SIBLING RELATIONSHIP QUALITY: ASSOCIATIONS WITH

MARITAL AND COPARENTING SUBSYSTEMS

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Marital relationships play an important role in family functioning and in the development of sibling relationships.  From a family systems perspective, other subsystems within the family, such as coparenting interactions, could explain the effects of the marital relationship on sibling bonds.  Specifically, the quality of the coparenting relationship may mediate the association between marital functioning and sibling relationship quality.  The current study examined relationships between these three subsystems (marital, coparenting, and sibling) as self-reported by mothers, fathers, and children with siblings.  As part of a larger project, families with a child aged 8 to 11 and at least one sibling (N = 75) completed the Dyadic Adjustment Scale and the Coparenting Scale (both completed by mother and father), as well as the Sibling Relationship Questionnaire (completed by target child).  Results suggested that marital functioning is a significant predictor of functioning within the coparenting relationship.  Predicted associations did not emerge between sibling relationship quality and marital or coparenting relationships, with minor exceptions, and the coparenting relationship did not mediate the association between marital and sibling relationship quality.  Implications of the current findings and suggestions for future research are discussed.

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Introduction

Sibling relationships are often the most long-standing relationships in life, yet also one of

the least studied within the family system.  A growing body of research demonstrates the

influence, both positive and negative, that sibling relationships can have on overall development

in childhood (see Brody, 1998; Volling, 2003 for reviews).  Within the framework of family

systems theory (Minuchin, 1985, 1988), families are viewed as complex systems consisting of

multiple subsystems that interact and influence each other and impact overall family functioning.

Sibling relationships do not develop in isolation, and research has demonstrated the significant

contributions of the marital relationship (Dunn, Deater-Deckard, Pickering, Golding, & the

ALSPAC Study Team, 1999), the parent-child relationship (Boer, Goedhart, & Treffers, 1992;

McHale, Updegraff, Tucker, & Crouter, 2000), as well as parenting styles (Cui, Conger, Bryant,

& Elder, 2002; McHale et al., 2000), on the development and quality of sibling relationships.

Although identified as an important subsystem within the family, the coparenting

relationship (Cowan & McHale, 1996; McHale, 1997) and its contributions to the development

of sibling relationships has received little research attention.  Coparenting refers to the

interaction and coordination between caregivers revolving around the task of parenting.  Ideally,

the coparenting subsystem is mutually supportive and cooperative, such that it provides an

important positive family context in which children develop.  Links have been established

between the functioning of the coparenting relationship and aspects of child and parent

adjustment, parenting behavior, and later child outcomes (see Feinberg, 2003 for review).

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The proposed study seeks to extend the literature by investigating the contributions of interparental interactions (both marital and coparental) to the quality of sibling relationships during the transitional period of middle childhood. Drawing on the framework provided by family systems theory, it was expected that both the marital and coparental subsystems would contribute to the quality of the sibling subsystem, and that the coparenting relationship would play a mediating role in the association between the quality of the marital relationship and the quality of the sibling relationship.

*Families as Systems*

Family systems theory (Minuchin, 1985, 1988) is a conceptual framework that can guide developmental research by focusing attention on the interdependent and mutually influential aspects of familial relationships. Within the context of the family system, multiple subsystems comprise members of the family in different combinations (i.e., marital, coparental, parent-child, sibling). These subsystems interact and influence each other in complex and dynamic ways that are regulated by implicit rules and patterns to maintain balance and homeostasis (i.e., status quo) within the family. Throughout the family life cycle, the interactions among members and subsystems evolve, and their respective boundaries are hypothesized to shift and change as a result of developmental or environmental factors. Family systems theory provides an overarching framework for examining complex, simultaneous interactions and influences within families and relationships.

The nature of relationships and influence among family subsystems remains an area that needs more attention and has produced inconsistent results (Dunn et al., 1999; Parke et al., 2001). While developmental research historically has focused almost exclusively on the mother-child dyad, more recently family researchers have expanded their focus to other subsystems and

their impact on child development (Cowan & Cowan, 2002; Cowan & McHale, 1996; Davies, Cummings, & Winter, 2004).  For example, the spillover hypothesis (Engfer, 1988; Erel & Burman, 1995; Pike, Coldwell, & Dunn, 2005) suggests that qualities of one relational subsystem (e.g., emotional, behavioral) influence or are transferred to other relational subsystems within the same family system.  Examining the quality of emotional relationships in the context of multiple family subsystems is important to increase our understanding of complex family systems and their impact on child development.

Recent research highlights the pathways by which family subsystems influence each other, which can be direct, indirect, or mutually influential (Dunn et al., 1999; Parke et al. 2001; Yu & Gamble, 2008).  Many factors and subsystems are involved in the development of the quality of relationship between siblings.  Studies have demonstrated associations between marital quality (Dunn et al., 1999), parent-child relationship quality (Boer et al., 1992; McHale et al., 2000), parenting styles (Cui et al., 2002; McHale et al., 2000), and sibling relationships.  Both the marital and parental subsystems have been identified as important contributors to the sibling relationship and sibling interactions.

*Marital Subsystem*

It is well understood that in intact families the marital subsystem plays a crucial role in the effective functioning and interaction of the family system.  As purported by family systems theory and in line with the spillover hypothesis, conflict within the marital subsystem impacts other family subsystems, general family functioning, and child outcomes.  Aside from negatively influencing how a child deals with conflict in general (Katz & Gottman, 1993; Reese-Weber, 2000), researchers have also demonstrated that marital conflict has a detrimental impact on adjustment in childhood (Harold & Conger, 1997) and the quality of the parent-child relationship

(Kerig, Cowan, & Cowan, 1993). Marital functioning can also impact the quality of relationships the child has with others, especially relationships with peers (Stocker & Youngblade, 1999) and siblings (Conger, Stocker, & McGuire, 2009; Stocker & Youngblade, 1999).

Research has shown that the marital subsystem and quality of the marital relationship affect how adult partners parent their children (Cummings & Davies, 2002; Meyers, 1999; Yu & Gamble, 2008). In line with family systems theory and the spillover hypothesis, these findings suggest that conflict within the marital subsystem inevitably impacts the family environment and other subsystems within the family. When partners are at odds with each other, it is reasonable to expect they will also have difficulty in joint activities, such as parenting and negotiating discipline for their children. Marital conflict and dysfunction are frequently associated with less supportive, and even hostile, parenting behaviors (Katz & Low, 2004; Stocker & Youngblade, 1999). Meta-analytic reviews also establish links between conflict within the marital subsystem and a negative or less effective parental subsystem (Erel & Burman, 1995; Krishnakumar & Buehler, 2000; McHale, 1995), as well as associations between marital discord and dysfunctional parent-child relationships (Cox, Paley, & Harter, 2001).

Consistent with the spillover hypothesis, researchers have shown that conflict within a marriage often leads to hostility, conflict, and emotional distance between siblings (Dunn et al., 1999; Hetherington & Clingempeel, 1992; Hetherington, Henderson, & Reiss, 1999; Stocker & Youngblade, 1999). More recently, Yu and Gamble (2008) further demonstrated that quality of the marital relationship has a direct impact on the quality of sibling relationships. Along the same lines, maternal marital dissatisfaction has been linked to sibling relationships characterized by rivalry and hostility (Stocker, Ahmed, & Stall, 1997). On the other hand, high levels of

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marital satisfaction and low levels of marital conflict are associated with cohesion in the sibling relationship and lower levels of conflict between siblings (Brody, Stoneman, & McCoy, 1994; Dunn et al., 1999; Yu & Gamble, 2008). In a study of family relationships from middle childhood to adolescence, Brody et al. reported that parents of sibling pairs characterized as harmonious reported higher marital satisfaction, more positive emotional climates in their families, and less interparental conflict than parents of siblings characterized as typical (e.g., moderate levels of warmth and conflict) or conflicted.

*Parenting Subsystem*

Mothers and fathers can be simultaneously members of multiple family subsystems, so research examining not only the marital subsystem, but also the parenting subsystem is essential to illuminate processes involved in family systems (Minuchin, 1985, 1988). Although these subsystems may overlap due to the frequent inclusion of the same members, Cowan and McHale (1996) emphasize the importance of considering the influence of the parenting and coparenting subsystems, independent from those of the marital relationship. Research is somewhat scarce regarding the newer construct of coparenting, but links between parenting styles and parent-child relationships with children's functioning and sibling relationships have been established. For example, supportive or hostile parenting has been shown to predict sibling relationships characterized by support and warmth or conflict, respectively (Cui et al., 2002; McHale et al., 2000), as well as peer relationships (Cui et al., 2002). In addition, parental negativity has been associated with more conflict and less cooperation in early childhood twin interactions (Lemery & Goldsmith, 2002). Along similar lines, authoritative parenting styles have been directly linked with increased closeness within sibling relationships (Yu & Gamble, 2008). Research has also

demonstrated the congruence often found in parent-child and sibling relationships (Boer et al., 1992; Brody, 1998; Lemery & Goldsmith, 2002; McHale et al., 2000; Volling & Belsky, 1992).

McHale (1997) identified important processes and behaviors involved in the coparenting relationship, both overt and covert: (a) processes that provide a sense of family integrity, (b) conflict between parents in front of the child, (c) mostly covert disparagement or undermining of the other parent within parent-to-child communication, and (d) joint behaviors involved in the discipline and reprimanding of children. The coparenting relationship, which is ideally mutually supportive and cooperative, provides another context in which children in the family can view and learn about interpersonal interactions, communication, and conflict resolution. Cowan and McHale (1996) asserted that "a well-functioning coparental relationship accomplishes parenting tasks but also conveys to the child a sense of solidarity and common purpose" (p.99). Although early research on the construct of coparenting was typically associated with post-divorce families, recent researchers have encouraged a broader perspective of the construct as a relevant process that impacts family and individual functioning (Doherty & Beaton, 2004). Recent reviews of the research on coparenting support the continued investigation of its influence on parenting behavior, as well as parent and child adjustment and family functioning (Feinberg, 2003).

Research has demonstrated the complexity and importance of the role that coparenting interactions may play in relation to other family and relationship dynamics. Consistent with the spillover hypothesis, negative marital processes are often linked with negative coparenting processes (Katz & Gottman, 1996; McHale, 1995). Conflict within the marital relationship is likely to translate into unsupportive or hostile interactions when the couple attempts to parent children, which in turn can impact other relational subsystems within the family. Margolin,

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Gordis, and John (2001) showed that quality of the coparenting relationship mediates the effect of marital relationship quality on parent-child relationships. Specifically, conflict within marital relationship "spills over" into the coparenting relationship, which in turn impacts the quality of the parent-child relationship. Given these findings, it is reasonable to expect that similar spillover effects may exist between the coparenting relationship and other elements of the family system, such as the sibling subsystem.

Despite research indicating that the coparenting relationship is an important contributor to family dynamics, direct links between the coparenting relationship and sibling relationships have not received much research attention. Yu and Gamble (2008) did not specifically investigate the impact of coparenting factors, but they demonstrated direct pathways of influence between qualities of the marital relationship, which included a measure of coparenting, and qualities of the sibling relationship. Similarly, Brody et al. (1992) did not look specifically at the coparenting relationship as a whole, but they found that parental reports of low levels of overt (i.e., in the presence of children) interparental conflict, which represents an aspect of coparenting, were associated with less negative behavior between siblings. However, no research was found that looked at direct associations between coparenting and sibling relationships.

*Sibling Subsystem*

Within the framework of family systems theory, siblings play an important role in family functioning, as well as in child development and adjustment (Yeh & Lempers, 2004). Sibling relationships are characterized by emotional intensity and reciprocity, as well as ambivalence, often involving considerable support and/or antagonism throughout development (Dunn, 2002). The quality of sibling relationships ranges from constant conflict, to relatively harmonious and

positive interactions, to a combination of both (Dunn & Davies, 2001).  Although these

individual differences have been established, the factors that promote harmonious or conflictual

sibling interactions, including the other relational subsystems, represent an area that has not

received much research focus.

Sibling bonds can contribute to socialization, often providing the first introduction to a

social environment outside of the parental context and yet another important family context for

learning, understanding, and interacting with others.  As an example, children with siblings have

been shown to have improved competence in social interactions (Dunn, 2000; Stormshak,

Bellanti, & Bierman, 1996) and better understanding of other people's emotions (Dunn, 1998;

Dunn, Brown, Slomkowski, Tesla, & Youngblade, 1991; Howe, 1991).  The quality of the

relationship between siblings has important implications for the type of social context it

provides.   Social skills, emotional understanding, and self-disclosure are all important in the

development of close, intimate relationships with others.  Within a warm and positive sibling

relationship, a mutual context is provided for the development of those social skills (Noller,

2005), as well as general emotional understanding and ability to self-disclose (Howe, Aquan-

Assee, Bukowski, Lehoux, & Rinaldi, 2001).

*Middle Childhood.*  Varying definitions of middle childhood appear in the literature.  The

upper limit is usually age 12, but the lower limit ranges from as early as age 6, when of school

age, to narrower windows of 8 to 12 years or 10 to 12 years.  For the purpose of this study,

middle childhood is defined by the ages of 8 to 12 years old.  Numerous developmental changes

take place for children during this transition between childhood and adolescence, such as

physical maturation, increasing personal autonomy, increased involvement with external peer

groups, and advancement in cognitive and learning abilities.  Middle childhood also represents a

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transitional period at the family level when shifts and changes in and between subsystems take place, including sibling interactions, parent-child relationships, and overall family functioning (Collins, Madsen, Susman-Stillman, 2002; Minuchin, 1988). Despite these changes and the implications many of them have for later outcomes, this time period is relatively understudied in developmental research (Huston & Ripke, 2006a).

With increased cognitive and abstract reasoning abilities in the expanding social context during middle childhood comes advancement in social cognition and competence. At this age, children demonstrate more accurate evaluations of others (Malloy, Yarlas, Montvilo, & Sugarman, 1996), better understanding of psychological traits (Heyman & Gelman, 2000), and increased ability to take on the perspectives of others and understand others' behavior (Crick & Dodge, 1994; Dunn & Slomkowski, 1992). Improved abilities in cooperation (Ladd & Pettit, 2002) and conflict resolution (Parker & Gottman, 1989) with peers are also evident in middle childhood. Competence with peers and other social interactions during middle childhood has important implications for later adolescent and adult outcomes in social and achievement contexts (Huston & Ripke, 2006b).

Children at this age, on average, spend more time with their siblings than they do with their parents (McHale & Crouter, 1996). Throughout development, and especially amid the changes during middle childhood, siblings can serve as sources of support, friendship, advice, and play (Furman & Buhrmester, 1985). McGuire, Manke, Eftekhari, and Dunn (2000) highlight the importance of sibling relationships on the development of children's self-identity, understanding of social interactions, and sense of individual rights during the school-age years. Research suggests that sibling relationships move towards becoming more egalitarian at this age (Buhrmester & Furman, 1990). This finding has been supported by other research, indicating

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significant improvement in the quality of sibling relationships during middle childhood (Buist, Dekovic, Meeus, & van Aken, 2002; Pike et al., 2005). Still other studies have indicated that conflict remains a major element of the relationship during this time (Stormshak et al., 1996; Vandell & Baily, 1992). Research focused on the quality of sibling relationships during this developmental time period is important in order to increase our understanding of the role and importance of this family subsystem.

*The Current Study*

The current study examined the relative contributions of marital quality and coparenting behavior on sibling relationship quality, and tested the mediating role of the coparenting relationship during middle childhood (8 to 11 years of age) in two-parent families. We hypothesized that more positive marital adjustment and more supportive and effective coparenting would be linked to greater warmth and less conflict in sibling relationships; conversely marital conflict and dysfunction and unsupportive coparenting behavior would be linked to increased conflict and less warmth in sibling relationships. In addition, we predicted that marital quality would be associated with quality of the coparenting relationship, and the coparenting relationship would partially mediate the association between the marital relationships and sibling relationships.

<div align="center">Method</div>

*Sample*

The current study is part of a larger project, which focuses on psychological wellbeing and attachment processes in middle childhood. Of the participating families ($N = 86$), 75 had more than one child ($M = 2.57$) and qualified for analysis of sibling relationships. The mean age was 38.61 ($SD = 5.26$) for fathers, 36.27 ($SD = 4.82$) for mothers, and 9.43 ($SD = 1.27$) for target children (41 male and 34 female). Ten target children were the youngest of their siblings, 48

were the oldest, and 17 were middle siblings.  One hundred seventeen parents identified

themselves as Caucasian (78%), 10 as African American (6.7%), 14 as Hispanic/Mexican

American (9.3%), 3 as Asian/Pacific Islander (2%), 1 as Native American (0.7%), and 3 as

biracial/multi-racial (2%).  Age and ethnicity information was missing for one mother and one

father.  The sample was highly educated with 54.7% of all parents earning bachelors or graduate

degrees and another 32.7% reporting some college or a two-year degree.  Approximately one

third of the sample had an annual family income over $75,000 and approximately 10% reported

less than $30,000, with approximately 50% falling between $30,000-75,000.

*Procedure*

Families were recruited through flyers at multiple community locations (e.g., libraries,

local restaurants, malls, doctors' offices, etc.).  Families who contacted the lab manager and

represented two-parent families with at least one child in middle childhood (ages 8-11) were

asked to come to the university lab for a 2.5 to 3 hour data collection session that consisted of

family interaction tasks, self-report measures for both children and parents, and a semi-structured

interview for both parents.  Families were compensated with $30 and a family fun pack (e.g.

donated restaurant coupons, tickets for recreational activities) for their participation.

After data was entered into SPSS files, the Missing Values Analysis (MVA) package was

used to assess missing data for each instrument. Procedures such as Little's MCAR and

estimation maximization (EM) were utilized, and it was determined that all data were missing

completely at random (MCAR) and estimation maximization and casewise deletion procedures

were used to address missing values.

*Measurement Approaches*

Mothers and fathers completed the Dyadic Adjustment Scale (DAS; Spanier, 1989),

which is a commonly used, 32-item self-report measure designed to assess the quality of

adjustment in romantic relationships. The DAS yields a total adjustment score and four

subscales. Higher scores on the DAS overall adjustment score indicate better relationship

functioning. The DAS demonstrates good reliability and validity (Spanier, 1976, 1989). For the

current study, the DAS Total Adjustment scale demonstrated high internal consistency ($\alpha = .87$

for mothers, $\alpha = .88$ for fathers). All four DAS subscales also demonstrated sufficient reliability

(Dyadic Consensus, $\alpha = .83$; Dyadic Satisfaction, $\alpha = .82$; Dyadic Cohesion, $\alpha = .76$; Dyadic

Affective Expression, $\alpha = .66$).

Mothers and fathers also completed the Coparenting Scale (CS; McHale, 1997), which is

a 16-item self-report measure designed to assess both overt and covert aspects of the coparenting

relationship. Items consisted of a parenting behavior and a 7-point Likert-type rating from

*absolutely never* to *almost constantly*. The CS yields four scales, which are calculated by

averaging item scores: Family Integrity, Disparagement, Conflict, and Reprimand. For the

purpose of this study, the CS Family Integrity and CS Conflict scales were utilized as they are

correlated with other measures of coparental behavior and assess areas that are also associated

with marital satisfaction (McHale, 1997). The CS Family Integrity scale measures both overt

and covert behaviors that promote a sense of cohesiveness within the coparental and family unit;

high scores on this scale indicate a high frequency of behaviors that promote family integrity.

The CS Conflict scale measures the frequency of interparental disagreements that take place in

the presence of the child; high scores on this scale indicate frequent mild to intense disputes in

the presence of the child. For the current study, the CS scales of Family Integrity and Conflict demonstrated high internal consistency ($\alpha = .87$, $\alpha = .83$ respectively).

The Sibling Relationship Questionnaire (SRQ; Furman & Buhrmester, 1985) is a 48-item self-report measure that assesses a child's perception of his or her closest-in-age sibling relationship. Each item consists of an aspect of sibling relationships and a 5-point Likert-type rating from *hardly at all* to *extremely much*. The SRQ yields four factor scales: Warmth, Relative Status/Power, Conflict, and Rivalry. In the current study, the SRQ Warmth and SRQ Conflict scales were utilized as they have frequently been used in other studies, and have demonstrated reliability and construct validity (Derkman, Scholte, Van der Veld, & Engels, 2010). For the current sample, the SRQ factor scales of Warmth and Conflict demonstrated high internal consistency ($\alpha = .94$, $\alpha = .91$ respectively).

<div align="center">Results</div>

*Preliminary Analyses*

Means, standard deviations and ranges of all scales of interest are depicted in Table 1. All variables relevant to hypothesis testing were examined to determine if the normality assumption was met. Examination revealed that no variables were significantly skewed or kurtotic, and no univariate or multivariate outliers were identified. Prior to hypothesis testing, the assumptions of normality, linearity, homoscedasticity, and homogeneity of error variance were examined with a series of scatterplots. Visual inspection of normal probability plots and standardized residual scatterplots indicated that there were no violations. Bivariate scatterplots, however, indicated that the independent variables (DAS Total Adjustment scores for fathers and mothers, CS Family Integrity and CS Conflict scores for fathers and mothers) were not linearly related to the dependent variables (SRQ Warmth and SRQ Conflict scores). Square root data

transformation of the dependent variables reduced heteroscedasticity, but visual inspection of scatterplots indicated that the relationships between the independent and dependent variables was less than ideal.  However, given that minor deviations from linearity tend to weaken, rather than invalidate, the likelihood of statistical significance in regression analyses, it was deemed appropriate to proceed with the analyses.

A correlation analysis was conducted to examine relationships between all scales of interest and examine potential multicollinearity (see Table 1).  No variables utilized in hypotheses testing were found to have correlations large than .70, which would suggest no concern about multicollinearity (Tabachnick & Fidell, 2007).  A correlation and *t*-test analysis was also conducted to determine if demographic variables of age or gender of target children were correlated with the dependent variables being measured.  There was a significant difference between males (*M* = 2.76, *SD* = .75) and females (*M* = 3.27, *SD* = .80) in their rating of warmth, *t*(73) = -2.85, *p* = .006), as well as conflict (*M* = 3.21, *SD* = 1.07; *M* = 2.58, *SD* = .98, respectively; *t*(73) = 2.63, *p* = .011).  Girls reported higher warmth and lower conflict with their siblings relative to boys.  Significant correlations also emerged between target child age and a few of the CS scales.  Specifically, mothers of older children reported lower levels of family integrity within their coparenting relationship (*r* = -.23, *p* = .047), and fathers of older children reported lower levels of coparental conflict (*r* = -.24, *p* = .036).

*Hypothesis Testing*

As predicted, Pearson's product moment correlations revealed significant relationships between DAS total scores and both CS scales (see Table 1).  These findings indicate that higher levels of adjustment in a marriage are associated with lower levels of conflict and higher levels of family integrity within the coparenting relationship.  Contrary to expectation, no significant

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correlations existed between SRQ scales and DAS Total Adjustment or CS scales, with the exception of father's CS Conflict scores being negatively related to boy's reported warmth within sibling relationships ($r = .31$, $p = .046$). However, significant correlations emerged between maternal DAS Affection scores and SRQ Warmth scores ($r = .33$, $p = .004$).

To test the first hypothesis regarding the association between marital quality and sibling relationship quality, regression analyses were utilized with DAS Total Adjustment score as the independent variable and either SRQ Warmth or SRQ Conflict score as the dependent variable (see Table 2, Models 1a and 1b). Gender of target children was controlled for given findings from preliminary analyses. Initial results indicated that neither fathers' marital adjustment ($\beta = .14$, $p = .311$), nor mothers' marital adjustment ($\beta = .02$, $p = .898$), significantly predicted SRQ Warmth scores. Fathers' marital adjustment ($\beta = .00$, $p = .998$) and mothers' marital adjustment ($\beta = .00$, $p = .998$) did not emerge as significant predictors of SRQ Conflict scores. Additional regression analyses using DAS subscales were mostly non-significant, with the exception of maternal DAS Affection emerging as a significant positive predictor of SRQ Warmth ($\beta = .27$, $t = 2.40$, $p = .019$, $R^2\Delta = .07$). Specifically, children of mothers who reported higher levels of affection within their marital relationship also reported higher levels of warmth within their sibling relationships.

Regression analyses tested the hypothesis regarding the association between coparenting relationship quality and sibling relationship quality, while also controlling for age and gender of target children (see Table 2; Models 2a and 2b). Model 2a accounted for 16.7% of the variance in sibling warmth, $F\Delta(6, 68) = 3.48$, $p = .005$. Consistent with expectation, paternal CS Conflict emerged as a significant negative predictor of SRQ Warmth ($\beta = -.33$, $p = .009$). Specifically, fathers' reports of high levels of conflict within the coparenting relationship were associated with

children's reports of low levels of warmth within sibling relationships. Contrary to expectation, maternal CS Family Integrity also emerged as a significant *negative* predictor of SRQ Warmth ($\beta$ = -.25, $p$ = .039). Specifically, mothers' reports of high levels of family integrity within the coparenting relationship were associated with children's reports of low levels of warmth within sibling relationships. Also contrary to hypotheses, regression results indicated that fathers' CS Family Integrity ($\beta$ = .14, $p$ = .255) and mothers' CS Conflict ($\beta$ = .19, $p$ = .117) were not significantly related to SRQ Warmth. Despite nonsignificant zero-order correlations with the dependent variable, CS variables appear to be working in combination with each other to influence SRQ Warmth scores and suggest potential suppression. According to Tabachnick and Fidell (2007), a suppressor variable accounts for or suppresses variance that is irrelevant to the prediction of the dependent variable and enhances the influence of other independent variables due to its correlations with them. Given limited initial association between CS and SRQ variables but significant regression findings, additional post-hoc analyses are warranted. Model 2b was non-significant with only gender significantly contributing to SRQ Conflict.

Regression analyses tested the next hypothesis regarding the association between marital quality and coparenting relationship quality, while also controlling for age of target children when appropriate (see Table 3; Models 3a-3d). Results revealed that for fathers, their own marital adjustment ($\beta$ = .54, $p$ < .001) emerged as a significant predictor of CS Family Integrity. Model 3a accounted for 29.7% of the variance in fathers' CS Family Integrity, $F\Delta(2, 72)$ = 16.60, $p$ < .001. Specifically, fathers' reports of better marital adjustment were associated with fathers' reports of higher family integrity within the coparenting relationship. Although model 3b accounted for 14% of the variance in mothers' CS Family Integrity, $F\Delta(3,71)$ = 5.01, $p$ = .003, only target child age emerged as a significant contributor ($\beta$ = -.25, $p$ = .026). Model 3c

accounted for 27.9% of the variance in fathers' CS Conflict, $F\Delta(3,71) = 10.55$, $p < .001$, and

fathers' marital adjustment emerged as a significant predictor ($\beta = -.49$, $p < .001$). Specifically,

fathers' reports of better marital adjustment were associated with fathers' reports of less conflict

within the coparenting relationship. Model 3d accounted for 28.5% of the variance in mothers'

CS Conflict, $F\Delta(2, 72) = 15.78$, $p < .001$, with mothers' marital adjustment emerging as a

significant predictor ($\beta = -.48$, $p < .001$). Specifically, mothers' reports of better marital

adjustment were associated with mothers' reports of less conflict within the coparenting

relationship.

The final hypothesis predicted that coparenting relationship quality would significantly

mediate the relationship between marital quality and sibling relationship quality. Although the

criteria for mediation were not met in the initial steps, the full regression model with all DAS and

CS predictors was run for SRQ Warmth (see Table 4). Given nonsignificant findings in earlier

regressions, the full model for SRQ Conflict was not run. The full model was significant, $F\Delta(8,$

$66) = 2.92$, $p = .008$, and accounted for 17.2% of the variance in SRQ Warmth. Neither mothers'

DAS Total Adjustment nor fathers' DAS Total Adjustment or CS Family Integrity was

significant, but both fathers' and mothers' CS Conflict ($\beta = -.30$, $p = .037$; $\beta = .30$, $p = .036$,

respectively) and mothers' CS Family Integrity ($\beta = -.29$, $p = .021$) contributed significantly to

SRQ Warmth. Although mediation was not found, fathers' reports of low levels of conflict

within the coparenting relationship were associated with higher sibling warmth, while mothers'

reports of high levels of conflict and low levels of family integrity within the coparenting

relationship were associated with higher sibling warmth.

*Exploratory Analyses*

Results from Model 2a suggest that several factors may be impacting our findings, therefore post-hoc analyses were conducted to examine gender differences and potential suppressor variables. Because correlations separate for boys and girls (see Table 1) indicate that CS variables influence SRQ Warmth scores differently by gender, it was determined that regression analyses be run separate by gender, despite small sample size and limited statistical power. These analyses revealed important differences in how coparenting variables influenced reports of warmth within the sibling relationship (see Table 5). For boys, Model 2a accounted for 16.5% of the variance in sibling warmth, $F\Delta(4, 35) = 1.70$, $p = .172$, but was not significant. For girls, Model 2a accounted for 31.8% of the variance in sibling warmth, $F\Delta(4, 28) = 3.19$, $p = .028$. Fathers' CS Family Integrity emerged as the only significant predictor in this model ($\beta = .38$, $p = .039$). Although paternal CS Conflict emerged as the only significant variable in correlation and regression analyses of boys' SRQ Warmth, only paternal CS Family Integrity influenced results pertaining to girls' SRQ Warmth. In these regression analyses, it appears that maternal CS Family Integrity ($\beta = -.38$, $p = .065$), although not significant, is functioning as a suppressor variable and may account for the similarity of parents' ratings and highlight mothers' reports that are different from fathers'.

## Discussion

The current study investigated associations among marital, coparenting, and sibling relationships in two-parent families with children in middle childhood. Results indicated that, for both fathers and mothers, quality of the marital relationship was a significant predictor of most aspects of coparenting relationship quality. Contrary to expectation and previous research (Conger et al., 2009; Dunn et al., 1999; Hetherington & Clingempeel, 1992; Hetherington et al.,

1999; Stocker & Youngblade, 1999; Yu & Gamble, 2008), sibling relationship quality was not associated with measures of marital quality.  Aspects of the coparenting relationship were related to and emerged as significant predictors of warmth within the sibling relationships.  Results will be discussed in relation to the consistencies and discrepancies with previous literature, and the implications of the findings will be addressed.  The limitations of the current study and suggestions for future research will also be presented.

Before proceeding with planned testing, preliminary analyses showed gender differences in perception of sibling relationships.  Consistent with previous research (Furman & Buhrmester, 1992; Hetherington et al., 1999; McCoy, Brody et al., 1994), results of the current study indicate that female target children reported more warmth and less conflict in their sibling relationships than male target children.  This finding solidifies the importance of considering the impact gender may have on sibling relationship quality and warrants further consideration.  Other researchers have indicated that gender, as well as gender composition of the sibling dyad (same-gender, opposite-gender), are areas in need of continued exploration (Kim et al., 2006).  Preliminary analyses also demonstrated target child age differences in parental reports of coparenting behaviors.  Specifically, mothers of older children reported lower levels of promoting family integrity, and fathers of older children reported lower levels of coparenting conflict.  These findings suggest that coparenting behaviors and their importance may differ not only by parent, but also across the family life cycle, with certain behaviors being more prevalent when children are older versus younger in age.

Results of the current investigation confirmed the association between marital quality and coparenting relationship quality for fathers and partially confirmed this association for mothers.  Specifically, positive adjustment within the marital relationship was significantly and positively

associated with coparental promotion of family integrity, but significantly and negatively associated with conflict within the coparenting relationship. This finding suggests that parents who are well-adjusted in their marital relationship are more likely to function adaptively within their coparenting relationship than parents who are experiencing marital dysfunction. Interestingly, mothers' report of good marital adjustment did not significantly predict their promotion of family integrity within the coparenting relationship, but did predict lower levels of conflict within the coparenting relationship. For mothers, it could be that marital quality has a larger impact on conflict within a relationship involving their partner than with behaviors regarding cohesion and a sense of togetherness within the family unit. Overall, results regarding marital and coparenting relationship quality are in line with previous evidence that marital quality impacts how partners parent their children (Cummings & Davies, 2002; Meyers, 1999; Yu & Gamble, 2008). Current findings are consistent with family systems theory (Minuchin 1985, 1988), which predicts that qualities of relational subsystems within the family are transferred to other relational subsystems within the same family system. When partners are unsatisfied within their marriage, it is reasonable to expect they will also have difficulty functioning in joint activities, such as working together to parent children, handling disputes in front of children, and promoting a sense of family integrity. Our results corroborate this expectation.

Although some of the results regarding the association between coparenting and sibling relationship quality were in the anticipated direction, others were puzzling and warrant further empirical attention. Our finding regarding the negative association between fathers' report of coparenting conflict and children's report of warmth within the sibling relationship is consistent with previous research regarding the influence of coparenting factors (e.g., parental reports of

family cohesion or conflict in the presence of the child) on qualities of the sibling relationship (Brody et al., 1992). On the other hand, the negative association between mothers' report of coparental promotion of family integrity and children's report of warmth within the sibling relationship, as well as the positive association between mothers' report of coparental conflict and sibling warmth, are unanticipated and perplexing. These findings are more in line previous research that suggests that sibling relationships may play a "compensatory" role when conflict and dysfunction exists within other family relationships (Bank & Kahn, 1982; Bryant & Crockenberg, 1980), which has been supported by some investigators (Jenkins, 1992; Kim et al., 2006; Sheehan et al., 2004; Stocker, 1994).

Post-hoc analyses clarified some of these interesting findings and indicated that the influential aspects of the coparenting relationship on relationships between siblings differed by gender of target children. For boys, fathers' report of conflict within the coparenting relationship was the only important factor regarding warmth within the sibling relationship. Specifically, higher perceived conflict within the coparenting relationship was associated with lower warmth within the sibling relationship. For girls, the picture was more complex. Although fathers' report of their behavior promoting family integrity was the most influential in predicting girls' report of warmth within the sibling relationship, it appears that mothers' report of behavior promoting family integrity highlights this association and may make it more salient, particularly if parent perceptions of their behavior promoting family integrity differ. Additionally, reports of family integrity appeared to be most influential when differences between mother and father reports were greater. Specifically, when mothers' perceptions of their behavior promoting family integrity were higher than fathers' perceptions, siblings reported less warmth overall within sibling relationships. This finding suggests that the promotion of family integrity within

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the coparenting relationship can influence sibling warmth in different ways, especially when parents perceive their contributions differently. Results indicate that this aspect of the coparenting relationship may decrease warmth between siblings when mothers perceive themselves promoting a united front and family cohesion at a higher rate than fathers perceive themselves doing so. The current study only assessed parents' perception of their own coparenting behavior, and an important endeavor for future research will be to examine both parents' perceptions of their own behavior, as well as their partner's coparenting behavior, to better understand how differing views might impact the family system.

It is important to acknowledge that the coparenting relationship is a relatively newer construct and limited research has examined associations between coparenting and sibling relationships. A consistent body of literature has indicated that parenting variables are associated with sibling relationships (Boer at al., 1992; Cui et al., 2002; McHale et al., 2000) and often serve a mediating role in explaining associations between marital dysfunction and child outcomes (e.g., Conger et al., 1992; Conger, Ge, Elder, Lorenz, & Simons, 1994), including quality of sibling and peer relationships (Stocker & Youngblade, 1999). However, these studies utilized the constructs of parenting styles (Cui et al., 2002; McHale et al., 2000) and parent-child relationships (Boer et al., 1992), which are distinct from the conceptualization of coparenting (Cowan & McHale, 1996). The latter represents behavioral interactions between spouses rather than parent behavior towards a child. Current findings suggest that coparenting practices may affect individual parenting, which is a direct contributor to child outcomes and sibling interactions. Results from the current investigation support the unique influence and importance of the coparenting relationship within families, and more specifically, the importance of the promotion of family integrity in the development and quality of sibling relationships.

Contrary to expectation, sibling relationship quality was not associated with marital adjustment. These findings contrast with previous research that identified functioning within the marital relationship as a significant contributor to functioning within sibling relationships (Brody et al., 1992; Dunn et al., 1999; Kim, McHale, Crouter, & Osgood, 2006; Stocker et al., 1997; Yu & Gamble, 2008). The lack of significance may be due to several differences between previous research and the current study. For example, Yu and Gamble (2008) and Dunn et al. (1999) collected only maternal reports of the marital and sibling relationships, whereas the current study utilized multiple informants, which has been recommended by researchers of sibling relationships. In the former studies, it is possible that mothers' perceptions of the sibling relationship was influenced by their own marital adjustment, increasing the likelihood of significant associations between the two. Additionally, children may perceive their sibling relationships quite differently from their mothers and at this age, or in this type of family system, may not be aware of marital issues. Another possible explanation is that children's perspectives of their parents' relationship, rather than their parents', may be more instrumental in determining their report of sibling relationship quality. Rinaldi and Howe (2003) also noted differences in parental and child report of sibling conflict, and their findings suggest that insider (within the relevant subsystem) ratings may be more critical in understanding relationship quality. Alternatively, although the measure utilized in the current investigation has been validated on children as young as eight, the accuracy of child report on sibling relationships is questionable given their limited life/relationship experiences, stage of cognitive development, and the level and variability of emotional intensity inherent in sibling relationships.

Previous research reporting significant associations between marital and sibling relationships also included both observational coding and child reports of sibling relationships in

a large sample of families at both middle childhood and adolescent stages (oldest children ranged from 7 to 14 years of age) of the family life cycle (Brody et al., 1992). Utilizing diverse methods of measurement (e.g., behavioral observations, child self-report, parental report, sibling report) with larger samples and age ranges may be necessary to detect small or moderate correlations. Finally, the DAS Total Adjustment score utilized in the current investigation represents both negative and positive aspects of the marital relationship, which may not be optimal when looking at different dimensions of sibling relationships. However, further analysis of each of the DAS subscales yielded only one significant association between mothers' reports of DAS Affection and child reports of SRQ Warmth. This exception is in the anticipated direction, and more consistent with previous research.

Another feasible explanation to consider regarding differences between the results of the current study and findings of previous research is the nature of our sample. Given that our sample consisted of mostly middle- to upper-middle-class, non-clinical families, effective boundaries may exist between the marital and sibling subsystems. If appropriate boundaries have been established, spillover of emotional qualities among these subsystems and to children may be prevented. Previous research revealing differences in level of spillover within distressed and non-distressed family systems supports this interpretation (Margolin, Chistensen, & John, 1995). Our findings regarding the association between coparenting and sibling relationship quality also suggest that how partners navigate parenting together may be more influential on children than the quality of the romantic relationship between partners at this stage in the family life cycle.

*Strengths and Limitations*

The theoretical guidance of family systems theory is a notable strength of the current study, as evidenced by investigating multiple subsystems simultaneously and the inclusion of reports from multiple family members involved in the relevant subsystems of focus. The findings of the current study corroborate previous research regarding associations between the marital and coparental subsystems and also raise additional questions regarding the influence of coparenting subsystem within intact family systems. Although the current investigation contributes to existing family systems literature, it is not without limitations. Given the correlational and cross-sectional nature of our data, no causal attributions can be made. Longitudinal research will be necessary to examine and better understand variance and associations among family relationships. The exclusive use of self-reports also introduces the possibility of reporting bias, in particular, a tendency to evaluate relationships favorably would limit the variability in outcomes. Given the nature of cognitive and emotional development during middle childhood, children's reports of relationship quality may be more sensitive to fluctuations and variability related to daily situations or events. Findings of the current study may have also been influenced by the limitation inherent in the measure of conflict within the coparenting relationship, which only included two items, and may not have been sufficient in assessing the nature of conflict within this relationship.

In addition, the nonclinical, community sample of mostly young, intact families consisting of predominantly Caucasian, well-educated, middle- to upper-middle-class parents, clearly limits the generalizability of findings to similar populations. Parent reports of the marital relationship indicated a fairly well-adjusted sample of couples, with little variability in reports of parental and family functioning. Future research should examine the associations among marital,

coparenting, and sibling relationships among demographically diverse families in different stages of the family life cycle.

*Conclusion*

This study examined the associations between marital, coparental, and sibling relationships. Although results did not support the mediation hypotheses, both significant and nonsignificant results are informative and have important implications for working with families with school-aged children. Findings regarding the association between marital relationship and coparenting relationship quality confirm existing research findings and support the premises of family systems theory. In line with this finding, mental health professionals working with families need to assess and address, as needed, the functioning within these two relationships. Another therapeutic implication of this finding is the importance of parent education regarding the links between marital adjustment/functioning and interparental behaviors. The association between quality of coparenting and sibling relationships further supports the claim that the coparenting relationship plays an influential role within the family system.

The lack of association between child perception of sibling relationship quality with parental perceptions of the marital functioning also has important implications for future research and applied work. Although findings are inconsistent with previous research, perceptions and reports from family members within the subsystems of focus may more accurately represent the quality of that relationship. It is also possible that families within this sample maintained effective boundaries between marital/parental and child subsystems (e.g., children not as aware/witness to conflict within marital relationship), which could lead to less spillover of emotional qualities within the family system, or were motivated to present their families and relationships in a positive light, which would limit findings regarding conflict or dysfunction.

Additionally, findings suggest that marital functioning has less direct impact, while coparenting functioning has more direct impact on sibling relationship quality during the transitional time period of middle childhood. Mental health professionals working with families should assess boundaries between child and parental subsystems, as well as child perception/awareness of functioning within the marital and coparental relationships. Parent education regarding the importance of promoting family integrity within the coparenting relationship, of presenting a united front and promoting a sense of cohesion within the family, appears to be an essential implication of current findings. This investigation also further highlights the important and unique role the coparenting relationship plays within the family system.

Discrepancies between the findings of the current study and previous research regarding sibling relationships suggest the need for continued examination of the associations between family subsystems, family member perceptions, and methods of data collection (e.g., self-report, observations). Specifically, future investigations could incorporate multi-method and multi-informant procedures (e.g., obtaining both self-report and collateral perceptions, as well as observational data, of the subsystems of focus at different points in time and across different contexts during the family life cycle) in order to more completely understand the functioning of relationships within family systems. Given the complexity of interpersonal relationships and family systems, future research could benefit from obtaining more comprehensive measures of the subsystems of focus, rather than the cross-sectional, self-reported snapshot of current functioning. This has also been recommended by other researchers of family relationships (e.g., Structural Analysis of Social Behavior; Benjamin, 1974; Humphrey & Benjamin, 1986). Further expanding the focus from specific subsystems to the larger family context and

incorporating individual and overall family functioning would also provide a broader

understanding of the family system.

<div align="center">References</div>

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Table 1

*Means, Standard Deviations, Ranges, and Correlations of Variables*

| | (1) | (2) | (3) | (4) | (5) | (6) | (7) | (8) | (9) | (10) |
|---|---|---|---|---|---|---|---|---|---|---|
| (1) DAS Total Adjustment (Father) | -- | .55** | .56** | .30** | -.50** | -.38** | .09 | .25 | .17 | -.28 |
| (2) DAS Total Adjustment (Mother) | | -- | .34** | .29* | -.30** | -.54** | .14 | -.03 | .04 | -.09 |
| (3) CS Family Integrity (Father) | | | -- | .40** | -.07 | -.16 | -.10 | .22 | .29 | -.09 |
| (4) CS Family Integrity (Mother) | | | | -- | -.03 | -.11 | -.13 | -.30 | .16 | .02 |
| (5) CS Conflict (Father) | | | | | -- | .45** | -.31* | -.21 | .06 | .11 |
| (6) CS Conflict (Mother) | | | | | | -- | -.05 | .20 | -.15 | .19 |
| (7) SRQ Warmth (Boys) | | | | | | | -- | -- | -.72** | -- |
| (8) SRQ Warmth (Girls) | | | | | | | | -- | -- | -.33 |
| (9) SRQ Conflict (Boys) | | | | | | | | | -- | -- |
| (10) SRQ Conflict (Girls) | | | | | | | | | | -- |
| Sample Mean | 50.13 | 50.13 | 33.31 | 33.96 | 5.55 | 5.95 | 2.76 | 3.27 | 3.21 | 2.58 |
| Standard Deviation | 7.97 | 8.29 | 7.36 | 6.43 | 2.18 | 2.56 | .75 | .80 | 1.08 | .98 |
| Range | 33-70 | 27-66 | 17-49 | 15-49 | 2-11 | 2-14 | 1-3.95 | 1.7-4.7 | 1-5 | 1-4.33 |
| Norm Means | 50 | 50 | 37.75 | 39.12 | 7.11 | 6.65 | -- | -- | -- | -- |
| Possible Range | 20-151 | 20-151 | 7-49 | 7-49 | 2-14 | 2-14 | 1-5 | 1-5 | 1-5 | 1-5 |

*p < .05; **p < .01
*Note*. Norm means refer to original measure development sample means.

Table 2

*Regression Models Predicting SRQ Warmth and SRQ Conflict*

| Model | Predictor | $B$ | $t$ | $R^2\Delta$ |
|---|---|---|---|---|
| 1a. SRQ Warmth | Step 1: Target Child Gender[a] | -.31** | -2.76 | .09 |
| | Step 2: Target Child Gender | -.29* | -2.54 | .02 |
| | DAS Total Father | .14 | 1.02 | |
| | DAS Total Mother | .02 | .13 | |
| 1b. SRQ Conflict | Step 1: Target Child Gender[a] | .28* | 2.53 | .08 |
| | Step 2: Target Child Gender | .28* | 2.43 | .00 |
| | DAS Total Father | .00 | .00 | |
| | DAS Total Mother | .00 | .00 | |
| 2a. SRQ Warmth | Step 1: Target Child Age[a] | .07 | .59 | .10 |
| | Target Child Gender[a] | -.30* | -2.68 | |
| | Step 2: Target Child Age | -.04 | -.33 | .14 |
| | Target Child Gender | -.32** | -2.98 | |
| | CS Family Integrity Father | .14 | 1.15 | |
| | CS Family Integrity Mother | -.25* | -2.11 | |
| | CS Conflict Father | -.33** | -2.70 | |
| | CS Conflict Mother | .19 | 1.59 | |
| 2b. SRQ Conflict | Step 1: Target Child Age[a] | .05 | .43 | .08 |
| | Target Child Gender[a] | .29* | 2.54 | |
| | Step 2: Target Child Age | .11 | .89 | .03 |
| | Target Child Gender | .32* | 2.69 | |
| | CS Family Integrity Father | .13 | 1.03 | |
| | CS Family Integrity Mother | .06 | .49 | |
| | CS Conflict Father | .10 | .76 | |
| | CS Conflict Mother | .00 | -.03 | |

*$p < .05$; **$p < .01$
[a] Control variable determined by preliminary analyses.

Table 3

*Regression Models Predicting CS Family Integrity and CS Conflict*

| Model | Predictor | | $B$ | $t$ | $R^2\Delta$ |
|---|---|---|---|---|---|
| 3a. CS Family Integrity Father | | DAS Total Father | .54** | 4.60 | .32 |
| | | DAS Total Mother | .05 | .40 | |
| 3b. CS Family Integrity Mother | Step 1: | Target Child Age[a] | -.23* | -2.02 | .05 |
| | Step 2: | Target Child Age | -.25* | -2.28 | .12 |
| | | DAS Total Father | .20 | 1.51 | |
| | | DAS Total Mother | .20 | 1.57 | |
| 3c. CS Conflict Father | Step 1: | Target Child Age[a] | -.24* | -2.11 | .06 |
| | Step 2: | Target Child Age | -.24* | -2.40 | .25 |
| | | DAS Total Father | -.49** | -5.07 | |
| | | DAS Total Mother | -.02 | -.15 | |
| 3d. CS Conflict Mother | | DAS Total Father | -.12 | -1.04 | .31 |
| | | DAS Total Mother | -.48** | -5.52 | |

*p < .05; **p < .01
[a] Control variable determined by preliminary analyses.

Table 4
*Full Regression Model Predicting SRQ Warmth*

| Model | Predictor | $B$ | $t$ | $R^2\Delta$ |
|---|---|---|---|---|
| 4. SRQ Warmth | Step 1: Target Child Age[a] | .07 | .59 | .10 |
| | Target Child Gender[a] | -.30* | -2.68 | |
| | Step 2: Target Child Age | .07 | .59 | .02 |
| | Target Child Gender | -.29* | -2.47 | |
| | DAS Total Father | .14 | 1.04 | |
| | DAS Total Mother | .01 | .09 | |
| | Step 3: Target Child Age | -.05 | -.43 | .14 |
| | Target Child Gender | -.27* | -2.30 | |
| | DAS Total Father | .04 | .27 | |
| | DAS Total Mother | .21 | 1.37 | |
| | CS Family Integrity Father | .08 | .54 | |
| | CS Family Integrity Mother | -.29* | -2.37 | |
| | CS Conflict Father | -.30* | -2.13 | |
| | CS Conflict Mother | .30* | 2.14 | |

*p < .05; **p < .01
[a] Control variable determined by preliminary analyses.

Table 5

*Regression Model 2a Predicting SRQ Warmth Separated by Gender*

| Model | Predictor | *B* | *t* | $R^2\Delta$ |
|---|---|---|---|---|
| 2a. SRQ Warmth (Boys) | Step 1:  Target Child Age[a] | .05 | .31 | .00 |
| | Step 2:  Target Child Age | -.07 | -.44 | .16 |
| | CS Family Integrity Father | -.07 | -.39 | |
| | CS Family Integrity Mother | -.23 | -1.30 | |
| | CS Conflict Father | -.43* | -2.41 | |
| | CS Conflict Mother | .08 | .44 | |
| 2b. SRQ Warmth (Girls) | Step 1:  Target Child Age[a] | .09 | .49 | .00 |
| | Step 2:  Target Child Age | -.05 | -.30 | .31 |
| | CS Family Integrity Father | .38* | 2.17 | |
| | CS Family Integrity Mother | -.38 | -1.92 | |
| | CS Conflict Father | -.32 | -1.62 | |
| | CS Conflict Mother | .32 | 1.64 | |

*p < .05; **p < .01
[a] Control variable determined by preliminary analyses.

APPENDIX A

EXTENDED LITERATURE REVIEW

Introduction

Sibling relationships are often the most long-standing relationships in life, yet also one of the least studied within the family system. A growing body of research demonstrates the influence, both positive and negative, that sibling relationships can have on overall development in childhood (see Brody, 1998; Volling, 2003 for reviews). Numerous links have been established between interactions with siblings and childhood development in social, emotional, and cognitive realms (Brody, 2004; Dunn, 2007). Research with siblings has also demonstrated that the quality of these relationships may have an influence on long-term adjustment (Bank, Patterson, & Reid, 1996) and plays an important role in family functioning and child outcomes (Yeh & Lempers, 2004). The impact sibling relationships can have on child development and later adjustment supports the continued investigation of these relationships and factors that may impact their quality and functioning.

Within the framework of family systems theory (Minuchin, 1985, 1988), families are viewed as complex systems consisting of multiple subsystems that interact and influence each other and impact overall family functioning. Sibling relationships do not develop in isolation, and research has demonstrated the significant contributions of the marital relationship (Dunn et al., 1999), the parent-child relationship (Boer, Goedhart, & Treffers, 1992; McHale, Updegraff, Tucker, & Crouter, 2000), as well as parenting styles (Cui, Conger, Bryant, & Elder, 2002; McHale et al., 2000), on the development and quality of sibling relationships. Increased understanding of the links and complex interactions between family subsystems is an important endeavor in family systems research, and more research is needed regarding the nature of relationships and influence among family subsystems (Dunn, Deater-Deckard, Pickering, Golding, & the ALSPAC Study Team, 1999; Parke et al., 2001).

Although identified as an important subsystem within the family, the coparenting relationship (Cowan & McHale, 1996; McHale, 1997) and its contributions to the development of sibling relationships has received little research attention.  The coparenting relationship refers to the interaction and coordination between caregivers revolving around the task of parenting.  Ideally, the coparenting subsystem is mutually supportive and cooperative, such that it provides an important, positive family context in which children develop.  Conversely, evidence suggests that negative and unsupportive coparenting behavior is associated with problematic child outcomes similar to outcomes linked to marital conflict (McHale & Cowan, 1996).  Important connections have been established between the functioning of the coparenting relationship and aspects of child and parent adjustment, parenting behavior, and later child outcomes (see Feinberg, 2003 for review).  The proposed study seeks to expand research regarding the coparenting subsystem and the possible implications it has for the development of the sibling relationship.

Middle childhood represents an important developmental and transitional time period for both children and families that has been relatively understudied according to recent reviews (Huston & Ripke, 2006a).  Advancements in cognitive and social skills, as well as the expansion of children's developmental and environmental contexts from family to school and peers, have important implications for families and childhood relationships.  Given the changes that take place among subsystem interactions (Collins, Madsen, & Susman-Stillman, 2002) and the influence family functioning can have on later child adjustment (Johnson, 2003), continued investigation into subsystem functioning and quality of family relationships during this developmental period is warranted.  In particular, the sibling subsystem provides an important context for child development (Furman & Buhrmester, 1985; McGuire, Manke, Eftekhari, &

Dunn, 2000).  Research highlighting other family processes and subsystem functioning involved in the development of sibling relationships is needed in order to increase our understanding of the family system during middle childhood.

The proposed study seeks to extend research by investigating the contributions of interparental interactions (both marital and coparental) to the quality of sibling relationships during the transitional period of middle childhood.  Drawing on the framework provided by family systems theory, it is expected that both the marital and coparental subsystems will contribute to the quality of the sibling subsystem, and that the coparenting relationship will play a mediating role in the association between the quality of the marital relationship and the quality of the sibling relationship.  The remainder of this chapter will present the overarching family systems framework, reporting relevant research on each of these subsystems (marital, parenting and specifically coparenting, and sibling), with a particular focus on sibling relationships and the middle childhood.

*Families as Systems*

A conceptual framework that can guide developmental research is family systems theory (Minuchin, 1985, 1988), which focuses on the interdependent and mutually influential aspects of familial relationships.  Within the context of the family system, there exist multiple subsystems that comprise members of the family in different combinations (i.e., marital, coparental, parent-child, sibling).  These subsystems interact and influence each other in complex and dynamic ways that are regulated by implicit rules and patterns to maintain balance and homeostasis (i.e., status quo) within the family.  Family systems theory also takes into account the developmental trajectories of individual family members, relationships among family members, and family life cycle transitions (e.g., a new child being born, a child starts school or leaves for college).

Throughout the family life cycle, the interactions among members and subsystems evolve, and their respective boundaries are hypothesized to shift and change as a result of developmental or environmental factors. Family systems theory provides an overarching framework for examining complex, simultaneous interactions and influences within families and relationships.

The nature of relationships and influence among family subsystems remains an area that needs more attention and has produced inconsistent results (Dunn, Deater-Deckard, Pickering, Golding, & the ALSPAC Study Team, 1999; Minuchin, 1985, 1988; Parke et al., 2001). While developmental research historically has focused almost exclusively on the mother-child dyad, more recently family researchers have expanded their focus to other subsystems and their impact on child development (Cowan & Cowan, 2002; Cowan & McHale, 1996; Davies, Cummings, & Winter, 2004). For example, Davies and Cummings (1994) proposed the *emotional security hypothesis*, which examines child development and well-being within the broad context of family processes. Specifically, this hypothesis focuses on many aspects of family functioning (e.g., interparental conflict, parent-child attachment, coparenting processes, etc.) that impact the development of children's well-being and their sense of security in the family. Research supporting the emotional security hypothesis has demonstrated that consideration of multiple family processes, including sibling relationships, is essential for complete understanding of child development and associations between the family system and child functioning (Cummings, Goeke-Morey, & Papp, 2002; Davies et al., 2004; Davies, Harold, Goeke-Morey, & Cummings, 2002). Findings also support the view that emotion within family subsystems is reciprocal and interdependent, such that emotional qualities and behavior in one subsystem likely have important implications for the emotional and relationship qualities in other family subsystems (Cummings et al., 2002).

Another related hypothesis regarding the interaction between subsystems, which has been supported by research and also informs the current study, is that of the *spillover hypothesis* (Engfer, 1988; Erel & Burman, 1995; Pike, Coldwell, & Dunn, 2005). This hypothesis suggests that qualities of one relational subsystem (e.g., emotional, behavioral) influence or are transferred to other relational subsystems within the same family system. Examining the quality of emotional relationships in the context of multiple family subsystems is important to increase our understanding of complex family systems and their impact on child development.

Recent research highlights the pathways by which family subsystems influence each other, which can be direct, indirect, or mutually influential (Dunn et al., 1999; Parke et al. 2001; Yu & Gamble, 2008). Many factors and subsystems are involved in the development of the quality of relationship between siblings. Studies have demonstrated associations between marital quality (Dunn et al., 1999), parent-child relationship quality (Boer et al., 1992; McHale et al., 2000), parenting styles (Cui et al., 2002; McHale et al., 2000), and sibling relationships. Both the marital and parental subsystems have been identified as important contributors to the sibling relationship and sibling interactions.

*Marital Subsystem*

It is well understood that in intact families the marital subsystem plays a crucial role in the effective functioning and interaction of the family system. As purported by family systems theory and in line with the spillover hypothesis, conflict within the marital subsystem impacts other family subsystems, general family functioning, and child outcomes. Many researchers have demonstrated the consequences of marital conflict on children within the family. Aside from negatively influencing how a child deals with conflict in general (Katz & Gottman, 1993; Reese-Weber, 2000), researchers have also demonstrated that marital conflict has a detrimental

impact on adjustment in childhood (Harold & Conger, 1997) and the quality of the parent-child relationship (Kerig, Cowan, & Cowan, 1993).  In a review of related research, marital dysfunction consistently emerged as a risk factor for child behavioral and psychological problems (Grych & Fincham, 1990).  Marital functioning can also impact the quality of relationships the child has with others, especially relationships with peers (Stocker & Youngblade, 1999) and siblings (Conger, Stocker, & McGuire, 2009; Stocker & Youngblade, 1999).  In fact, research has established marital that relationships and functioning is an important factor in the socialization of the children within their families (Cowan & Cowan, 2002).

*Marital functioning and parenting.* The marital subsystem and quality of the marital relationship has been shown to impact how partners parent their children (Cummings & Davies, 2002; Meyers, 1999; Yu & Gamble, 2008).  In line with family systems theory, conflict within the marital subsystem inevitably impacts the family environment and other subsystems within the family.  When partners are at odds with each other, it is reasonable to expect they will also have difficulty in joint activities, such as parenting and negotiating discipline for their children. This research also supports the spillover hypothesis, as qualities of the marital relationship impact parenting and transfer to the parent-child relationship.  Meyers (1999) demonstrated that maternal marital satisfaction was significantly correlated with authoritative parenting behavior. On the other hand, mothers who experienced stressors related to their overall adjustment and within their relationships demonstrated more insensitivity in their parenting behaviors than mothers who reported less stressors in those areas.  In a study involving families with preschool-age children, Katz and Low (2004) found that marital conflict and violence were associated with less supportive and less positive parenting behaviors.  Stocker and Youngblade (1999) also found an association between marital dysfunction and hostile parenting behavior.  In addition,

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Richmond and Stocker (2008) demonstrated that the context of marital conflict influenced associations between parent hostility and child externalizing behavior.

Additional support has been found for the spillover hypothesis through meta-analytic reviews in relation to conflict within the marital subsystem and a negative or less effective parental subsystem (Erel & Burman, 1995; Krishnakumar & Buehler, 2000; McHale, 1995). Dunn et al. (1999) demonstrated that conflict within the marital relationship was associated with negative parent-child relationships over a four-year period. Meta-analytic reviews confirm associations between marital discord and dysfunctional parent-child relationships (Cox, Paley, & Harter, 2001). These findings provide the rationale for investigating subsystems concurrently to better understand pathways of influence and relationship dynamics that may be involved in the development and emotional quality of the sibling subsystem.

Given evidence that marital conflict deleteriously affects parenting, it is not surprising that research also indicates links between marital dysfunction and children's behavioral and emotional problems. In a longitudinal study involving families with children in middle childhood, Richmond and Stocker (2008) found that marital conflict moderated the association between parental hostility and child externalizing problems. Specifically, the association between maternal hostility and externalizing behavior problems was stronger in families with high levels of marital conflict. Harold and Conger (1997) reported similar findings in their study of families with adolescents. Specifically, marital conflict was related to parental hostility and adolescent awareness of conflict, and adolescent perception of parental hostility predicted their internalizing and externalizing difficulties when controlling for earlier distress.

Differences in parental response to marital conflict may also have a detrimental impact on child functioning. Research suggests that gender differences in parental response to marital

conflict may influence how partners interact with their children.  For example, fathers tend to

withdraw from the family in the context of marital dysfunction (Gottman, 1994; Wang & Crane,

2001).  Kerig et al. (1993) also found that fathers in conflicted marriages demonstrated high

levels of negativity towards their daughters, which in turn was associated with daughters'

noncompliance.  Mothers who were dissatisfied in their marriages were more likely to be

unaccepting of assertiveness from their daughters and to reciprocate negativity towards their

sons.

*Marital functioning and sibling relationships.*  Research has revealed the influence the

marital subsystem can have on the sibling subsystem.  Consistent with the spillover hypothesis,

researchers have shown that conflict within a marriage often leads to hostility, conflict, and

emotional distance between siblings (Dunn et al., 1999; Hetherington & Clingempeel, 1992;

Hetherington, Henderson, & Reiss, 1999; Stocker & Youngblade, 1999).  More recently, Yu and

Gamble (2008) further demonstrated that quality of the marital relationship has a direct impact

on the quality of sibling relationships.  In a sample of families with children in middle childhood,

Stocker and Youngblade demonstrated that conflict within the marital subsystem was associated

with less warmth and increased rivalry and conflict within sibling relationships.  In a longitudinal

community study regarding family relationships, Dunn et al. (1999) reported that differences in

sibling relationship quality were related to both marital and parent-child relationship quality

through direct and indirect pathways.  Specifically, lower levels of affection and higher levels of

hostility within the marital relationship were related to negativity in the sibling relationship four

years later.  Conversely, marital affection was related to later friendliness within the sibling

relationship.  These associations between marital and sibling relationships emerged in both direct

and indirect pathways via the parent-child relationship. Dunn et al. emphasized the importance of

looking at different family subsystems simultaneously and seeking to understand pathways of influence.

Along the same lines, maternal marital dissatisfaction has been linked to sibling relationships characterized by rivalry and hostility (Stocker, Ahmed, & Stall, 1997). On the other hand, high levels of marital satisfaction and low levels of marital conflict are associated with cohesion in the sibling relationship and lower levels of conflict between siblings (Brody, Stoneman, & McCoy, 1994a; Brody, Stoneman, McCoy, & Forehand, 1992; Dunn et al., 1999; Yu & Gamble, 2008). In another study of family relationships from middle childhood to adolescence, Brody et al. (1994a) reported that parents of sibling pairs characterized as harmonious reported higher marital satisfaction, more positive emotional climates in their families, and less interparental conflict than parents of siblings characterized as typical or conflicted. Brody et al. (1992) also reported that higher marital quality was related to child report of lower levels of sibling conflict.

In line with the spillover hypothesis, the ways in which the marital subsystem interacts around and negotiates conflict may impact how the sibling subsystem attempts to resolve conflict. In adolescence, conflict resolution skills demonstrated between parents and between parents and their adolescent children had important implications for how conflict was managed within sibling relationships (Reese-Weber, 2000). Reese-Weber reported that attack and compromise conflict resolution styles were correlated among marital, parent-child, and sibling subsystems, and that parent-child conflict resolution mediated the association between interparental and sibling conflict resolution.

*Parenting Subsystem*

Mothers and fathers are simultaneously members of multiple family subsystems, and research examining not only the marital subsystem, but also the parenting subsystem is essential to illuminate processes involved in family systems (Minuchin, 1985, 1988). Although these subsystems overlap due to the inclusion of the same members, Cowan and McHale (1996) emphasize the importance of considering the influence of the parenting and coparenting subsystems, independent from those of the marital relationship. Research is somewhat scarce regarding the newer construct of coparenting, but links between parenting styles and parent-child relationships with children's functioning and sibling relationships have been established.

*Parenting and child outcomes.* Research generated by the emotional security hypothesis has led to important findings regarding parenting processes and their association with child adjustment. Parental factors such as hostility and rejection have been shown to play a mediational role in the association between marital conflict and child adjustment (Gonzales, Pitts, Hill, & Roosa, 2000; Stocker & Youngblade, 1999). Gonzales et al. (2000) examined the effects of interparental conflict on child adjustment by way of children's perceptions of parenting behavior. They found that higher levels of interparental conflict was associated with children's perceptions of lower levels of parental acceptance and higher levels of inconsistent discipline and hostile control. In turn, children's perceptions of parenting behavior were associated with children's self-reported depression and conduct problems. In their study, children's perceptions of discipline and parenting strategies mediated the negative impact of interparental conflict on child maladjustment. Davies et al. (2004) also demonstrated the influential role of broad family relational patterns in child outcomes. To assess these broad relational patterns, these researchers included measures of marital, coparenting, and parent-child subsystem functioning, all of which

were deemed important indicators of family relational functioning. Their findings provide further support for assessing multiple subsystems simultaneously, as well as for assessing the coparenting relationship within the family system.

*Parenting styles and childhood relationships.* Although research has been limited, there is some evidence that parenting styles have an impact on the quality of childhood relationships, including sibling relationships. According to Darling and Steinberg (1993), parenting styles, or the group of attitudes and behaviors displayed by parents towards children in the effort to socialize them, influence the emotional climate of the family system. Supportive or hostile parenting has been show to predict sibling relationships characterized by support and warmth or conflict, respectively (Cui et al., 2002; McHale et al., 2000), as well as peer relationships (Cui et al., 2002). In their longitudinal study of families with adolescents, Cui et al. demonstrated that supportive parental behaviors predicted their adolescent child's supportive peer behavior and positive peer relationships four years later. Stocker et al. (1997) found that mothers' positive and negative emotional expressiveness was correlated with their children's affectionate or hostile sibling relationships, respectively. Hostile parenting has also been shown to mediate the link between marital conflict and problematic peer and sibling relationships in middle childhood (Stocker & Youngblade, 1999). In addition, parental negativity has been associated with more conflict and less cooperation in early childhood twin interactions, while parental positivity has been associated with increased cooperation and less conflict in sibling interactions (Lemery & Goldsmith, 2002). Both of these associations were demonstrated above and beyond the associations found between child temperament and cooperation and conflict in sibling relationships.

Along similar lines, positive, authoritative parenting styles have been directly linked with increased closeness within sibling relationships (Yu & Gamble, 2008). The findings of Yu and Gamble also indicate a possible bidirectional and mutually influential nature that may characterize the pathways between parenting and sibling relationship quality. Other researchers have hypothesized the mutually influential aspect of family subsystems as well (Minuchin, 1985, 1988; Dunn et al., 1999). On the other hand, according to national surveys, parents' use of physical punishment is associated with higher levels of sibling conflict (Straus & Gelles, 1988). In line with this, punitive parenting is associated with increased coercive or aggressive behaviors amongst siblings (Brody, 1998). According to results from a study with families of children in early childhood (ages four to eight), harsh parental discipline and low parental warmth was linked to poor sibling relationships (Kretschmer & Pike, 2009). As demonstrated by these findings, parenting practices can have a significant impact on the nature and quality of sibling relationships.

*Parent-child relationships and sibling relationships.* Pathways of influence between parent-child relationships and sibling relationships have also been noted in recent research. Dunn et al. (1999) demonstrated that parent-child relationships mediated the association between marital and sibling relationships. Specifically, lack of affection and hostility in the marital relationship was directly associated with parent-child negativity and indirectly associated with negativity in the sibling relationship. Additionally, parent-child negativity was directly associated with negativity in the sibling relationship. In support of the spillover hypothesis, Boer et al. (1992) demonstrated the congruence often found in parent-child and sibling relationships in middle childhood within family systems. Research has shown that negative parent-child interactions predict more conflict between twin siblings (Lemery & Goldsmith, 2002), as well as

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increased aggressive interactions among siblings (Brody, 1998; Brody, Stoneman, & McCoy, 1987; Stocker, Dunn, & Plomin, 1989; Volling & Belsky, 1992). Other researchers have also demonstrated the association between hostile and coercive parent-child relationships and sibling relationships characterized by aggression and conflict (Patterson, 1982; Patterson, Reid, & Dishion, 1992). In a three-part longitudinal study of family relationships (oldest sibling as infant, 3 years, and 6 years of age), Volling and Belsky found associations between levels of sibling conflict and both maternal-child and paternal-child relationships. Specifically, an insecure infant-mother attachment, and later controlling maternal behavior and conflict between mother and child predicted higher levels of conflict and antagonism between siblings. On the other hand, paternal facilitative play and paternal affection towards the older sibling predicted higher levels of prosocial behavior between siblings. Noller, Feeney, Peterson, and Sheehan (1995) demonstrated associations between parent-child quality of communication regarding conflict and sibling-sibling quality of communication regarding conflict.

Research has also established links between parent-child relationships characterized by rejection or neglect and sibling conflict (Bryant & Crockenberg, 1980; MacKinnon-Lewis, Starnes, Volling, & Johnson, 1997). MacKinnon et al. found that maternal rejection was associated with greater observed and reported aggression in sibling interactions during middle childhood. Reese-Weber (2000) demonstrated that parent-adolescent conflict resolution skills (e.g., attack or compromise styles) mediated the association between interparental conflict and sibling conflict resolution skills. On the other hand, warmth between parents and children has been linked to closeness (McHale et al., 2000) and prosocial behavior in sibling relationships (Boer et al., 1992). In a longitudinal study of sibling relationships from middle childhood to adolescence, Brody, Stoneman, and McCoy (1994b) found that positive relationships with

fathers in middle childhood predicted more positive relationships with siblings in adolescence. This finding also highlights the importance of considering both parents in investigations of family dynamics.

*The coparenting relationship.* Coparenting refers to the interaction, communication, and coordination between caregivers, usually parents, regarding raising children and dealing with common parenting and childrearing issues, such as discipline and involvement with children (Cowan & McHale, 1996). McHale (1997) identified important processes and behaviors involved in the coparenting relationship, both overt and covert: (a) processes that provide a sense of family integrity, (b) conflict between parents in front of the child, (c) mostly covert disparagement or undermining of the other parent within parent-to-child communication, and (d) joint behaviors involved in the discipline and reprimanding of children. The coparenting relationship, which is ideally mutually supportive and cooperative, provides another context in which children in the family can view and learn about interpersonal interactions, communication, and conflict resolution. Cowan and McHale (1996) asserted that "a well-functioning coparental relationship accomplishes parenting tasks but also conveys to the child a sense of solidarity and common purpose" (p.99). Although early research on the construct of coparenting was typically associated with post-divorce families, recent researchers have encouraged a broader perspective of the construct as a relevant process that impacts family and individual functioning (Doherty & Beaton, 2004). Recent reviews of the research on coparenting support its continued investigation and the important influence it has on parenting behavior, as well as parent and child adjustment and family functioning (Feinberg, 2003).

Research has demonstrated the complex interactions that occur between the coparenting relationship and other relationships within the family system, as well as the important role the

dynamics of the coparenting relationship may play in relation to other family and relationship dynamics.  In support of the spillover hypothesis, negative marital processes are often linked with negative coparenting processes (Katz & Gottman, 1996; McHale, 1995).  Conflict within the marital relationship is likely to translate into unsupportive or hostile interactions when the couple attempts to parent children, which in turn can impact other relational subsystems within the family.  Utilizing samples of families with children of different ages, Margolin, Gordis, and John (2001) showed that quality of the coparenting relationship mediates the effect of marital relationship quality on parent-child relationships.  Specifically, conflict within marital relationship "spills over" into the coparenting relationship, which in turn impacts the quality of the parent-child relationship.  Given these findings, it is reasonable to expect that similar spill over effects may exist between the coparenting relationship and other elements of the family system, such as the sibling subsystem, as well.

The functioning of the coparenting relationship has important implications for child outcomes.  Research has revealed that hostile coparenting has a direct impact on negative child emotional outcomes, and may mediate the impact of marital conflict and violence on childhood emotional problems such as depression and anxiety (Katz & Low, 2004).  Other findings suggest links between childhood behavior problems and unsupportive or hostile coparenting (Belsky, Putnam, & Crnic, 1996; McHale & Rasmussen, 1998).  In their longitudinal study of parenting behavior and child adjustment, Belsky et al. (1996) found that observations of undermining coparenting behavior in family interactions predicted increased child behavior problems a year later.  In another longitudinal study of coparenting behavior and later child adjustment, McHale and Rasmussen (1998) demonstrated that hostile and competitive coparenting behaviors during infancy were associated with increased child aggression per teacher reports at age four.

Research has also revealed links between unsupportive coparenting and childhood social adjustment (McHale, Johnson, & Sinclair, 1999). McHale et al. also identified the functioning of the coparenting relationship as an important family process of which children are aware and which influences their representation of family cohesiveness. The majority of research presented on coparenting was conducted in families with children in early childhood, but similar associations between coparental conflict and childhood maladjustment have been identified in school-age children (McConnell & Kerig, 2002; Brody, Stoneman, Smith, & Gibson, 1999). Utilizing an observational measure of coparenting, McConnell and Kerig found associations between coparenting behavior and child adjustment that differed by gender. For boys, observations of hostility and competitiveness within the coparenting relationship were associated with self-reported anxiety, as well as mother-reported internalizing and externalizing behavior problems. For girls, observations of discrepancy among parental warmth and investment were associated with mother-reported internalizing problems. Although the impact of the coparenting relationship may differ by gender, the links between coparenting relationship quality and child adjustment further support continued examination of the coparenting relationship and its association with the functioning of other family relationships.

Despite research indicating that the coparenting relationship is an important contributor to family dynamics, direct links between the coparenting relationship and sibling relationships have not received much research attention. Yu and Gamble (2008) did not specifically investigate the impact of coparenting factors, but they demonstrated direct pathways of influence between qualities of the marital relationship, which included a measure of coparenting, and qualities of the sibling relationship. Similarly, Brody et al. (1992) did not look specifically at the coparenting relationship as a whole, but they found that parental report of low levels of overt

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(i.e., in the presence of children) interparental conflict, which represents an aspect of coparenting, was associated with less negative behavior between siblings. However, no research was found that looked at direct associations between coparenting and sibling relationships.

Sibling Subsystem

Within the framework of family systems theory, siblings play an important role in family functioning, as well as an important role in childhood development and adjustment (Yeh & Lempers, 2004). Sibling relationships are characterized by emotional intensity and reciprocity, as well as ambivalence, often involving considerable support and antagonism throughout development (Dunn, 2002). Despite these common themes, research with siblings has indicated striking differences in how siblings relate to and interact with each other (Boer & Dunn, 1992). The quality of sibling relationships ranges from constant conflict, to relatively harmonious and positive interactions, to a combination of both (Dunn & Davies, 2001). Although these individual differences have been established, the development of sibling relationship quality and the factors that promote harmonious or conflictual interactions, including the other relational subsystems involved, represent an area that has not received much research focus.

*Sibling relationships and child outcomes.* Multiple child outcomes have been associated with the quality of childhood sibling relationships. For example, in their longitudinal study of siblings from middle childhood through adolescence, Kim, McHale, Crouter, and Osgood (2007) found that closeness between siblings in middle childhood was associated with better adjustment in adolescence (e.g., greater peer competence), whereas conflict between siblings in middle childhood was associated with poorer adjustment in adolescence, including higher levels of depressive symptoms. Research has also demonstrated associations between childhood sibling relationship quality and levels of adjustment as measured by self-reported self-esteem, anxiety,

and depression three weeks later (McHale & Gamble, 1989) and behavior problems three years later (Stocker, 1993). Modry-Mandell, Gamble, and Taylor (2007) also revealed the link between positive sibling relationships and children's overall adjustment to a preschool program. Results of their study indicated that warmth between siblings was a significant predictor, after controlling for several other family factors, of later positive adjustment (fewer behavior problems and higher levels of child adaptation) as reported by both mothers and teachers. On the other hand, negative sibling relationships have been associated with negative outcomes, such as increased behavior problems (Dunn, Slomkowski, Beardsall, & Rende, 1994). Additionally, aggressive and/or violent sibling relationships have been shown to deleteriously affect later adult relationships and general mental health (Bank & Kahn, 1982, 1997; Graham-Bermann, Cutler, Litzenberger, & Schwartz, 1994).

Although the majority of the above research highlights the benefits of close sibling relationships for younger siblings, older siblings also reap the benefits of positive sibling relationships. Research has highlighted the reciprocal nature of teaching and learning amongst close siblings in early and middle childhood (Howe & Recchia, 2005, 2009), which may lead to enhanced cognitive functioning for all involved. Regarding older sibling adjustment, Pike et al. (2005) demonstrated that positive sibling relationships were associated with parental reports of older siblings' increased prosocial behavior and less overall difficulties. Similarly, in a longitudinal study that spanned early childhood through adolescence, Kramer and Kowal (2005) found that positive sibling relationships in early childhood predicted improved well-being in adolescence and fewer externalizing behavior problems for older siblings. Yeh and Lempers (2004) also demonstrated that perceived positive sibling relationships are associated with higher

self-esteem and less maladaptive feelings or behaviors (e.g., depression, substance use) in adolescence.

Additionally, sibling relationships characterized by warmth and closeness have been shown to provide a buffering or protective shield in the lives of those who come from stressful home environments (Caya & Liem, 1998; East & Rook, 1992; Jenkins & Smith, 1990; Lockwood, Gaylord, Kitzmann, & Cohen, 2002). According to Lockwood et al., having a sibling provided a buffer from behavioral problems for children whose families experienced high levels of stress. Specifically, children under high stress with siblings demonstrated less aggression and disruption in school than children under high stress without siblings. In a longitudinal study conducted prior to and following exposure to stressful life circumstances, affectionate sibling relationships were shown to be a protective factor against changes in internalizing problems (Gass, Jenkins, & Dunn, 2007).

*Sibling relationships and socialization.* Sibling relationships can play an important role in socialization, often providing the first introduction to a social environment outside of the parental context and yet another important family context for learning, understanding, and interacting with others. As an example, children with siblings have been shown to have improved competence in social interactions (Dunn, 2000; Stormshak, Bellanti, & Bierman, 1996) and better understanding of other people's emotions (Dunn, 1998; Dunn, Brown, Slomkowski, Tesla, & Youngblade, 1991; Howe, 1991). Due to the inclination of older siblings to instruct and guide younger siblings, children who have older siblings often have more opportunities to learn and master certain tasks (Azmitia & Hessor, 1993).

The quality of the relationship between siblings has important implications for the type of social context it provides. Social skills, emotional understanding, and self-disclosure are all

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important in the development of close, intimate relationships with others.  Within a warm and positive sibling relationship, a mutual context is provided for the development of those social skills (Noller, 2005), as well as general emotional understanding and ability to self-disclose (Howe, Aquan-Assee, Bukowski, Lehoux, & Rinaldi, 2001).  Howe et al. (2001) found that warmth in the sibling relationship was associated with higher levels of self-disclosure and emotional understanding within those relationships.

In general, findings have shown that sibling relationships in middle childhood characterized by moderate levels of warmth and conflict were associated with higher levels of social adjustment than sibling relationships characterized by high levels of conflict (Stormshak et al., 1996).  Close childhood sibling relationships have been associated with positive functioning in adolescent peer relationships (Yeh & Lempers, 2004; Tseung & Schott, 2004).  Updegraff, McHale, and Crouter (2007) also found younger siblings' reports of intimacy within their relationship to their older siblings to be positively associated with reports of intimacy within their close friendships.  Relationship quality between siblings can also have important implications for children's social understanding and their conflict resolution strategies, with more positive sibling relationships associated with improved conflict resolution skills (Recchia & Howe, 2009).

On the other hand, conflict and antagonism within sibling relationships has been linked with poor peer relationships (Mackinnon et al., 1997) and lower levels of social adjustment (Stormshak et al., 1996).  In their study involving siblings in middle childhood, Mackinnon et al. demonstrated that boys who reported aggressive sibling interactions were more aggressive and less accepted by their same-age peers than those who did not report aggressive sibling

interactions.  Sibling aggression was also found to mediate the association between maternal

rejection and reports of aggression in peer interactions.

*Middle Childhood*

Varying definitions of middle childhood appear in the literature.  The upper limit is

usually age 12, but the lower limit ranges from as early as age 6, when of school age, to narrower

windows of 8 to 12 years or 10 to 12 years.  For the purpose of this study, middle childhood is

defined by the ages of 8 to 12 years old.  Numerous developmental changes take place during

this transition between childhood and adolescence, such as physical maturation, increasing

personal autonomy, increased involvement with external peer groups, and advancement in

cognitive and learning abilities.  Despite these changes and the implications many of them have

for later outcomes, this time period is relatively understudied in developmental research (Huston

& Ripke, 2006a).  Middle childhood represents a transitional period in families in which shifts

and changes among subsystem interactions take place, including within sibling relationships,

parent-child relationships, and general family functioning (Collins et al., 2002; Minuchin, 1988).

The expanding social environment of peers and school, along with its new demands and

opportunities, allows for a demonstration of the interpersonal skills children have hopefully

learned from the family system.  Although these broader social interactions begin to take place,

the family system still remains an important context for child development and an important area

for further research.  In fact, Johnson (2003) demonstrated that observations of family cohesion

during middle childhood were linked with later improved adjustment of children within those

families.

Along with increased cognitive and abstract reasoning abilities, and the expanding social

context during middle childhood comes advancement in social cognition and competence.  At

this age, children demonstrate more accurate evaluations of others (Malloy, Yarlas, Montvilo, & Sugarman, 1996), better understanding of psychological traits (Heyman & Gelman, 2000), and increased ability to take on the perspectives of others and understand others' behavior (Crick & Dodge, 1994; Dunn & Slomkowski, 1992). Improved abilities in cooperation (Ladd & Pettit, 2002) and conflict resolution (Parker & Gottman, 1989) with peers are also evident in middle childhood. Competence with peers and in social interactions during middle childhood has important implications for later adolescent and adult outcomes within social and achievement contexts (Huston & Ripke, 2006b). The advancement in social competence during this developmental transition inevitably leads to changes in relationships, within and outside of the family system.

Important transitions take place within the parent-child relationship and parenting behavior during this time period. New demands on and expectations of both parents and children are introduced as cognitive and social developments take place. Once their children enter school, parents report interacting less than half as much with them as they did prior to school (Hill & Stafford, 1980). Despite this shift, parents still serve as an important source of emotional support and attachment during middle childhood (Kerns, Tomich, & Kim, 2006). As expectations and the capacity for self-regulation increases, there is typically a decrease in the frequency of children's emotional outbursts and the need for parental disciplinary action (Patterson, 1982). Parenting behavior during middle childhood is often focused on further developing self-control, taking responsibility, and negotiating age-appropriate expectations (Collins et al., 2002), which inevitably involves negotiation within the coparenting relationship. All of these changes have important implications for parenting and general family functioning and make it an important time period for continued research.

Children at this age, on average, spend more time with their siblings than they do with their parents (McHale & Crouter, 1996).  Throughout development, and especially amidst the transitions during middle childhood, siblings can serve as sources of support, friendship, advice, and play (Furman & Buhrmester, 1985).  McGuire et al. (2000) highlight the importance of sibling relationships on the development of children's self-identity, understanding of social interactions, and sense of individual rights during the school-age years.  Research suggests that sibling relationships move towards becoming more egalitarian at this age (Buhrmester & Furman, 1990).  This finding has been supported by other research, indicating significant improvement in the quality of sibling relationships during middle childhood (Buist, Dekovic, Meeus, & van Aken, 2002; Pike et al., 2005).  Still other studies have indicated that conflict remains a major element of the relationship during this time (Stormshak et al., 1996; Vandell & Baily, 1992).  Research focused on the quality of sibling relationships during this developmental time period is important in order to increase our understanding of the role and importance of this family subsystem.

*The Current Study*

Reviews of coparenting research highlight the need for additional research on the coparenting relationship and its influence on other family processes (Feinberg, 2003; McHale et al., 2002).  The current study seeks to investigate the influence of the marital and coparenting subsystems separately, as recommended by other researchers (e.g., Cowan & McHale, 1996; Feinberg, 2003; Margolin et al., 2001; McHale et al., 2002).  No previous research has incorporated a simultaneous investigation of these particular subsystems in relation to the sibling subsystem during middle childhood.  Questions remain as to whether the relationship between marital quality and sibling relationship quality is best understood as a direct relationship or as an

indirect association via parenting (Yu & Gamble, 2008), or in the case of the current study, the quality of the coparenting relationship.  It is expected that results will corroborate and extend the limited previous research on associations between the coparenting and sibling subsystems.  In addition, because the sole use of maternal reports has been cited as a limitation of previous research in this area (e.g., Dunn et al., 1999; Yu & Gamble, 2008), the current study uses multiple sources of information (i.e., child, both parents) regarding these subsystems in a nonclinical, community sample of two-parent families.

In order to study and better understand the development of sibling relationship quality, the construct must be adequately defined.  The widely accepted dimensions of sibling relationship quality originated from the research of Furman and Buhrmester (1985), who surveyed school-aged children about the most significant aspects of their sibling relationships. From this research, they identified four qualitative dimensions of the sibling relationship in this age group: warmth, conflict, rivalry, and power.  The dimensions identified by Furman and Buhrmester have also been supported by other studies involving parental reports of sibling relationships (Kramer & Baron, 1995).  The two primary dimensions and emotional qualities of warmth and conflict will be utilized in the current study.  The dimension of warmth is defined by behaviors within the sibling relationship, such as intimacy, pro-social behavior, companionship, similarity, admiration by the sibling, admiration of the sibling, and affection.  The dimension of conflict is defined by behaviors such as quarreling, antagonism, and competition.  Derkman, Scholte, Van der Veld, and Engels (2010) further demonstrated the reliability and construct validity of the major dimensions of warmth and conflict as measured by the Sibling Relationship Questionnaire (SRQ; Furman & Buhrmester, 1985), which will be utilized in the current study.

We hope to address the following issues using reports from mothers, fathers, and children in middle childhood (8 to 11 years of age) from intact families:  How are the marital subsystem and the coparenting relationship, together and separately, related to aspects of the sibling subsystem?  Does coparenting relationship quality mediate the association between marital adjustment and sibling relationship quality?  It is hypothesized that qualities of marital and coparenting relationships will be directly associated with the qualities of the sibling subsystem.  Specifically, more positive marital adjustment and more supportive and effective coparenting will be linked to greater warmth and less conflict in sibling relationships.  On the other hand, marital conflict and dysfunction and unsupportive coparenting behavior will be linked to increased conflict and less warmth in sibling relationships.  It is expected that properties of both marital and coparenting relationships together will contribute to significant variance in the sibling subsystem.  Moreover, the coparenting relationship will partially mediate the association between the marital relationships and sibling relationships.

Table A.1
*Sample Demographics*

| | Total Parents (*n* = 150) | Father (*n* = 75) | Mothers (*n* = 75) | Target Children (*n* = 75) |
|---|---|---|---|---|
| **Ethnicity** | | | | |
| Caucasian | 117 (78.0%) | 59 (78.7%) | 58 (77.3%) | 55 (73.3%) |
| Asian | 3 (2.0%) | 1 (1.3%) | 2 (2.7%) | 1 (1.3%) |
| African-American | 10 (6.7%) | 5 (6.7%) | 5 (6.7%) | 4 (5.3%) |
| Native American | 1 (0.7%) | 1 (1.3%) | 0 (0.0%) | 0 (0.0%) |
| Hispanic/Mexican | 14 (9.3%) | 8 (10.7%) | 6 (8.0%) | 4 (5.3%) |
| Biracial/Multiracial | 3 (2.0%) | 0 (0.0%) | 3 (4.0%) | 10 (13.3%) |
| Missing | 2 (1.3%) | 1 (1.3%) | 1 (1.3%) | 1 (1.3%) |
| **Gender** | | | | |
| Male | 75 | 75 | -- | 41 |
| Female | 75 | -- | 75 | 34 |
| **Education** | | | | |
| High School Degree | 18 (12.0%) | 9 (12.0%) | 9 (12.0%) | -- |
| Some College | 30 (20.0%) | 19 (25.3%) | 11 (14.7%) | -- |
| 2yr/Tech School | 19 (12.7%) | 11 (14.7%) | 8 (10.7%) | -- |
| Bachelor's Degree | 54 (36.0%) | 20 (26.7%) | 34 (45.3%) | -- |
| Graduate Degree | 28 (18.7%) | 15 (20.0%) | 13 (17.3%) | -- |
| Missing | 1 (0.7%) | 1 (1.3%) | 0 (0.0%) | -- |
| **Family Income** | | | | |
| Below $15,000 | 4 (2.7%) | 2 (2.7%) | 2 (2.7%) | -- |
| $15,000 – 30,000 | 12 (8.0%) | 7 (9.3%) | 5 (6.7%) | -- |
| $30,000 – 45,000 | 19 (12.7%) | 8 (10.7%) | 11 (14.7%) | -- |
| $45,000 – 60,000 | 26 (17.3%) | 12 (16.0%) | 14 (18.7%) | -- |
| $60,000 – 75,000 | 29 (19.3%) | 12 (16.0%) | 17 (22.7%) | -- |
| Over $75,000 | 51 (34.0%) | 27 (36.0%) | 24 (32.0%) | -- |
| Missing | 9 (6.0%) | 7 (9.3%) | 2 (2.7%) | -- |
| **Age** | | | | |
| Mean | 37.44 | 38.61 | 36.27 | 9.43 |
| SD | 5.16 | 5.26 | 4.82 | 1.27 |

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