 1968, p.156). Additionally, Daniel Levinson (1978) described this time as one in which the overriding task is to navigate and move into the adult world, and to establish a stable life structure. Similarly, Keniston (1971) has suggested this time to be a period of continued role experimentation, a time of "tension between self and society" (Keniston, 1971, p.8). Important to keep in mind, is that theory suggests individuals in this stage of development are primarily concerned with their own identity, but relationships with others may also be influential and can help to shape one's identity and sense of self (Sullivan, 1953). Overall, it is a time for identity exploration and formation, making it an intense time of life for many individuals (Arnett, 2000). However, knowing that supportive relationships are associated with more positive psychological outcomes during times of considerable change (Conger, 2004; Conger & Little, 2010; Milevsky, 2005), it seems important to understand to what extent emerging adults may rely on family relationships, specifically sibling relationships, for a source of warmth, support, and companionship throughout a transitional stage of identity exploration. It also stands to reason that sibling relationship quality may influence how an individual navigates the many transitions that may accompany emerging adulthood.

Conflict and Psychological Outcome

The present study predicted that higher conflict in the sibling relationship would be associated with lower degrees of psychological well-being, as measured by lower positive affectivity, higher negative affectivity, lower self-esteem, and lower altruism. Results support that increased conflict in the sibling relationship is associated with a

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greater experience of negative emotions, and lower levels of self-esteem. These findings suggest that individuals who perceive higher levels of conflict in their sibling relationship are more likely to experience more negative psychological outcomes. Conflict and decreased quality of the sibling relationship may have negative impacts on an individual, especially his or her likelihood of experiencing negative emotions, and experiencing low self-worth. These findings are consistent with past research in childhood, adolescent, and later life adult samples suggesting that higher reported conflict is associated with greater negative psychological outcomes (Branje, van Leishout, van Aken, & Haselager, 2004; Brody, 1998; Kim et. al., 2007; Stocker, Burwell, & Briggs, 2002; Waldinger, Vaillant & Orav, 2007; Stormshak, Bellanti, & Bierman, 1996).

When analyzed for its individual influence on positive affectivity, conflict reported in the sibling relationship was not significantly associated with positive affectivity. However, when analyzed for its unique contribution to positive affectivity, controlling for warmth and rivalry, conflict did significantly predict positive affectivity, suggesting a suppressor effect. Suppressor variables have been defined as variables that, when controlled, improve and strengthen the relationship between other variables (Thompson & Levine, 1997). In this case, it appears that warmth and rivalry are acting as suppressor variables; when controlled, they bring out the relationship between conflict and positive affectivity. However, the observed association suggests that increased conflict in the sibling relationship is related to *increased* positive affectivity, contrary to what the study results were expected to indicate. Most past research has found conflict to have a negative association with positive affectivity and feelings of well-being (Branje, van Leishout, van Aken, & Haselager, 2004; Brody, 1998; Kim et. al., 2007; Stocker,

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Burwell, & Briggs, 2002; Waldinger, Vaillant, & Orav, 2007). Social learning theory

suggests that high levels of conflict in the sibling relationship have the potential to result

in adjustment problems (Bandura, 1977). However, the finding of this study suggests

that perhaps there may be a healthy or optimal level of conflict in the sibling relationship

that can positively influence one's affectivity. This can be explained by the idea that

conflict can be permanent and destructive, but it may also be temporary and constructive.

Perhaps when conflict is constructive, individuals may experience an improvement in

their relationships and an acquisition of conflict resolution skills (Cicirelli, 1995; Lindell,

Campione-Barr, & Greer, 2014). It is also important to keep in mind that conflict in the

sibling relationship can come within the context of a warm relationship; the two are not

mutually exclusive. It may be possible that conflict within the context of a warmer, less

rivalry filled relationship may have healthy effects, while conflict within less warm,

higher rivalry relationships can be more destructive. This raises the possibility that

conflict in relationships, especially with one's sibling, is not necessarily a bad thing, and

further research should focus on this aspect of sibling relationships.

Rivalry and Psychological Outcome

Rivalry in the sibling relationship was found to be significantly associated with an

individual's self-esteem. Increased perception of rivalry in the relationship was

associated with lower degrees of self-esteem. This finding is supported by Adler's theory

of individual psychology (Adler, 1927), wherein the individual's sense of self is largely

influenced by social comparisons and power dynamics within families. As a result, Adler

advocated for the equal treatment of siblings, which could limit feelings of rivalry and

comparison, and then help to promote positive self-esteem (Whiteman, McHale, Soli,

2011). Most past research focused on differential treatment and/or rivalry in adulthood sibling relationships has focused on predictors such as birth order and gender and their association with relationship quality, with less attention paid to consequences of rivalry for the quality of the sibling relationship and for individual well-being. Future research, focusing on the implications of sibling rivalry on well-being in adulthood is warranted to more thoroughly explore the ways in which rivalry can potentially damage the quality of the sibling relationship.

Although rivalry in the sibling relationship was hypothesized to have negative associations with well being similar to that of conflict, the associations between rivalry and both positive affectivity and negative affectivity, were found to be nonsignificant. Based on differences in the results, findings support the notion that conflict and rivalry are two separate, independent constructs, measuring different aspects of the sibling relationship. Rivalry, in this study, is a measure of perceived parental favoritism, whereas conflict is a measure of competition, quarreling, and dominance (Stocker et. al., 1997). Brody (2004) acknowledges that children view their parents' behavior and treatment of a sibling and use it as a comparison to which they compare how loved, rejected, included, or excluded they may feel.   While sibling rivalry is a normal aspect of childhood, it is important to acknowledge that sibling rivalry persists into adulthood as well. Differential treatment of children by parents tends to persist. Furthermore, research has shown that parents make distinctions among their children across a variety of domains including closeness, intimate disclosure and confiding, and amount of emotional and instrumental support (Whiteman, McHale, & Soli, 2011). For this reason, it is important for future research to continue exploring how sibling rivalry changes

throughout the lifespan and to continue exploring the relationships between rivalry, affectivity, self-esteem and altruism.

Sibling Relationship Quality and Self-Esteem

One of the most significant findings of this study is that the quality of the sibling relationship was significantly associated with self-esteem. Indeed, 11% of the variance in self-esteem was accounted for by the perceived quality of the sibling relationship. This finding is important as self-esteem is often used as a marker of psychological well-being. As self-esteem does not remain stable throughout one's lifetime, it is likely that diverse factors may influence self-esteem throughout the life cycle. The finding in this study that the sibling relationship quality in emerging adulthood is related to self-esteem has important implications for potential interventions.

Sibling Relationship Quality and Altruism

Altruism represents the level of unselfish regard for others' well-being. It has been found that individuals who tend to endorse high levels of altruism, have been shown to have increased feelings of well-being overall. Engaging in prosocial behaviors and helping others has been linked to feelings of inner satisfaction, feelings of competence and usefulness, and increased self-esteem (Midlarsky & Hannah, 1985; Midlarsky & Kahana, 1994, 2007).

The present study did not find significant associations to altruism of conflict and rivalry. However, results did suggest that higher warmth in the sibling relationship is associated with higher levels of altruism in this sample of emerging adults. This result suggests that having a positive sibling relationship may serve as a good foundation for individuals to be more selfless and generous to those around them. It is possible that

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those individuals who are more altruistic have better relationships overall, and this finding may not be specific to the sibling relationship. Perhaps sibling warmth promotes individuals to behave with more warmth and generosity. Alternatively, it is possible that well-being and altruistic behavior allow for more positive sibling relationships marked by higher warmth. Last, there may be factors, including personality traits, underlying both warmth in the sibling relationship and the tendency to engage in altruistic behavior. A question for future research is whether altruistic behavior can be predicted by the quality of the sibling relationship or whether "nice" peeople, willing to help others with no recompense, also report feelings of warmth towards a sibling.

Limitations and Future Directions

Several limitations should be considered when interpreting the results of this study. A primary limitation of this study is its use of an Internet survey as a means for collecting data. Additionally, the study relied on self-report data, which may have led to either under or over reporting of survey responses, and method variance; some of the significant associations could be inflated as a result of self-report data. While the use of an Internet sample is responsible for some limitations, it also provides a cost effective means for standard administration to a large and geographically diverse sample in a short period of time. Furthermore, the response rates for Internet surveys haves been shown to be nearly as high as for paper mail surveys (Kaplowitz, Hadlock, & Levine, 2004). The use of an Internet sample is limited in that does not allow for random sampling and leaves the present study vulnerable to sampling selection bias (Andrews, Nonnecke, & Preece, 2003).

Although past research has found Internet surveys to be comparable to paper-and-pencil surveys in some respects (Gosling, et al., 2004; Kaplowitz, et al., 2004; Ritterm et al., 2004) Internet samples may be different from random samples in important ways. Specifically, Internet survey participation requires participants to own or to have access to a computer and the Internet. Therefore, it is possible that these individuals may be of higher socioeconomic status than the general population. According to the US census (2009), fewer people with lower household incomes use the Internet than do those with higher household incomes. Thus, our sample may be skewed to participants from a higher socioeconomic class. Additionally, participants of an Internet survey must possess a working knowledge of modern technology. Given the age range of participants in this study, a working knowledge of modern technology most likely did not interfere with participation selection, as most current emerging adults (age 18-29) possess the skill of accessing and using the Internet. Furthermore, collecting data over the Internet does not allow for the control of environmental factors (i.e., visual and/or audio distractions) that may interfere one's ability to participate in the survey. Although past research has shown comparability between Internet and traditional sampling methods, future studies utilizing the traditional paper-and-pencil survey methodology should be conducted to replicate current findings and to rule-out any sampling bias of the Internet survey utilized in the present study.

Another limitation is that the present study was cross-sectional in design, so that there is no basis for interpreting the direction of effects. While we set out to explore the association between sibling relationship quality and psychological variables in emerging adults, we cannot draw conclusions that it is the sibling relationship quality that affects

psychological well-being. It is possible that the associations are actually bidirectional over time. To address this limitation, future studies should implement a longitudinal design, which would allow for research to take into account the quality of the sibling relationship over time, investigating its relationships to well-being throughout different stages of life, particularly emerging adulthood.

There are some factors that limit the generalizability of our findings to emerging adults, age 18-29, in the United States. First, we had a predominantly Caucasian sample (67.5%) and therefore had an underrepresentation of racial and ethnic minorities. Additionally, 78.5% of participants were female. A possible explanation for this gender skew could be that the survey focused on sibling relationships, a topic that may have appealed more to women. Research suggests that women are often socialized into nurturing roles within families and feel a sense of responsibility in protecting and sustaining kinship bonds (Silverstein & Bengston, 1997). Future studies should aim to have a better balance between male and female participants.

Another limitation of the data set, and sibling relationship research as a whole, is that it included participants with more than one sibling; however, the measures used are designed to analyze sibling dyads. Some error may have been introduced into the present study based on this facet of the survey design. Future studies should be designed with this in mind and perhaps limit their selection of participants to individuals with only one sibling or by implementing a way to control for number of siblings within a participant's immediate family. Similarly, the data does not include reports from both members of the sibling dyad. In order to capture the true nature of the sibling relationship, it seems important to study both individuals in the sibling dyad to obtain a more complete

understanding of the relationship. Future studies should consider this limitation when implementing a study.

An additional limitation of this study is that is does not take into account individual differences in the type of sibling dyads, meaning whether siblings were biological, adopted, step, half, etc. This was due in part to a very small percentage of adopted, step, and/or half siblings in the data set. It would be interesting and important for future research exploring the quality of sibling relationships to acknowledge that there may be very significant differences in the perception of sibling relationships in which dyads consist of either two biological siblings versus one adopted sibling versus two adopted siblings, particularly in the area of rivalry, which may have associations with psychological well-being.

Finally, in this study, affectivity, both positive and negative, was measured and used as state variables, measuring one's current affectivity at the time of completing the questionnaire. However, it is important to note that affectivity is often used in research to represent trait variables, with positive affectivity being strongly associated with extraversion and negative affectivity being strongly associated with neuroticism (Rusting & Larsen, 1997). Future research on emerging adult sibling relationships should include affectivity as a trait variable in addition to using affectivity as a state variable in order to tease apart and differentiate between personality traits that may influence the sibling relationship from outcomes (i.e., well-being) associated with the quality of the sibling relationship.

Conclusion

This study highlights the associations between sibling relationships and well-being in emerging adults. It is important for treatment providers, particularly therapists, to consider the role of the sibling relationship, especially when working with clients who present with limited or atypical social networks. It is important to keep in mind the potential influence that a positive sibling relationship can have on one's psychological well-being. Both family therapists and individual therapists should consider including the sibling in the therapeutic process. Therapy can be a safe place to explore the nature of one's sibling relationships, allowing for an individual to explore the relationships as a means for increasing support and well-being overall.

Furthermore, the results of this study have societal implications. It seems important for parents to have a good understanding of the potential impacts of the sibling relationship. Having an awareness that the sibling relationship can both positively and negatively influence an individual's well-being can help parents to be more in tune to fostering more warmth, and positive relationships among their children. Workshops and/or trainings can offer parents support and education on the various facets of the sibling relationship (warmth, conflict, rivalry) and advice on how to promote healthy sibling relationships in their children.

Overall, the results of this study suggest that there is a significant relationship between the quality of the sibling relationship and psychological factors in emerging adulthood. Siblings appear to play a significant role in the lives of individuals throughout the lifespan. As previously pointed out, there is a void in the literature on sibling relationships in emerging adulthood, a period of transition, marked by significant change.

As a result, more research dedicated to understanding the sibling relationship in emerging

adults and its relationship to psychological well-being and to altruism is warranted.

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