

THE PENNSYLVANIA STATE UNIVERSITY
SCHREYER HONORS COLLEGE

DEPARTMENT OF PSYCHOLOGY

MARITAL CONFLICT AND INTIMACY:
INFLUENCES ON SIBLING RELATIONSHIP QUALITY IN EARLY CHILDHOOD

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Spring 2010

A thesis
submitted in partial fulfillment
of the requirements
for a baccalaureate degree
in Psychology
with honors in Psychology

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Abstract

This study examines conflict and intimacy in the marital relationship as distinctive influences on sibling conflict and warmth in early childhood. Additionally, the moderating effect of child temperament, specifically anger-proneness and fear, is assessed. It is hypothesized that marital conflict and intimacy will be positively associated with sibling conflict and warmth, respectively, and that child temperament will moderate those associations. Greater anger proneness is predicted to be associated with greater sibling conflict, whereas greater fear is predicted to be associated with less sibling conflict and greater sibling intimacy. Participants were 2-parent intact families (N= 57) with a 2-year old younger child and his/her older sibling (ranging in age from preschool to early-elementary). Mothers and fathers completed questionnaires on the marital relationship, their children's sibling relationship and their children's temperament. Results indicated that marital intimacy was a predictor of sibling intimacy, while children's anger proneness was a predictor of conflict in the sibling relationship. Child temperament was not a moderator of the relationship between marital quality and sibling quality. These findings underscore the importance of marital intimacy for positive aspects of children's sibling relationships.

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Introduction

Siblings share a special bond, different from that of a parent-child relationship or a friendship. They can be understanding companions, laughing together and helping each other. Conversely, they can also be antagonistic, arguing or annoying one another. In the United States, about 79 percent of children live with at least one sibling (U.S. Census Bureau). Distinctive from peers and friendships, siblings share family ties—an immutable biological connection which exists permanently, regardless of the situation. The sibling relationship typically perseveres into adulthood, lasting longer than parent-child relationships and many peer relationships. Longitudinal studies have shown that positive and negative behaviors exhibited in preschool periods are associated with sibling relationship quality in early adolescence (Dunn, Slomkowski & Beardsall, 1994). While the sibling relationship is unique and long-lasting, it exists within the larger family system. Therefore, it is important to study sibling relationships in the context of the positive and negative family interactions that may influence sibling relationship quality.

The importance of studying these constructs in early childhood is made evident by research that has found children's emotional responses to anger among family members varied significantly based on the child's age (Cummings, Zahn-Waxler, & Radke-Yarrow, 1984). Specifically, it was found that younger children (1 to 2 year olds) were more likely to cry and express anger, while older children (6 to 7 year olds) were more likely to use comforting or intervening. These varying emotional responses may indicate that family member interactions differentially impact children's emotional and behavioral outcomes depending on the child's age. For that reason, it is important to consider the developmental stage of children when studying the effects of positive and negative family interactions. Furthermore, these differential emotional

responses may be linked to the way children perceive and make sense of family interactions. For example, children in early childhood may understand conflictual interactions among adults differently than children in middle childhood or adolescence. As a result, younger children may be impacted by those interactions differently as well. By studying siblings in the same family home, we may better understand the impact of caregivers' positive and negative interactions on children's adjustment. More specifically, this will provide an indication of how the marital relationship influences the sibling relationship in early childhood.

Family systems theory provides a framework for understanding the interactions among marital, parent-child and sibling relationships. The family systems perspective proposes that family members are interdependent and reciprocally influencing one another, and therefore cannot be understood independently of the family system (Cox & Paley, 1997). Specifically, marital, parent-child and sibling relationships are considered "subsystems" within the whole family. Defined by boundaries, these subsystems have rules of relating which are learned in the context of repeated family interactions (Cox & Paley, 1997). According to the theory, children learn how to relate with their parents and siblings over the course of many interactions and across different situations. For example, children may learn to use either prosocial or aggressive tactics when dealing with conflict based on observations of their parents' behavior (Snyder & Patterson, 1995). The approach that is thought to be successful in mitigating conflict is reinforced and applied to sibling interactions. It may be that these early familial experiences are a valuable aid for children to understand the boundaries of their relationships and how to negotiate with other family members. For instance, children may learn that they can bargain with siblings over who gets the last cookie, but ultimately they must listen to mom and dad. They also learn the degree of support provided by parents and siblings. Over time children may

realize that their parents will be comforting when they get hurt, whereas siblings might tease them or shrug it off. Early childhood marks the time when children observe and learn the rules of interaction, through both positive and negative interactions, with their parents and siblings (Snyder & Patterson, 1995). The impact of these early interactions within and across family subsystems may shape children's future interpersonal relationships, such as with friends and classmates.

The marital relationship is one important relationship within the family. Indeed, research demonstrates that aspects of the marital relationship can influence overall child adjustment, including sibling relationships (Kaczynski, et al., 2006; Harold, et al., 2004; Gerard, Krishnakumar & Buehler, 2006; Volling, McElwain, & Miller, 2002). The current study examines the impact of both marital conflict and marital intimacy on sibling relationship quality in early childhood. Rather than using a general measure of marital satisfaction to assess marital relationship quality, a better approach may be to study specific components of a marriage, such as communication, intimacy, conflict, division of labor, and support. Studying individual components of the marital relationship may provide more detailed information than what a general measure of satisfaction can capture. For example, one couple may report high satisfaction due to little conflict, but also because they rarely communicate. Another couple may report high satisfaction despite high levels of conflict because they communicate frequently to resolve their issues. A general measure of satisfaction wouldn't necessarily be able to distinguish among these two relationships, whereas individual measures of communication and conflict probably would. This study will focus specifically on marital conflict and intimacy. Children's observations of marital conflict may guide their behavior during disagreements with siblings, as well as future interpersonal conflicts. Similarly, marital intimacy may inform

children of the value of close, trusting relationships and encourage them to develop such a relationship with their own siblings and other individuals.

Marital Conflict

Marital conflict is one important aspect of the marital relationship that may have implications for children's sibling relationships. Research demonstrates that interparental conflict leads to greater distress and behavior problems in children (*for review, see Grych & Fincham, 1990*). Adult conflict, among parents or otherwise, is distressing to children (Cummings, Pellegrini, Notarius, & Cummings, 1989), who may feel helpless in such situations. For instance, in response to observing angry adult conflict, children ages 2 to 6 years old expressed concern by freezing, showing facial or gestural distress, crying, requesting to leave and/or attempting to talk about the incident with their mother (Cummings et al., 1989). Given that conflictual situations can have such an impact on children, it is likely that more frequent conflict may preoccupy children, causing aggressive behavior in young children (Erath & Bierman, 2006) and antisocial behavior in adolescence (Bradford, Vaughn, & Barber, 2008). Children and adolescents ages 8-16 who were exposed to deconstructive conflict tactics (including verbal and nonverbal hostility, defensiveness, threat, personal insult, withdrawal, and aggression) and negative parental emotionality were more likely to behave aggressively when they witnessed marital conflict (Cummings, Goeke-Morey, & Papp, 2004). Additionally, deconstructive marital conflict is also negatively related to 5-7 year olds' emotional security, defined by the child's degree of emotional reactivity and behavioral dysregulation, about marital relations (McCoy, Cummings & Davies, 2009). Overall, these results highlight the key findings from the substantial literature showing that parental conflict seems to be highly related to children's aggressive and antisocial behavior. These negative reactions to observing parents'

negative or deconstructive conflict may affect children's sibling relationships. It's possible that children who witness negative marital conflict among their parents may behave more aggressively or antisocially toward their siblings. Lower interparental conflict, higher marital quality, and more positive family emotional climates are reported by parents of harmonious siblings than parents of conflicted sibling relationships (Brody, Stoneman & McCoy, 1994). Similarly, children in disharmonious homes, characterized by constant antagonism, hostility, and lack of affection in the marital relationship, are significantly more likely to have a hostile and aggressive relationship with one of their siblings than in harmonious ones (Jenkins, 1992). Numerous studies have shown that anger exposure is distressing to children (Cummings, Zahn-Waxler, & Radke-Yarrow, 1981, 1984; Cummings, Iannotti & Zahn-Waxler, 1985; Cummings, 1987), who may project these negative emotions toward others (Emery, 1982). A child's environment has a powerful effect on his/her feelings and behaviors, which may be important in explaining the outcome of sibling interactions.

There is also evidence that marital conflict has long-term effects on children's adjustment. In a longitudinal study, findings revealed that the degree of hostility in marital disputes when children were 4 and 5 years old was related to teacher reports of mild antisocial behavior at 8 years of age (Katz & Gottman, 1993). Additionally, a seven-year longitudinal study researched elementary-age predictors of child outcomes in adolescence. Marital and family conflict characterized by losing one's temper, hitting each other, throwing things, threatening to hit, and yelling at each other was assessed when children were 6 to 7 years old. Antisocial behavior defined as arguing a lot, getting into fights, taking other's property, and threatening other people was assessed in early adolescence. The study found that marital and family conflict in elementary school was related to later antisocial behavior in adolescence

(Mazza, et al., 2009). The long-term effects of marital conflict on children further necessitate the study of these relationships in early childhood; experiences from early family interactions may impact their relations with other individuals as they get older.

Marital Intimacy

Another common facet of marital relationship quality is intimacy. Intimate relationships are characterized by extensive personal knowledge, a greater caring of one's partner compared to others, and trusting that one will be treated fairly and honorably (Brehm, Miller, Perlman & Campbell, 2002). Intimacy involves interdependence among partners and a commitment to the relationship by investing time, effort and resources. Although one may consider that intimacy exists within a relationship when only some of these aspects are present, generally the most satisfying and meaningful relationships include all of these characteristics (Brehm, Miller, Perlman & Campbell, 2002). The degree of intimacy in the marital relationship likely has implications for the sibling relationship. As children develop their own thoughts and begin to express emotion in more complex ways, their early perceptions of their parents' interactions and marital intimacy are likely to influence them. For example, a study of marital relationships, sibling relationships, and parenting styles found that positive marital adjustment and more cooperative marital relationships were related to warmer sibling relationships (Yu & Gamble, 2008). Internal working models or representations have been suggested as a mechanism linking children's initial experiences with their primary caregivers to later behavior and outcomes in relationships with others (Bowlby, 1982). It is likely that parents are particularly important in these internalizing cognitive processes since parent-child interactions typically precede interactions with others (Coie & Dodge, 1998). Empirical studies have supported theories that children's cognitions mediate the association between marital relationships and peer

relationships (Du Rocher Schudlich, Shamir & Cummings, 2004; McHale, Johnson & Sinclair, 1999; Rudolph, Hammen & Burge, 1995). Although these studies do not specifically address sibling relationships, it is plausible that children's internal working models for sibling relationships operate similarly to internal working models of peer relationships. Children's observations of their parents' level of intimacy or emotional closeness may guide their own ideas of intimacy and its value in relationships. Additionally it may provide a warmer more sensitive family climate in which sibling interactions occur.

Very few studies, however, actually explore whether positive aspects of the marital relationship such as marital intimacy are linked with children's adjustment. This is also the case with respect to children's sibling relationships, and to date there isn't evidence of a direct association between marital intimacy and the sibling relationship. However, research suggests that an important relationship may exist, albeit unstudied. One study that addressed positive marital quality examined mothers' and fathers' expressions of positive emotion as predictors of preschooler's behavior problems two years later. Mothers' positive emotion, including pleasure, warmth, responsiveness and interactiveness, was significantly negatively related to children's internalizing behaviors, whereas father's positive emotion was significantly negatively related to children's externalizing behaviors (Cowan, Cohn, Cowan & Pearson, 1996). A study about children's coping strategies found that by age 10 children's reports of closeness to their parents were linked with their coping behaviors (Herman & McHale, 1993), suggesting the significance of intimate relationships in early childhood. In households where parents and children shared higher levels of intimacy, children were more likely to use "talking with a parent" and "problem solving" as strategies for coping with parental negativity. These were more functional coping strategies than "forgetting" about the parental negativity, which was related to children's anxiety

and depression (Herman & McHale, 1993). Although this study focused on parent-child relations, it highlights the potential importance of intimate marital relationships for children's adjustment. Intimate marital relationships may have a similar impact on children's coping methods in other relationships, such as sibling relationships. Similar to marital conflict, marital intimacy may show children the benefits of enacting certain behaviors in the sibling relationship. More intimate marital relationships expose children to the joy of emotional closeness and mutually trusting relationships.

Child Temperament

In addition to marital conflict and intimacy, child temperament may also play a role in determining the quality of sibling relationships. Temperament refers to individual differences in emotional reactivity, self-regulation, activity level, and attention (Rothbart & Bates, 2006). Child temperament affects the way children are likely to react to, and interact with, their environment (Rothbart & Bates, 2006). Temperamental predispositions may influence how well children get along with their siblings; for example, whether they typically become angry or empathic in a frustrating situation, and their tendency to view most situations positively or negatively. Research shows that positive sibling relationships are more likely to develop after childhood when siblings are less temperamentally difficult (Brody, Stoneman, & McCoy, 1994) and that children's difficult temperament is significantly related to more negativity in sibling relationships (Yu & Gamble, 2008). For instance, observations of child frustration measured when children were 10-months-old was found to be associated with higher aggression and impulsivity at 7 years (Derryberry & Rothbart, 2001). While negative affect is generally seen as maladaptive, there are beneficial aspects as well. For example, greater fear in 1 year olds is associated with lower aggression and impulsivity (Rothbart & Putnam, 2002) and greater

empathy (Derryberry & Rothbart, 2001) at 7 years. Clearly, temperament is a complex interplay of positive and negative tendencies impacted by biological makeup and environmental stimuli.

Affective predispositions are one important dimension of temperament. Negative affectivity, one broad dimension of temperament, involves fear, anger/frustration, guilt, sadness, and anxiety. A specific component of temperamental negative affectivity, anger proneness, may affect sibling interactions in early childhood. Anger proneness is the tendency of a child to cry, hit, pout or show other signs of anger when in conflict with another child or caregiver (Goldsmith, 1996). A longitudinal study found that children's anger proneness at 2 years of age, in part, predicted externalizing behaviors at 5 years of age (Smeekens, Riksen-Walraven & van Bakel, 2007). Because reactions associated with anger are often not desired by or pleasing to other children involved (including siblings), anger proneness may affect the harmony in sibling relationships. In a study of care giving between siblings, older siblings (4 years old on average) whose mothers rated them higher on anger proneness were more likely to leave the room when their younger toddler-age siblings were distressed (Volling, Herrera, & Poris, 2004). Another study which observed children's play interactions found that anger-frustration tolerance and compliance at age 2 was significantly related to externalizing behaviors at age 4 (Rubin, Burgess, Dwyer & Hastings, 2003). Even though this study focused on peers, it has implications for sibling relationships as well. Higher externalizing behaviors may affect the harmony in sibling relationships, creating conflict and serving as an obstacle for intimacy.

Another important dimension of negative affectivity is fearfulness. Highly fearful children are characterized by inhibition of action in response to novel stimuli and in situations that threaten punishment (Rothbart & Hwang, 2005). Childhood fear may have a positive effect on sibling relationships because of its function as a regulatory control system (Rothbart &

Putnam, 2002). In the case of initial negative reactions, such as an impulse to yell or hit, social fear may result in more positive outcomes. An inhibited individual would not readily approach a negative or threatening situation, but instead may be more introspective, allowing for time to think about and process the event. Indeed, studies have found social fearfulness to be negatively associated with aggression and positively associated with parent-reported empathy in childhood (Rothbart & Putnam, 2002). Further, one longitudinal study found that toddlers who were inhibited at approximately 2 years of age (21 months) exhibited lower levels of delinquent and aggressive behaviors at 13 years of age than uninhibited toddlers (Schwartz, Snidman, & Kagan, 1996). Compared to children low in social fearfulness who tend to be more outgoing and aggressive, children high in social fearfulness may be quieter and more thoughtful. For example, it has been shown that greater temperamental fear in children ages 1.5 to 3 years is related to higher levels of conscience five to six years later (Kochanska, 1991). Their reserved nature could be linked with more positive sibling relationships as these children's characteristics make for a considerate, understanding companion. Conversely, social fear could be limiting if children miss opportunities due to extreme inhibitions.

Given the complex nature of associations within a family system it is likely that relationship and individual characteristics together influence children's adjustment outcomes, including the quality of sibling relationships. Therefore, temperament may moderate the associations between marital relationship quality and sibling relationship quality. Sibling relationships characterized by children with high anger proneness and low social fearfulness may be more difficult to get along with, straining the sibling relationship regardless of the quality of the marital relationship. Conversely, siblings who are not prone to anger and more socially fearful may have an easier time developing a healthy relationship, even if marital relationship

quality is poor. In this way, temperament could facilitate or hinder sibling relationship quality by interacting with marital relationship quality.

The Current Study

The purpose of this study is to add to a growing body of knowledge on marital relationship quality and its association with multiple dimensions of sibling relationship quality. While there are a multitude of studies about the effects of parent-child relationships as well as adult conflict on sibling relationship quality, fewer explore the influence of multiple aspects of marital relationship quality on sibling relationships. Although many studies use a global measure of marital satisfaction or overall quality, the current study is focused on more specific aspects of marital relationship quality: intimacy and conflict. I believe it is equally important to study the positive aspects of the marital relationship as it is to study the negative, since both of these will inform our understanding of a supportive environment for children. This study will explore marital conflict and marital intimacy as they relate to sibling conflict and sibling warmth, as well as the moderating effect of child temperament, specifically anger-proneness and fear, on sibling relationship conflict and warmth.

The specific hypotheses are: (1) higher levels of conflict within the marital relationship will be related to greater conflict in the sibling relationship, (2) greater marital intimacy will be related to more sibling warmth, and (3) the associations between the marital relationship and sibling relationship quality will be moderated by children's temperament, such that a more greater anger proneness will be associated with more conflict in the sibling relationship and greater fearfulness will be associated with more intimate and less conflictual sibling relationships.

Methods

Participants

The current study included data from 57 2-year olds and their mothers, fathers, and older siblings. Families were self-identified happily married couples. Both parents lived at home with a 2-year-old child and an older sibling of preschool or early-elementary age. Parents had been married for an average of 8.7 years ($SD = 3.4$). All mothers and fathers were the biological parents of the children. With the exception of two Asian American and one Latino father as well as one Asian American and one Latina mother, mothers and fathers were predominately European American ($n = 54$ and $n = 56$, respectively). Fathers' modal income was \$70,000 to \$80,000, $SD = 28,400$ and mothers' modal income was \$10,000 or less, $SD = 25,950$. On average, mothers were 35 years old ($SD = 4.5$ years) and all mothers had completed some college (30% had a Bachelor's degree, 70% had greater than a Bachelor's degree). On average, fathers were 37 years old ($SD = 4.6$ years) and all had at least some college level education (35% had a Bachelor's degree, 65% had greater than a Bachelor's degree). The mean age of the younger sibling was 27 months ($SD = 3$ months), of which eighty-five percent were second-born ($n = 49$). The older sibling closest in age to the younger sibling participated in the study. Their average age was 58 months ($SD = 12$ months; range 3 - 7 years). The sample included 16 girl/girl sibling dyads, 14 boy/boy sibling dyads, 11 boy/girl (older/younger) sibling dyads and 17 girl/boy (older/younger) sibling dyads. Complete data were available from 53 families.

Procedure

Families participated in two laboratory visits that were designed to assess marital relationship and family-level characteristics. Data for the present study includes questionnaires completed by both mothers and fathers after participating in the family laboratory visit.

Questionnaires assessed marital, sibling and child characteristics. Mothers and fathers completed individual questionnaires for both the older and younger children.

Measures

Marital Relationship Quality. Mothers and fathers completed the Braiker & Kelley (1979) Intimate Relationships Questionnaire. This is a 25-item measure that assesses different aspects of intimate relationships including marital conflict, ambivalence, love and maintenance. The current study utilized the conflict, ambivalence, and love subscales. The conflict subscale measures spouses' reports of the degree of conflict in the marital relationship (wives $\alpha = .75$; husbands $\alpha = .79$). Five items were rated on a 9-point Likert scale ranging from (1) very little or not at all to (9) very much or extremely, and included questions such as "how often do you feel angry or resentful toward your spouse?" The ambivalence subscale measures the amount of apathy in the marital relationship (wives $\alpha = .84$; husbands $\alpha = .74$). Five items were rated on a 9-point Likert scale ranging from (1) very little or not at all to (9) very much or extremely and included items such as "how ambivalent or unsure are you about continuing in the relationship with your spouse?" Higher scores for both subscales indicate greater marital conflict. Husbands' and wives' scores on these scales were significantly positively correlated (conflict: $r = .38$, $p < .01$; ambivalence $r = .43$, $p < .01$), and were therefore summed to create an overall composite of marital conflict. The love subscale measures the extent to which spouses report feelings of love for one another (wives $\alpha = .83$; husbands $\alpha = .82$). Ten items were rated on a 9-point Likert scale ranging from (1) very little or not at all to (9) very much or extremely and included questions such as "to what extent do you have a sense of belonging with your spouse?" Husbands' and wives' scores on the love scale were significantly positively correlated ($r = .39$, $p < .01$).

Spouses also completed Lemieux & Hale's (1999) Intimacy, Passion, and Commitment scales (wives $\alpha = .81$; husbands $\alpha = .86$). This is a 21-item measure that assesses an individual's feelings of closeness or connectedness, attraction and sexuality to their partner, and their decision to stay involved with him/her. The current study used only the intimacy subscale, which measures the degree of emotional closeness in the relationship. Six items were rated on a 7-point Likert scale ranging from (1) strongly disagree to (7) strongly agree. The scale included statements such as "my spouse and I share personal information with one another." Higher scores represent greater marital intimacy. Husbands' and wives' scores on this scale were significantly positively correlated ($r = .49, p < .01$). The correlation between the Braiker & Kelly (1979) love subscale and the Lemieux & Hale (1999) intimacy subscales was $r = .60, p < .001$ for husbands and $r = .45, p < .001$ for wives. Therefore, both the Braiker & Kelley (1979) and Lemieux & Hale (1999) intimacy subscales were summed to create an overall composite of marital intimacy.

Sibling Relationship Quality. Mothers and fathers rated older and younger sibling conflict and intimacy in the sibling relationship. Older sibling conflict and intimacy were assessed using the Sibling Inventory of Behavior (Schaefer & Edgerton, 1981). This is a 32-item measure that measures the degree to which children exhibit positive and negative behaviors toward their siblings. The current study used five of the six subscales, including rivalry, aggression, involvement, empathy, and teaching, but excluding avoidance. The rivalry and aggression subscales measure the extent to which the older sibling expresses feelings of rivalry and aggression toward his/her younger sibling (rivalry: mothers $\alpha = .75$, fathers $\alpha = .74$; aggression: mothers $\alpha = .77$, fathers $\alpha = .76$). Seven rivalry items and five aggression items were rated on a 5-point Likert scale ranging from (1) never to (5) always, including items such as

“how often your older child is competitive with your younger child” and “how often your older child fusses and argues with your younger child.” Mothers and fathers ratings of older sibling rivalry and aggression were significantly correlated ($r = .47, p < .01$ and $r = .59, p < .01$, respectively) and therefore summed to create an older sibling conflict composite. Involvement, empathy and teaching measure positive aspects of the sibling relationship reflecting warmth toward his/her younger sibling (involvement: mothers $\alpha = .85$, fathers $\alpha = .88$; empathy: mothers $\alpha = .88$, fathers $\alpha = .79$; teaching: mothers $\alpha = .68$, fathers $\alpha = .62$). Six involvement items, five empathy items, and four teaching items were rated a 5-point Likert scale ranging from (1) never to (5) always, including items such as “how often your older child accepts your younger child as a playmate,” “how often your older child is concerned for your younger child’s welfare and happiness,” and “how often your child teaches your younger child new skills.” Mothers and fathers ratings of involvement and empathy were significantly correlated ($r = .60, p < .01$ and $r = .43, p < .01$, respectively). Teaching was not significantly correlated between parents ($r = .18, p < .18$). However, teaching may be an important aspect of the sibling as it showcases children’s willingness to support and help each other. Therefore, parents’ ratings of involvement, empathy, and teaching were summed to create an older sibling intimacy composite.

Younger sibling conflict and intimacy were assessed using the Sibling Relationships in Early Childhood (Volling & Elins, 1998) questionnaire, an 18-item measure that assesses the extent to which children engage in conflict and rivalry, avoidance and positive involvement with his/her siblings. For this study, only the conflict and rivalry and positive involvement subscales were used (conflict and rivalry: mothers $\alpha = .71$; fathers $\alpha = .83$; positive involvement: mothers $\alpha = .57$; fathers $\alpha = .76$). Seven conflict and rivalry items and six positive items were rated a 5-point Likert scale ranging from (1) never to (5) always. The conflict and rivalry subscale

includes such items as “how often does your younger child tease or annoy his/her older sibling?” The positive involvement subscale includes such items as “how often does your younger child comfort or soothe his/her older sibling when he/she is upset?” Parental ratings of younger sibling conflict ($r = .35, p < .01$) and positive involvement ($r = .35, p < .01$) were significantly positively correlated, thus mother and father scores were summed to create overall composites of younger sibling conflict and intimacy, respectively.

Additionally, parental ratings of older and younger sibling conflict were significantly positively correlated ($r = .45, p < .01$), thus mothers’ and fathers’ responses were summed to create an overall composite of sibling conflict. Likewise, parents’ ratings of older and younger sibling intimacy were significantly positively correlated ($r = .60, p < .01$), so mothers’ and fathers’ responses were summed to create an overall composite of sibling intimacy.

Child Temperament. Mothers and fathers completed the Child Behavior Questionnaire (Rothbart, Ahadi, Hershey & Fisher, 2001) to assess older sibling temperament, a 77-item measure for children ages 3 to 7 years of age. The current study used the anger/frustration and fear subscales. The anger/frustration scale measures a child’s anger proneness (mothers $\alpha = .83$, fathers $\alpha = .80$). The anger/frustration subscale contains 13 items, including “has temper tantrums when s/he doesn’t get what s/he wants.” The fear subscale measures a child’s degree of inhibition in response to threatening or novel stimuli (mothers $\alpha = .71$, fathers $\alpha = .79$). The fear subscale contains 12 items, including “is not afraid of large dogs and/or other animals.” Mothers’ and fathers’ ratings of older sibling temperament were nearly significantly positively correlated for anger proneness ($r = .25, p < .07$) and significantly correlated for fear ($r = .58, p < .01$). Parents rated younger sibling temperament using the anger and social fear subscales of the Toddler Behavior Assessment Questionnaire (Goldsmith, 1996), a 108-item measure that

assesses temperament-related behavior. The anger subscale contains 28 items, including “when you removed something your younger child should not have been playing with, how often did s/he scream?” (mothers $\alpha = .87$, fathers $\alpha = .90$). The social fear subscale contains 19 items, including “when at the doctor’s office, how often did your younger child cling to the parent?” (mothers $\alpha = .82$, fathers $\alpha = .87$). Parental ratings of younger sibling temperament were also significantly positively correlated for anger proneness ($r = .30$, $p < .05$) and for fear ($r = .50$, $p < .01$). Thus, parental ratings were summed to create overall temperament composites for older and younger siblings’ anger proneness and fear.

Results

Results are presented in two sections. First, preliminary analyses were conducted, including intercorrelations and descriptive statistics for all of the study variables. Second, hierarchical regression analyses designed to examine whether marital relationship quality (conflict and intimacy) and child temperament (anger proneness and fear) predicted sibling relationship quality (conflict and intimacy) were performed. All variables were centered prior to creating the interaction terms (Aiken & West, 1991), and the centered variables were used in the regression models.

Preliminary Analysis

Correlations between study variable composites are presented in Table 2. Marital conflict and marital intimacy were significantly negatively correlated ($r = -.72$, $p < .01$), as were sibling conflict and sibling intimacy ($r = -.32$, $p < .05$). Marital intimacy was significantly positively correlated with sibling intimacy ($r = .36$, $p < .01$). Sibling conflict was significantly positively correlated with older sibling anger ($r = .51$, $p < .01$) and younger sibling anger ($r = .49$, $p < .01$). Older and younger sibling fear were significantly positively correlated ($r = .32$, p

< .01), as were older and younger sibling anger ($r = .46, p < .01$). Older sibling anger and fear were significantly positively correlated ($r = .27, p < .01$) as were younger sibling anger and fear ($r = .30, p < .01$).

Covariates. Younger sibling's age was significantly related to the overall sibling conflict composite ($r = .28, p < .04$), and was therefore included in the regression analyses.

Hierarchical Regression Analysis

To explore the relations between marital conflict and intimacy and child temperament, hierarchical regression models (HRM) were conducted. Greater marital conflict and child anger proneness were expected to be associated with greater sibling conflict. Greater marital intimacy and child fear were expected to be associated with greater sibling intimacy. A total of eight models were conducted, one for each dimension of marital relationship quality (conflict and intimacy) and for each child's temperament (anger and fear). The variables were entered into the model in the following order: (Step 1) younger sibling's age, (Step 2) marital conflict or intimacy and child temperament, (Step 3) marital conflict or intimacy x temperament interaction to predict sibling conflict or intimacy.

The results indicated that marital conflict did not significantly predict sibling conflict in either model tested (Tables 3 & 4), however both older and younger sibling's anger proneness significantly predicted sibling conflict ($F(4,52) = 5.73, p < .001$ and $F(4,52) = 6.37, p < .001$, respectively). Specifically, higher levels of anger proneness were associated with higher levels of sibling conflict. In the models that included marital conflict, fear did not significantly predict sibling conflict. Marital intimacy was a significant predictor of sibling intimacy (Tables 5 & 6), with greater marital intimacy being associated with more intimacy in the sibling relationship.

Fear and anger proneness were not significant predictors of intimacy. None of the interaction terms included in the models were significant.

Discussion

The present study assessed linkages between marital relationship quality and sibling relationship quality as moderated by children's anger proneness and fear. Specifically, this study focused on two dimensions of marital relationship quality, conflict and intimacy, and how they may influence sibling conflict and intimacy. It was hypothesized that greater marital conflict would be related to greater sibling conflict, and likewise, that higher marital intimacy would be related to more intimacy or warmth in the sibling relationship. In addition, it was predicted that greater anger proneness and lower social fearfulness would be associated with greater conflict in the sibling relationship, while greater fearfulness would be associated with more intimate sibling relationships.

Surprisingly, this study did not reveal significant correlations between marital conflict and sibling conflict. These findings are inconsistent with previous research, which has repeatedly shown that marital conflict is an important influential factor in the quality of children's adjustment, behavior, and interpersonal relationships (Cummings, et al., 1989; Jenkins, 1992; Erath & Bierman, 2006; Mazza, et al., 2009). One possible explanation may be due to the characteristics of the current sample. Parents who participated in the current study were self-identified as happily married, and as such, may have reported lower levels of conflict than typically found in other research in this area. It is most likely the case, given the substantial literature in this area, that in families where parents have more intense or hostile conflicts there is more conflict within the sibling relationship. Additionally, there is current research to show that the *type* of conflict matters more than the *frequency* of conflict. For example, when marital

conflict was characterized as argumentative and angry yet employed the use humor and positive verbal comments, marital interactions were positively correlated with preschoolers' displays of humor during frustration-invoking parent-child interaction tasks (Katz & Gottman, 1994). This suggests that although conflict is present, it is not necessarily negative. Other research has found that the use of deconstructive tactics, such as verbal and nonverbal hostility, defensiveness, physical aggression, and withdraw, predict child aggression. Conversely, parental use of constructive tactics including calm discussion, humor, verbal and physical affection, and problem solving were related to a reduced probability of child aggression (Cummings, Goeke-Morey & Papp, 2004). Finally, resolving conflict may also play an important role. Marital conflict may be less detrimental to child outcomes if children witness the resolution of their parents' arguments. In a study of adult conflict and child outcomes, resolution involving compromise and apology was associated with reduced anger and negativity in 5 to 19 year olds (Cummings, Ballard, El-Sheikh & Lake, 1991). Additionally, negative conflict management in the marital relationship was found to be directly correlated with 4 to 7 year olds' conduct problems (Webster-Stratton & Hammond, 1999). When parents resolve marital conflict, it may teach children that conflict, however unpleasant, can be resolved so that the individuals involved are satisfied with the outcome and at peace with each other. All of these factors have implications for understanding the link between characteristics of the marital relationship and how and under what conditions it may influence aspects of the sibling relationship.

As expected, in families where there were higher levels of marital intimacy, sibling relationships tended to be more intimate as well. These results suggest that marital intimacy is an important aspect of family relations that has implications for young children's adjustment. It is especially interesting that a *positive* aspect of the marital relationship was significantly

correlated with sibling relationships. Most research on marital relationships and children's outcomes focuses on the negative characteristics of family relationships, such as conflict, and may neglect to give equal study to the positive aspects. The results suggest that marital intimacy may serve as a positive model for children, showcasing the value of close, trusting relationships. As family systems theory notes, children learn how to relate within and across subsystem boundaries through repeated interactions (Cox & Paley, 1997). If children are able to see the beneficial result of intimate relationships over time, it may encourage them to develop such a relationship with their own siblings.

While the quality of marital relationships does impact children, individual characteristics may be equally or more important. Child temperament did not moderate the association between marital and sibling relationship quality, however anger was significantly positively correlated with sibling conflict. This finding is consistent with previous research, which showed that younger siblings' anger and emotional intensity were associated with more competitive sibling relationships, and older siblings' frequency of emotional upset was associated with a more negative relationship (Stocker, Dunn & Plomin, 1989). It may be that anger proneness is especially important to study in early childhood because of a growth in cognitive and emotional development around this time. Studies show that children's understanding of others' emotions begins to develop around 1.5 to 2 years of age (Dunn & Munn, 1985), and that engaging in sibling conflict is one way in which children learn to express and manage negative affect (Shantz & Hobart, 1989). Additionally, young siblings have been shown to imitate their older siblings (Pepler, Corter, & Abramovitch, 1982). Anger proneness may instigate sibling conflict, which may in turn increase siblings' anger, causing further conflict as siblings imitate and match each other's emotions.

Interestingly, anger proneness was associated with conflict in the sibling relationship, but not with how intimate siblings were. While it may seem that a child's tendency to yell, hit, or become quickly frustrated would interfere with a warm sibling relationship, it is important to remember the context of children's interactions. During conflictual sibling interactions, a child's anger proneness would be likely to escalate and affect the argument. Conversely, during an intimate interaction such as consoling a sibling after he/she gets hurt, a child's anger proneness is not likely to surface. Because temperament should be studied in the context where emotions are expected to be elicited, anger proneness may not have affected sibling intimacy with respect to how it was measured in the current study. Furthermore, it may also be important to recognize that conflict and intimacy are not opposite ends of a spectrum. It is possible to have highly conflictual relationships that are also characterized by high intimacy, and less intimate relations with fewer conflictual interactions. As such, certain dimensions of temperament that impact conflict may not impact intimacy.

Although the current research provides an important contribution to the literature, there are some limitations to consider. First, the sample size ($n=57$) limited the statistical power and the types of analyses that could be conducted. With a larger pool of participants, we may have been better able to detect interaction effects and to explore multiple interactions in one model. Additionally, families were generally middle class and Caucasian. This homogeneity restricts the generalizability of the findings. Related to this limitation is that the sample consisted of intact families who self-identified as happy. This may have limited the range of responses pertaining to marital conflict, which could be the reason why the associations involving marital conflict were non-significant. A final limitation lies in the method. There is indeed a level of bias associated with any questionnaire, and it would have been worthwhile to receive reports

from extra-familial sources as well as employ observational methods. However, we did use both maternal and paternal reports, which helped to lessen this issue to some extent. It is also important to point out that in regard to the research questions, it was appropriate to use parental reports as they are likely the best source of knowledge concerning their children's temperament and sibling relationship quality.

Despite these limitations, this study still provides valuable findings about the associations among marital and sibling relationships. It is a significant contribution to the field, as it is one of the few studies to research the impact of positive aspects of marital relationships on sibling relationship quality. Consistent with previous research (Herman & McHale, 1993) it showed the significance of marital intimacy as a contributing factor in child behavior, and added to current understandings by showing marital intimacy's association with sibling intimacy. While there are far more studies of marital conflict, the current study highlighted the value of positive aspects of the marital relationship for the sibling relationship, over and above marital conflict. Future studies should focus on more positive aspects of the marital relationship and further investigate marital intimacy as a unique influence on the sibling relationship. Because this study found no significant associations between marital and sibling conflict, it suggests that future studies should also investigate more specific aspects of marital conflict rather than employing a general measure or assessing only the frequency of conflict. Not only are there many opportunities to expand this study in regards to marital relationship qualities, but there should also be a focus on the interaction between relationship and individual characteristics. The current study found that child's anger proneness was significantly associated with sibling conflict, even when marital conflict was not. There may be some individual characteristics during early childhood which are unique in their impact on the sibling relationship. Finally, employing larger sample sizes and

using varying ethnic and socioeconomic populations with strengthen the generalizability of this research. Nevertheless, the contributions of this study serve as important starting points by highlighting marital intimacy and anger proneness as important influences on sibling relationships.

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Table 1. Descriptives of Study Variables.

	n	M	SD	Range
Marital Conflict	57	6.06	.25	3.00 – 12.10
Marital Intimacy	56	13.43	.18	9.68 – 15.94
Sibling Conflict	53	5.45	.10	3.00 – 6.87
Sibling Intimacy	53	7.10	.11	5.09 – 8.44
Older Sibling Anger Proneness	55	9.27	.17	5.62 – 12.38
Older Sibling Fear	55	7.75	.20	4.18 – 10.50
Younger Sibling Anger Proneness	54	8.15	.17	5.35 – 10.79
Younger Sibling Fear	54	7.72	.19	4.77 – 10.47

Table 2. Intercorrelations of Study Variables.

	1	2	3	4	5	6	7	8
1. Marital Conflict	1							
2. Marital Intimacy	-.72***	1						
3. Sibling Conflict	.07	-.20	1					
4. Sibling Intimacy	-.25 [†]	.36**	-.32*	1				
5. Older Sibling Anger Proneness	.11	-.14	.51***	-.12	1			
6. Older Sibling Fear	.07	-.09	.22	-.12	.27*	1		
7. Younger Sibling Anger Proneness	.02	.08	.49***	-.04	.46***	.26	1	
8. Younger Sibling Fear	.16	-.18	.19	.02	.06	.32*	.30*	1

[†] = $p < .10$; * $p < .05$; ** $p < .01$; *** $p < .001$

Table 3. Hierarchical Regression Results Examining Marital Conflict and Anger Proneness Predicting Sibling Conflict with Older and Younger Siblings.

Predictors	Older Sibling		Younger Sibling	
	β	ΔR^2	β	ΔR^2
<u>Step 1</u>				
Younger Sibling's Age	.23	.08	.31*	.08
	$\Delta F(1,51) = 4.49^*$		$\Delta F(1,51) = 4.49^*$	
<u>Step 2</u>				
Marital Conflict	.02		.12	
Anger Proneness	.46***	.23	.47***	.25
	$\Delta F(2,49) = 8.16^{***}$		$\Delta F(2,49) = 9.24^{***}$	
<u>Step 3</u>				
Marital Conflict x Anger Proneness	-.12	.01	-.12	.01
	$\Delta F(1,48) = .91$		$\Delta F(1,48) = 1.02$	
Adjusted R^2	.27		.29	
	$F(4,52) = 5.73^{***}$		$F(4,52) = 6.37^{***}$	

Note. β 's presented are from the final step of the model in which all variables were entered.

[†] = $p < .10$; * $p < .05$; ** $p < .01$; *** $p < .001$

Table 4. Hierarchical Regression Results Examining Marital Conflict and Fear Predicting Sibling Conflict with Older and Younger Siblings.

Predictors	Older Sibling		Younger Sibling	
	β	ΔR^2	β	ΔR^2
<u>Step 1</u>				
Younger Sibling's Age	.31*	.08	.38**	.08
	$\Delta F(1,51) = 4.49^*$		$\Delta F(1,51) = 4.49^*$	
<u>Step 2</u>				
Marital Conflict	.11		.07	
Fear	.23	.06	.19	.07
	$\Delta F(2,49) = 1.75$		$\Delta F(2,49) = 1.87$	
<u>Step 3</u>				
Marital Conflict x Fear	.08	.01	-.15	.02
	$\Delta F(1,48) = .37$		$\Delta F(1,48) = 1.06$	
Adjusted R^2	.08		.10	
	$F(4,52) = 2.10$		$F(4,52) = 2.36$	

Note. β 's presented are from the final step of the model in which all variables were entered.

$^\dagger = p < .10$; * $p < .05$; ** $p < .01$; *** $p < .001$

Table 5. Hierarchical Regression Results Examining Marital Intimacy and Anger Proneness Predicting Sibling Intimacy with Older and Younger Siblings.

Predictors	Older Sibling		Younger Sibling	
	β	ΔR^2	β	ΔR^2
<u>Step 1</u>				
Younger Sibling's Age	.04	.00	.03	.00
	$\Delta F(1,50) = .22$		$\Delta F(1,50) = .22$	
<u>Step 2</u>				
Marital Intimacy	.35*		.33*	
Anger Proneness	-.08	.13	.01	.13
	$\Delta F(2,48) = 3.53^*$		$\Delta F(2,48) = 3.45^*$	
<u>Step 3</u>				
Marital Conflict x Anger Proneness	.10	.01	-.12	.01
	$\Delta F(1,47) = .54$		$\Delta F(1,47) = .71$	
Adjusted R^2	.07		.07	
	$F(4,51) = 1.94$		$F(4,51) = 1.95$	

Note. β 's presented are from the final step of the model in which all variables were entered.

$^\dagger = p < .10$; * $p < .05$; ** $p < .01$; *** $p < .001$

Table 6. Hierarchical Regression Results Examining Marital Intimacy and Fear Predicting Sibling Intimacy with Older and Younger Siblings.

Predictors	Older Sibling		Younger Sibling	
	β	ΔR^2	β	ΔR^2
<u>Step 1</u>				
Younger Sibling's Age	.03	.00	-.03	.00
	$\Delta F(1,50) = .22$		$\Delta F(1,50) = .22$	
<u>Step 2</u>				
Marital Intimacy	.35*		.35*	
Fear	-.10	.14	.12	.14
	$\Delta F(2,48) = 3.77^*$		$\Delta F(2,48) = 3.83^*$	
<u>Step 3</u>				
Marital Intimacy x Fear	-.04	.00	-.24	.05
	$\Delta F(1,47) = .07$		$\Delta F(1,47) = 2.92$	
Adjusted R^2	.07		.12	
	$F(4,51) = 1.93$		$F(4,51) = 2.78^*$	

Note. β 's presented are from the final step of the model in which all variables were entered.

[†] = $p < .10$; * $p < .05$; ** $p < .01$; *** $p < .001$

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