

Links between Mothers' and Fathers' Perceptions of Infant Temperament and Coparenting

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Abstract:

This study examined the contributions of infant temperament, marital functioning, and the division of parenting on the quality of the coparenting relationship for couples parenting 6-month-old infants. Marital functioning was assessed prenatally. When infants were 6 months old, infant temperamental characteristics (i.e., distress to limits, distress to novelty, and soothability), division of parenting, and coparenting were rated by parents. Results indicated that the reactivity dimension of temperament was only associated with reduced coparenting quality if other stressors were present and these effects were different for mothers and fathers. Mothers who perceived their infants as more reactive only reported more negative coparenting if their infants were also not easily soothed or if mothers were dissatisfied with how parenting tasks were divided and performed given their prior expectations. Whereas fathers reported more negative coparenting when faced with a more reactive infant and they reported a low quality marital relationship.

Article:

INTRODUCTION

From the time children are born they exert an influence on the lives of their parents. Children are active agents in their own development and previous research has shown that children are not passive recipients of parenting and they have an active role in parent-child relationships (Cole, 2003). Thus, they continue to have an influence on their families as they grow, change, and become a part of the family system. Yet, few researchers have examined the role children play in interparental relationships (Schermerhorn, Cummings, DeCarlo, & Davies, 2007), specifically, the coparenting relationship.

Coparenting can be conceptualized as how two individuals work together to raise a child (Talbot & McHale, 2004) and has been linked to parent and child outcomes (Leary and Katz, 2004 and Schoppe et al., 2001). For example, research indicates that when families exhibit hostile coparenting, there is more marital conflict, less father involvement, and children exhibit higher levels of externalizing behavior problems (McBride and Rane, 1998 and McConnell and Kerig, 2002; Schoppe, et al., Schoppe-Sullivan, Mangelsdorf, Frosch, & McHale, 2004). Much of the research on coparenting has focused on parental characteristics (e.g., personality, self-

esteem) and concurrent marital quality (Lindsey, Caldera, & Colwell, 2005) as predictors. Little is known about how children affect coparenting. That children are active agents in parent–child relationships, suggests that they may also influence the coparenting relationship. Thus, identifying child factors that predict quality of coparenting is of interest. The purpose of this study is to examine the extent to which perceived infant temperament is related to the quality of coparenting among new parents.

Child temperament has been found to be a strong predictor of the quality of parenting (Putnam, Sanson, & Rothbart, 2002). Thus, child temperament may also influence the quality of coparenting among parents. Drawing from Rothbart's (1981) conceptualization of temperament we focused on two aspects of infant temperament: reactivity, defined as infant distress to limits and distress to novelty, and regulation, defined as infant soothability. We reasoned that the extent to which infants are easily and intensely distressed and difficult to soothe, hallmark features of the “difficulty” construct, would be particularly relevant to coparenting because these are the types of infant characteristics most frequently linked with negative parental and marital outcomes among parents of young infants (Crockenberg & Leerkes, 2003). Further, division of parenting and the prenatal marital relationship were considered as potential moderators of the association between infant temperament and coparenting quality.

Family systems theory

Minuchin (1985) suggested six basic principles to family systems theory and several of these principles have implications for the development of coparenting. First, a system (e.g., a family) is an organized whole, composed of several subsystems that work interdependently but are distinct from one another: child, parent, marital, and coparent subsystems, thus, coparenting is just one subsystem nested within the larger family system. The marital and coparenting subsystems are distinct from one another. The difference lies in the focus; the coparenting relationship centers around raising the child; whereas the marital relationship focuses on a range of other issues (e.g., finances, emotional intimacy). Also, most often, the marital relationship predates the coparenting relationship and each follows its own trajectory of development. In the coparenting relationship, partners develop their bond as parents and are able to continue this relationship even if the marriage dissolves (Schoppe-Sullivan et al., 2004). Additionally, this principle emphasizes the importance of examining the impact each member of the family has on other members or subsystems within the family. Consistent with this tenet, infant temperament, a child characteristic, may affect the coparenting subsystem. For example, parents of an “easy” infant may want to do all of the childrearing mutually because doing so is pleasant; however, parents of a “difficult” infant may choose to divide up parenting responsibilities and perform them separately in order to provide one another with respite.

Another principle is that subsystems are separated by boundaries, but each subsystem mutually influences one another (Cox & Paley, 2003). Thus, to understand what influences the coparenting subsystem it is important to understand the interplay among the other subsystems. This could be where one subsystem affects another and spill over may occur (e.g., the extent that parenting a “difficult” infant is stressful, may arouse negative feelings, which may prompt parents to be more critical of each other's parenting) or it could be more complex, where there may be interactions between two or more subsystems that affect a different subsystem. For example, if one partner is unsatisfied with the marital relationship and gives little support to the

other partner, it may make it more challenging for coparents to cope with a more “difficult” infant, than when partners are satisfied with their marital relationship.

A final principle is that evolution and change are inherent in open systems and are likely to occur during developmental transitions (Cox & Paley, 2003). The family process becomes more complex once an infant enters the family system; new interactions and behaviors between parents must be established. With time, parents may be able to negotiate their respective parenting roles and become skilled cooperative coparents. On the other hand, as the realities of childcare set in and infants’ personalities emerge, some parents may find it difficult to create a positive pattern of working together. These shifts and changes in children and couples make infancy an appealing time to study the coparenting relationship. Examining links between temperament and coparenting when infants are 6 months old is appealing because research has suggested that temperamentally-based fear, anger, and soothability are readily apparent to parents and stable across the second half of the first year of life (Rothbart, 1986 and Sternberg and Campos, 1990).

INFANT TEMPERAMENT AND COPARENTING

In keeping with the view that systems are interdependent (Minuchin, 1985), it is important to examine the potential link between infant temperament and coparenting. Infants who are temperamentally reactive are characterized as displaying negative affect and being easily and intensely distressed (Rothbart, 1981), which may contribute to a stressful parenting environment, resulting in less adaptive coparenting. Alternatively, parents of reactive infants may work as a team and demonstrate positive coparenting to cope with this stress.

Given these conflicting hypotheses, it is not surprising that results from studies examining the links between child temperament and coparenting are mixed. Stright and Bales (2003) and McHale, Kazali, Rotman, Talbot, Carleton, and Liberson (2004) reported that there were no direct associations between reports of infant temperament and quality of coparenting. However, Van Egeren (2004) reported that when fathers’ perceived their infants as reactive they had poorer coparenting relationships. Similarly, Lindsey et al. (2005) found that fathers demonstrated more intrusive coparenting when infants were reported to be temperamentally reactive. These discrepancies are not surprising given Crockenberg's (1986) proposition that the links between temperament and parenting may be moderated by individual and family characteristics. That is, parenting may only be compromised by temperamental reactivity when other risk factors are present (Crockenberg & Leerkes, 2003). It is probable that the association between temperament and coparenting is equally complex. To date, only two studies have examined this complex association between infant temperament and coparenting, using the marital relationship as the moderator (McHale et al., 2004 and Schoppe-Sullivan et al., 2007), and found results consistent with the proposition of Crockenberg and Leerkes (2003). Schoppe-Sullivan et al. (2007) found that when infants were perceived as unadaptable, parents engaged in more undermining coparenting when they also exhibited lower marital quality. Similarly, McHale et al. (2004) found that couples exhibited higher levels of coparenting cohesion when mothers perceived their infants as highly reactive when they also reported high marital quality; although this finding only approached significance. Other characteristics of the child and parents, such as infant soothability and division of parenting, may also act as stressors that influence the relationship between infant temperament and coparenting.

Given that infant regulatory abilities modulate the duration and intensity of infant distress (Rothbart & Derryberry, 1981), and hence the extent to which parents experience their infant as “difficult”, it may be that infant regulation buffers parents from the negative effects of infant reactivity on coparenting. Previous research has found that when infants are more easily soothed and adaptable they elicit more warm and responsive parenting, lending some support to this view (Hinde, 1989 and Kyrios and Prior, 1990). To our knowledge, the interactive effect of infant reactivity and regulation on parent outcomes has rarely been examined, but consistent with this view, the negative effect of infant reactivity on maternal self-efficacy was buffered by infant soothability (Leerkes & Crockenberg, 2002). Thus, we predict that the association between infant temperamental reactivity and coparenting will be moderated by infant soothability. That is, temperamental reactivity will correlate negatively with coparenting quality only when infant soothability is low.

Division of parenting and infant temperament

Division of parenting can be conceptualized as how parents divide up parenting tasks, such as giving the infant a bath or taking the infant to the pediatrician, and how satisfied they are with the way tasks are divided given their prior expectations. Previous research has suggested that satisfaction with division of labor in the household is an important predictor of marital quality (Suitor, 1991). Moreover, the extent to which parents’ prenatal expectations about their future division of child care labor were violated predicted less cooperative coparenting and family warmth (McHale et al., 2004). Satisfactory division of parenting tasks may be particularly relevant to coparenting quality in the context of caring for a reactive infant. That is if parents of reactive infants feel satisfied in how they share parenting tasks, they likely provide one another with needed respite from the infant thereby enhancing positive emotions towards one another and a feeling of teamwork. Thus, we predict that infant reactivity will only be negatively associated with perceptions of coparenting when the division of parenting is poor, where parents are unsatisfied with the way tasks are divided given their prior expectations.

Prenatal marital functioning and infant temperament

Quality of marital functioning can be conceptualized as the extent to which partners interact with one another in a characteristically positive manner and how satisfied they feel with the relationship. How parents work together as a couple before the infant arrives may set the stage for how they work together as parents. Previous research suggests that when there is more conflict in the prenatal marital relationship, coparents may be less supportive of one another (Van Egeren, 2004). These poor prenatal marital relationships may place additional stress on parents and they may find it more difficult to solve problems together when they are already dealing with a more reactive infant. On the other hand, parents who have high marital quality and have infants who are more reactive may “pull together” to coparent their fussy infants. Consistent with this view, Schoppe-Sullivan et al. (2007) found that parents’ who perceived their infants as fussy or unadaptable were more likely to engage in undermining coparenting behavior only if they had poor marital quality. Therefore, we predict that infant reactivity will be negatively associated with coparenting quality only among parents with a history of poor marital functioning.

The current study

In sum, the goal of this study is to examine the extent to which infant reactivity predicts mothers' and fathers' perceptions of their coparenting relationship. Consistent with the view that infant reactivity may be particularly problematic for parents dealing with other stressors or have limited support, we examine the extent to which infant soothability, division of parenting, and marital quality moderates associations between temperament and coparenting. Relatively few researchers have examined the effects of infant temperament on coparenting and only two studies have examined potential moderators, both of which focused on the marital relationship as a potential moderator; thus the present research has the potential to fill an important gap in the literature. Comparable models will be tested for mothers and fathers allowing for a comparison of predictors across parents. We hypothesized that perceived infant reactivity would be negatively associated with coparenting quality only if infant soothability was low, the division of parenting was poor, and/or prenatal marital functioning was poor.

METHOD

Participants

One hundred and thirty-four primiparous mothers and 90 partners from a county surrounding a moderate sized city in the southeastern United States were recruited prenatally to participate in a longitudinal study about the antecedents of maternal sensitivity. Of these, 120 mothers and 79 fathers, approximately 90% of the prenatal sample, also participated in the 6-month postnatal data collection. Mothers who remained in the study were more likely to be White ($\chi^2[1] = 4.62$; $p < 0.05$ for mothers) and fathers who participated at both time points came from families with higher family incomes, $t(88) = 2.15$, $p < 0.05$. The larger study focused primarily on mothers; therefore, a number of mothers ($N = 28$) who participated had partners that did not participate in the project. Demographics (age, education, income, and race) and all key study variables were compared between mothers whose partners did participate and mothers whose partners did not participate. Mothers who had partners who participated were more likely to be older ($t(105) = 3.17$, $p < 0.05$), have higher education ($\chi^2[1] = 14.23$; $p < 0.05$), come from families with higher incomes ($t(105) = 2.25$, $p < 0.05$), and reported higher quality marital functioning ($t(105) = 2.12$, $p < 0.05$), than mothers whose partners did not participate. The 28 mothers whose partners declined to participate in the study, 9 mothers who were single, and 4 mothers who had separated or divorced between the two time points, were excluded from analyses. Thus, the analytic sample for this study consisted of 79 couples.

Mothers ranged in age from 20 to 37 years ($M = 29$); 80% had a college degree or higher; and 85% were White, 9% were Black, and 6% were Multiracial or from other racial or ethnic groups. Fathers ranged in age from 21 to 43 years ($M = 31$); 67% had a college degree or higher; and 85% were White, 14% were Black, and 1% were Multiracial. Total family income ranged from \$18,000 to \$190,000 (median = \$75,000). All of the couples were married or living together. Forty-seven infants (60%) were male. All infants were full-term and healthy.

Procedure

Parents were contacted through local birthing classes during the last trimester of pregnancy. Following a brief screening phone call confirming that mothers were primiparous, interested parents were mailed consent forms and measures of demographics and marital functioning, which were completed and returned when mothers visited the campus for a prenatal interview as

part of the larger study. At 6 months postpartum, parents were mailed measures of infant temperament and their relative involvement and satisfaction in child care tasks. Mothers returned both their own and their partners' measures when they visited the campus with their infants for an observation and interview as part of the larger study. Participating families received gift cards as thanks for their participation.

Measures

Quality of marital functioning. Quality of marital functioning was a composite of two measures that were assessed prenatally: the Conflict and Problem-Solving Scales (CPS; Kerig, 1996) and an adaptation of the Aspects of Married Life Questionnaire (Huston et al., 1986 and Proulx et al., 2004). Mothers and partners rated the frequency with which they and their partners engaged in 39 different strategies during marital conflicts over the past year on the conflict strategies subscale of the CPS using a scale from 0 (never) to 3 (often). The CPS has shown good convergent validity with the Conflict Tactics and the Dyadic Adjustment scales and good test-retest reliability over 3 months ($r = 0.63$; Kerig). Three subscales that emerged from a previous factor analysis (Crockenberg & Leerkes, 2003), avoidance (10 items; e.g., change the subject; try to ignore problem/avoid talking about), aggression (19 items; e.g., threaten to end relationship; slap partner), and adaptive (10 items; e.g., compromise/meet half-way; find a solution that meets both our needs equally) were replicated in this sample. Separate subscale scores were created for reports of own strategy use and reports of partners' strategy use by averaging and reverse scoring appropriate items. Cronbach's alphas ranged from 0.66 to 0.90 for mothers' reports of self and partner and 0.68 to 0.91 for fathers' reports of self and partner. Mothers and fathers also completed an adaptation of the Aspects of Married Life Questionnaire to assess marital satisfaction. Participants rated their satisfaction on 8 items (e.g., the way decisions get made in your marriage/partnership) using a 7-point scale, where 1 = *extremely dissatisfied* and 7 = *extremely satisfied*. Items were averaged, such that higher scores indicated higher satisfaction. Cronbach's alphas were 0.83 for mothers and 0.72 and for fathers

The marital satisfaction and conflict strategies scores for self and partner were standardized and averaged to create a quality of prenatal marital functioning variable with high scores reflecting high functioning and satisfaction (Cronbach's alpha = 0.79 for mothers and 0.80 for fathers). The composite prenatal marital functioning variable was utilized to reduce the number of predictors relative to the sample size.

Perceived infant temperament. The Infant Behavior Questionnaire-Revised (IBQ-R; Gartstein & Rothbart, 2003) was administered at 6 months postpartum to assess parents' perceptions of their infant's temperament. Two subscales, distress to limitations (16 items) and distress and latency to approach sudden or novel stimuli (16 items), were used to assess the concept of infant temperamental reactivity. A third subscale, soothability (18 items), was used to assess infant regulation. Each item, describing the frequency of infant responses to particular situations, is rated on a scale from 1 (never) to 7 (always). The IBQ has good inter-rater reliability and internal consistency reliability (Gartstein and Rothbart, 2003 and Rothbart, 1981) and evidence of convergent validity has been established with home observations and other parent reports of temperament (Goldsmith, Rieser-Danner, & Briggs, 1991). Within each subscale, items were averaged; α s were 0.76, 0.87, 0.74 for mothers' and 0.71, 0.88, and 0.73 for fathers' perceptions

of distress to limitations, distress and latency to approach sudden or novel stimuli, and soothability respectively.

Division of parenting. Parents completed the Child Care Activities Scale (CCAS; Cronenwett, Sampselle, & Wilson, 1988) at 6 months postpartum. This measure asks parents to rate the relative amount of time they and their partners engaged in 3 types of child care activities with their infants: direct care (8 items, e.g., feeding, bathing), indirect care (7 items, e.g., washing clothes, arranging babysitting), and play (6 items, e.g., reading, playing quietly) on a scale of 1 (always self) to 5 (always partner) with 3 indicating the task was shared equally by both. Items were averaged to yield overall measures of parental involvement in child care. Mothers and fathers were also asked to rate their satisfaction with the way parenting responsibilities were shared on a scale ranging from 1 (very dissatisfied) to 5 (very satisfied) and the extent to which the manner in how they shared parenting met their expectations on a scale ranging from 1 (my spouse/partner does much less than I expected) to 5 (my spouse/partner does much more than I expected). The CCAS is stable over 6–8 weeks, and partners' reports have been found to correlate significantly (Cronenwett et al.), as is the case in this sample ($r = 0.51$). A composite was formed by standardizing and averaging these three scores with higher scores indicating mothers and fathers perceived their partners as doing more child care tasks, were satisfied with how they were sharing parenting tasks, and the division met their prior expectations. Cronbach's alphas were 0.91 for mothers and 0.76 for fathers.

Coparenting. At 6 months postpartum, the 20-item Parenting Alliance Inventory (PAI; Abidin & Brunner, 1995) was administered to assess mothers' and fathers' perceptions of their working relationship with their child's other parent (e.g., my spouse/partner tells me I am a good parent). Parents responded to items using a 5-point scale ranging from 1 (strongly agree) to 5 (strongly disagree). The PAI has excellent internal reliability and good convergent validity with measures of parenting style, and child adjustment ([Abidin and Brunner, 1995] and [Konold and Abidin, 2001]). Items were averaged to create a total parenting alliance score, such that higher scores indicate positive coparenting relationships characterized by a sense of teamwork, respect, and positive communication between parents about raising their children. Cronbach's alphas were 0.93 for mothers and 0.92 for fathers respectively.

RESULTS

Preliminary analyses

First, descriptive statistics for the key study variables are presented in Table 1. Mothers' and fathers' reports on key variables were compared for mean differences using paired *t*-tests. As seen in Table 1, fathers perceived their infants as more easily distressed to limitations and less easily soothed than did mothers. No other differences were significant. Next, correlations and *t*-tests between potential covariates (infant gender, parent race, age, and education, and family income) and primary variables were examined. The criterion for inclusion as a covariate was a significant association with the coparenting variable. For fathers, there were mean differences on coparenting based on race (White vs. minority) and infant gender, such that White fathers and fathers of boys rated their coparenting relationship more positively than minority fathers, $t(77) = 3.15, p < 0.01$, and fathers of girls, $t(77) = 2.21, p < 0.05$. To maintain comparable models of mother and father coparenting, race and infant gender were entered as covariates in their respective regression models.

Table 1: Descriptive statistics for mothers' and fathers' reports of predictor and coparenting variables.

Variables	Mother's			Father's			t-Value
	M	SD	Range	M	SD	Range	
Prenatal marital functioning	0.00	0.65	-2.15-1.38	0.00	0.63	-1.81-1.23	1.22
Distress to limits 6 months	3.23	0.72	1.73-4.69	3.33	0.64	1.75-4.94	-1.14
Distress to novelty 6 months	2.16	0.75	1.07-4.00	2.39	0.80	1.00-4.20	-2.29*
Soothability 6 months	5.11	0.62	3.40-6.61	4.78	0.58	3.29-6.11	3.60**
Division of parenting 6 months	0.00	0.69	-1.58-1.21	0.00	0.54	-1.36-1.12	1.38
Parenting alliance 6 months	4.43	0.44	3.10-5.00	4.47	0.40	2.55-5.00	-0.94

* $p < 0.05$.

** $p < 0.01$.

Next, intercorrelations among key variables were examined (see Table 2). For mothers, coparenting correlated positively with soothability and negatively with distress to novelty. However, for fathers, there were no significant associations between perceived temperament and coparenting. Thus, there was not a clear pattern relating infant temperament and coparenting behavior across parents. Additionally, for mothers and fathers, prenatal marital functioning and division of parenting were positively related to coparenting.

Table 2: Intercorrelations of predictor variables.

No.	Variables	1	2	3	4	5	6
1	Prenatal marital functioning	0.58**	-0.05	-0.01	-0.07	0.27*	0.27*
2	Distress to limits 6 months	0.11	0.38**	0.30**	-0.09	-0.08	-0.03
3	Distress to novelty 6 months	-0.08	0.28**	0.35**	0.03	-0.23*	-0.24*
4	Soothability 6 months	0.18	-0.30**	-0.42**	0.09	0.00	0.28**
5	Division of parenting 6 months	0.10	0.05	0.03	-0.14	0.51**	0.63**
6	Coparenting 6 months	0.42**	-0.01	-0.07	0.05	0.43**	0.52**

Note: Correlations among mother variables appear above the diagonal; correlations among father variables appear below the diagonal; and correlations between parallel mother and father variables appear in bold along the diagonal ($n = 79$).

* $p < 0.05$. ** $p < 0.01$.

Hierarchical multiple regression models

The central aim of the study was to investigate the extent to which stressors or supports moderate the associations between infant temperament and coparenting quality. Following recommendations by Aiken and West (1991) variables were centered prior to creating interaction terms, with the exception of marital functioning which was already standardized. Given the number of proposed interactions (6 each for mothers and fathers: distress to novelty and distress to limits, each by marital functioning, division of parenting, and soothability) and the relatively small sample size, preliminary regression analyses were calculated to identify interaction terms for inclusion in the final models. In these preliminary regressions, all predictor variables and covariates were entered first followed by a single interaction term. Interactions that were significant in the preliminary models were identified for inclusion in the final models. It is important to acknowledge that although this approach may be viewed as potentially capitalizing on chance, only hypothesized interactions were pre-screened, and more interactions than would be expected by chance alone were identified. Specifically, twelve interactions were examined in total (6 each for mother and fathers) and at an alpha of 0.05, only 1 was expected to be significant by chance, but three were significant. Two interaction effects were identified in the regression models for mothers (distress to novelty \times soothability, and distress to novelty \times division of parenting) and one interaction was identified for fathers (distress to limits \times prenatal marital functioning). All three interactions were retained in the final models for mothers and fathers so the models would be identical.

Based on the results of the preliminary analyses, subsequent hierarchical regression analyses tested the independence of main effects and the pre-identified interaction effects. In these analyses, the covariates (race and infant gender), predictors (prenatal marital functioning, infant distress to limitations, infant distress to novelty, infant soothability, and division of parenting, and interactions (distress to novelty \times soothability, distress to novelty \times division of parenting, and distress to limits \times prenatal marital functioning)) were entered simultaneously. Although the ratio of predictors to participants violates the traditional rule of thumb of 10 participants per predictor, it meets the more liberal convention put forth by Harris (1985), that N should be greater than or equal to 50 plus the number of predictors. Significant interactions were probed by calculating the simple slopes at plus and minus one SD from the mean of the moderator variable (Aiken & West, 1991). Results of these analyses are shown in Table 3.

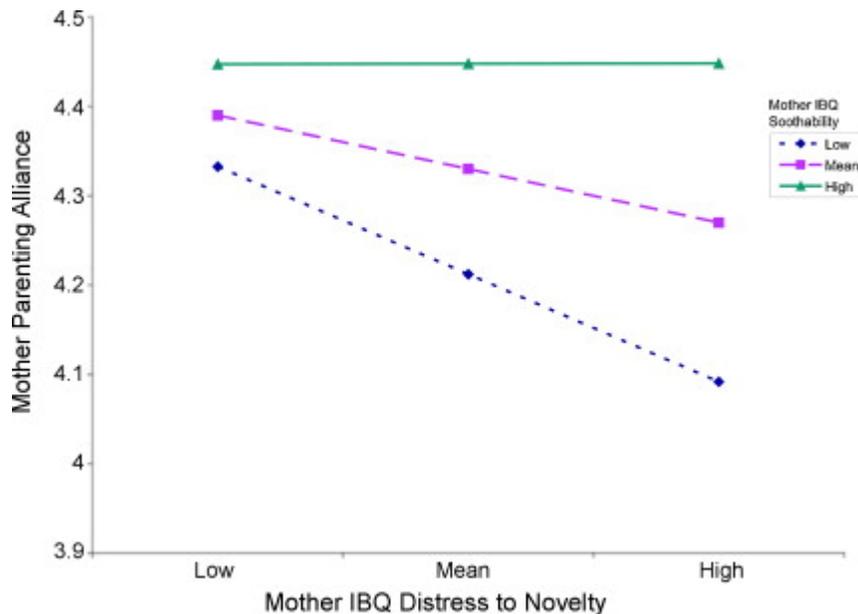
Table 3: Summary of hierarchical regression analyses for variables predicting mothers' and fathers' perceptions of coparenting.

Predictors	Mother's			Father's		
	<i>B</i>	<i>SE B</i>	β	<i>B</i>	<i>SE B</i>	β
Race	-0.16	0.11	-0.13	-0.22	0.11	-0.19 [†]
Infant gender	0.06	0.08	0.07	-0.11	0.08	-0.13
Prenatal marital functioning	0.11	0.06	0.16 [†]	0.22	0.06	0.35**
Distress to limits 6 months	0.06	0.05	0.09	-0.02	0.06	-0.03
Distress to novelty 6 months	-0.05	0.05	-0.08	-0.00	0.05	-0.00
Soothability 6 months	0.16	0.06	0.23**	-0.03	0.08	-0.04
Division of parenting 6 months	0.35	0.06	0.55**	0.26	0.07	0.35**
Limits \times marital functioning	0.02	0.08	0.02	0.20	0.09	0.21*
Novelty \times soothability	0.13	0.07	0.16*	0.08	0.08	0.11
Novelty \times division of parenting	0.13	0.07	0.16*	0.02	0.10	0.02
Adjusted R^2	0.51			0.35		

[†] $p < 0.10$. * $p < 0.05$. ** $p < 0.01$.

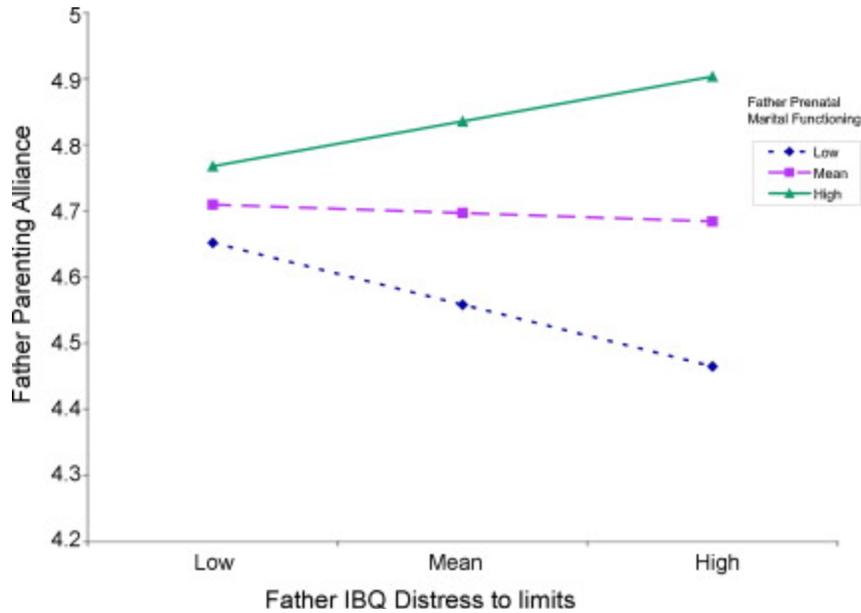
Factors associated with mothers' perceptions of coparenting. Infant soothability and division of parenting were significant predictors of maternal perceptions of coparenting. Mothers who perceived their infants as more easily soothed also reported more positive coparenting relationships, as did mothers who reported satisfaction with the division of parenting. Inconsistent with previous research, prenatal marital functioning was not a significant predictor for mothers' perceptions of coparenting. There was a significant interaction between infant distress to novelty and mothers' perceptions of division of parenting. Consistent with the hypothesis, the interaction between infant distress to novelty and infant soothability significantly predicted mothers' perceptions of coparenting (Fig. 1). Such that, there was a negative relationship between infant distress to novelty and mothers' coparenting when infant soothability was low, $\beta = -0.21$, $p < 0.05$, but not when it was high, $\beta = 0.04$, *ns*. Additionally, infant distress to limitations was negatively associated with mothers' reports of coparenting quality only when division of parenting was poor and mothers were less satisfied with the division, $\beta = -0.25$, $p < 0.05$, but was not significant when division of parenting was equitable and mothers were satisfied with the division, $\beta = 0.06$, *ns*. The full model accounted for 51% of the variability (adjusted R^2) in mothers' perceptions of coparenting, $F(68) = 8.98$, $p < 0.01$.

Figure 1: Interaction effect of infant distress to novelty and infant soothability on mothers' perceptions of coparenting at 6 months postpartum.



Factors associated with fathers' perceptions of coparenting. For fathers, none of the infant temperament variables significantly predicted fathers' perceptions of coparenting as a main effect. Contrary to the results for mothers, but consistent with previous research, there was a significant main effect between prenatal marital functioning and fathers' perceptions of coparenting; fathers who perceived their marriages positively prior to the birth of their infant reported higher coparenting quality at 6 months postpartum. Additionally, when fathers reported satisfaction with the way tasks were divided given their prior expectations they reported more positive coparenting. Consistent with the hypothesis, fathers' perceptions of infant distress to limitations and prenatal marital functioning interacted to predict coparenting (see Fig. 2). Distress to limitations was negatively related to fathers coparenting when prenatal marital functioning was low, $\beta = -0.19$, *ns*, but was positively related to coparenting when prenatal marital functioning was high, $\beta = 0.20$, *ns*. The full model accounted for 35% of the variability (adjusted R^2) in fathers' perceptions of coparenting, $F(68) = 5.18$, $p < 0.01$.

Figure 2: Interaction effect of infant distress to limits and prenatal marital functioning on fathers' perceptions of coparenting at 6 months postpartum.



DISCUSSION

The primary goal of this study was to examine the extent to which dimensions of perceived infant temperament were linked with new parents' perceptions of the quality of their coparenting relationship as main effects and when considered in conjunction with other family risk or protective factors. Importantly, this study is the first to examine multiple child, parent, and family characteristics that interacted with infant reactivity to predict perceptions of the developing coparenting relationship. The results suggest that there are differences in the effects of infant temperament on mothers' and fathers' perceptions of the coparenting relationship, and although not the primary goal of the study, results suggest differences also in the extent to which prenatal marital quality predicts mothers' and fathers' perceptions of coparenting.

Three dimensions of infant temperament were examined in relation to mothers' and fathers' perceptions of coparenting. For mothers, there was a positive association between infant soothability and coparenting, such that when infants were perceived as more easily soothed, mothers reported a more positive coparenting relationship. This is consistent with previous research in the parenting literature suggesting that parents are more likely to exhibit warm and responsive parenting when infants are easily soothed (Hinde, 1989 and Kyrios and Prior, 1990), but to our knowledge is the first study to report a direct link between infant soothability and coparenting quality. Our results suggest that positive temperamental characteristics, such as soothability, may enhance mothers' perceptions of coparenting quality. It may be that infants who regulate well are easier to care for, facilitating a sense of teamwork and cooperation among new coparents. No main effects of infant temperament were identified for fathers, a point we return to later. Given the proposition that temperament effects on coparenting are dependent on other family characteristics, the scarcity of temperament main effects was not surprising.

Several significant interactions between infant reactivity and other child, individual, and couple characteristics predicted coparenting quality consistent with Crockenberg's (1986) proposition that the links between temperament and parenting may be moderated by individual and family characteristics, as well as prior research in parenting and coparenting (Crockenberg and Leerkes, 2003, McHale et al., 2004 and Schoppe-Sullivan et al., 2007). The reactivity dimension of temperament was only associated with reduced coparenting quality if other stressors (i.e., low soothability, poor division of parenting, poor marital functioning) were present. However, the specific factors that operated as stressors or buffers varied for mothers and fathers. For mothers, perceived reactivity interacted with infant soothability and division of parenting to predict coparenting. Consistent with the hypothesis, mothers who perceived their infants as highly fearful only reported more negative coparenting if their infants were not easily soothed or if mothers were dissatisfied with how parenting tasks were divided and performed given their prior expectations. Thus, having a more reactive infant may further strain the coparenting relationship for mothers who perceive their infants as not easily soothed or for mothers who are already dissatisfied with how they and their partners work together on parenting tasks.

Among fathers, only one significant interaction emerged. Fathers' perceptions of infants' distress to limitations was negatively related to fathers' perceptions of coparenting when prenatal marital functioning was low, but was positively related to coparenting when prenatal marital functioning was high. Couples who already have a satisfying marital relationship may talk more frequently and adaptively about potential sources of conflict, such as caring for a temperamentally reactive infant which may enhance a feeling of teamwork as parents. In contrast, fathers who are not satisfied with their marriages prenatally may find it difficult to work together on parenting a temperamentally reactive infant when they are already having a difficult time solving problems with their partners.

These interaction effects suggest that coparenting is primarily undermined by reactive infant temperament when other risks are present. These results are consistent with other studies that have examined the impact of the prenatal marital relationship in conjunction with infant reactivity on the coparenting relationship (McHale et al., 2004 and Schoppe-Sullivan et al., 2007) and with research examining parent-child interactions which indicate that negative individual characteristics and social contexts are more likely to result in negative parenting among parents of reactive infants (Mangelsdorf et al., 1990, Pauli-Pott et al., 2000 and van den Boom and Hoeksma, 1994). Overall, perceived infant temperament appeared to have a greater effect on mothers' perceptions of coparenting than on fathers. Perhaps this is because mothers in this sample spent more time in direct (play and care-related) and indirect interaction with their infants than did fathers based on mean differences on the Child Care Activities Scale. Thus, mothers may be more affected by infant characteristics than fathers by virtue of differences in the exposure to those characteristics.

An additional finding of this research was that the couple characteristics that were related to mothers' and fathers' perceptions of coparenting varied. Consistent with previous research, for fathers there was a significant positive association between prenatal marital functioning and coparenting (McHale, 1995, Talbot and McHale, 2004 and Van Egeren, 2004). For fathers, how parents interact with one another before the infant's birth may set the context for whether they are able to create a positive coparenting relationship. In contrast, for mothers, there was not a

significant main effect. Drawing from social role theory, women may be better at compartmentalizing their spouse and parenting roles than men (Thompson & Walker, 1989). It has also been suggested that marriage and parenting are a “package deal” for many men (Furstenberg & Cherlin, 1991). Thus, for mothers these two relationships may be more distinct from one another in comparison to fathers.

One commonality for mothers and fathers was that perceptions of the division of parenting predicted coparenting. Parents may feel more respected by one another when they are satisfied with the division of parenting and when division of parenting meets prior expectations, consistent with McHale et al.’s (2004) finding that parents exhibited more cooperative coparenting at 3 months postpartum when prenatal expectations for division of child care tasks were met.

Although not the focus of the study, it is interesting that mothers’ and fathers’ perceptions of temperament varied, such that mothers rated their infants as less distressed to novelty and more soothable than did fathers. Similarly, Ventura and Stevenson (1986) found a comparable pattern of difference between mothers’ and fathers’ perceptions of infant temperament. These differences may reflect the fact that fathers tend to spend less time with their infants than mothers, and this time is often concentrated during the late afternoon and evening (Pleck & Masciadrelli, 2004) when infants tend to be fussiest (Barr, 1990).

Limitations and directions for future research

The results of this study must be considered cautiously due to several limitations. First, the sample size was small, homogenous, and relatively high functioning, limiting statistical power and the generalizability of the findings. In particular, the small sample size necessitated a reduction in the number of predictors, thus, the full model with all hypothesized temperament interactions was not able to be tested. Replication is needed in samples that are larger and more diverse. Second, attrition was higher among minority parents and families with lower income, further limiting generalizability of the findings. Finally, all measures, including the measures of coparenting, were based on parent reports thus associations may be inflated due to shared method variance. However, given the questions at hand, parents’ perceptions of infant temperament and marital quality are more ideal than observer ratings. The fact that mothers’ and fathers’ reports were significantly correlated for 2 out of 3 temperament dimensions and the marital measure demonstrates the validity of these self-reports. Thus, a behavioral observation of coparenting behavior would have been ideal and may have produced different patterns of associations. However, that Schoppe-Sullivan et al. (2007) and McHale et al. (2004) reported similar interaction effects of infant temperament and marital quality when an observational measure of coparenting was employed somewhat reduces this concern.

Despite these limitations, a strength of the study was in its focus on examining the role of infant characteristics on coparenting. The results of this research replicate and extend the work by McHale et al. (2004) and Schoppe-Sullivan et al. (2007) in that we identified interactions between infant temperament and the prenatal marital relationship in relation to the coparenting relationship during infancy. These results suggest that increased attention should be paid to the role that children play in interparental relationships and highlight the importance of not discounting the familial context within which both parents and children develop.

Possibilities for future research include examining other individual characteristics that could influence the relationship between infant temperament and coparenting such as self-esteem (Katz and Joiner, 2002 and Lindsey et al., 2005). Also, families reside in broader ecological contexts, and other factors external to the family such as parent work hours and social support may affect the extent to which infant temperament affects couples' coparenting. Examining these relations during toddlerhood when a number of shifts occur (e.g., children become more autonomous and issues change from dependency to limit-setting, fathers become more involved with their children) could be particularly interesting (McHale, Kuersten-Hogan, Lauretti, & Rasmussen, 2000). Finally, as noted above, multi-method approaches to the measurement of temperament and coparenting are needed to reduce the impact of shared method variance.

Implications for practice

The results of this study offer some points of guidance for practitioners. First, the results suggest that couples at risk of coparenting difficulties can be identified prenatally by assessing their marital quality. Second, the results emphasize the importance of intervening with mothers and fathers as they are both a part of the future coparenting relationship. Existing research suggests that the transition to parenthood is an optimal time for intervention as expectant and new parents are open to change (Cowan & Cowan, 2000). Consistent with this view, first time expectant couples who participated in a coparenting intervention reported better coparental support than the control group when infants were 6 months old (Feinberg & Kan, 2008). Importantly, the idea that an infant brings couples closer together is not supported by this study. If couples were already having trouble in their marital relationship, it appears that having a child did not trigger them to start working together more, in fact, the opposite appears true, in that when fathers perceived more marital problems, they reported more negative coparenting. It is important that professionals publicly negate this myth as it may be useful information to couples prior to deciding to become parents. Moreover, the temperament main effects and interaction effects highlight the need for practitioners to be aware of the role child characteristics play in the coparenting relationship. Practitioners could provide parents with strategies to work together to soothe their reactive infant or to support one another by providing positive feedback, emotional support, and respite to one another. That the negative effect of temperament was magnified when children were not easily soothed, mothers were unsatisfied with the division of parenting, and fathers reported poor marital functioning, suggests that particular attention should be given to child temperament when other stressors in the family are present and parental well-being is compromised. Finally, the results of this study suggest that how mothers and fathers perceive the division of parenting and how their prior expectations are met can have an effect on coparenting quality. Given previous evidence that both men and women overestimate how much men will participate in child care (Belsky et al., 1986 and Grote and Clark, 2001), it may be important for practitioners to provide parents with suggestions on how child care can realistically be divided between parents and provide parents with adaptive strategies to discuss and negotiate the division of parenting tasks over time.

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REFERENCES

- Abidin, R. R., & Brunner, J. F. (1995). Development of a parenting alliance inventory. *Journal of Clinical Child Psychology, 24*, 31–40.
- Aiken, L., & West, S. (1991). *Multiple regression: Testing and interpreting interactions*. Newbury Park, CA: Sage.
- Barr, R. G. (1990). The normal crying curve: What do we really know? *Developmental Medicine and Child Neurology, 32*, 356–362.
- Belsky, J., Lang, M., & Huston, T. L. (1986). Sex typing and division of labor as determinants of marital change across the transition to parenthood. *Journal of Personality and Social Psychology, 50*, 517–522.
- Cole, P. M. (2003). The developmental course from child effects to child effectiveness. In A. C. Crouter, & A. Booth (Eds.), *Children's influence on family dynamics: The neglected side of family relationships* (pp. 109–118). Mahwah, NJ: Lawrence Erlbaum Associates.
- Cowan, C. P., & Cowan, P. A. (2000). *When partners become parents: The big life change for couples*. Mahwah, NJ: Erlbaum.
- Cox, M. J., & Paley, B. (2003). Understanding families as systems. *Current Directions in Psychological Science, 12*, 193–196.
- Crockenberg, S. (1986). Are temperamental differences in babies associated with predictable differences in caregiving? In J. V. Lerner, & R. M. Lerner (Eds.), *New directions for child development: No. 31. Temperament and social interaction in infants and children* (pp. 53–73). San Francisco, CA: Jossey-Bass.
- Crockenberg, S., & Leerkes, E. (2003). Infant negative emotionality, caregiving, and family relationships. In A. Booth, & A. Crouter (Eds.), *Children's influence of family dynamics. The neglected side of family relationships* (pp. 57–78). Mahwah, NJ: Lawrence Erlbaum Associates.
- Cronenwett, L. R., Sampsel, C. M., & Wilson, W. R. (1988). The child care activities scale and parental role preference scale. *Research in Nursing and Health, 11*, 301–308.
- Feinberg, M. E., & Kan, M. L. (2008). Establishing family foundations: Intervention effects on coparenting, parent/infant well-being, and parent-child relations. *Journal of Family Psychology, 22*, 253–263.

- Furstenberg, F. S., & Cherlin, A. J. (1991). *Divided families: What happens to children when parents part*. Cambridge, MA: Harvard University Press.
- Gartstein, M. A., & Rothbart, M. K. (2003). Studying infant temperament via the revised infant behavior questionnaire. *Infant Behavior and Development, 26*, 64–86.
- Goldsmith, H. H., Rieser-Danner, L. A., & Briggs, S. (1991). Evaluating convergent and discriminant validity of temperament questionnaires for preschoolers, toddlers, and infants. *Developmental Psychology, 27*, 566–579.
- Grote, N. K., & Clark, M. S. (2001). Perceiving unfairness in the family: Cause or consequence of marital distress? *Journal of Personality and Social Psychology, 80*, 281–293.
- Harris, R. J. (1985). *A Primer of Multivariate Statistics* (2nd ed.). New York: Academic Press.
- Hinde, R. A. (1989). Temperament as an intervening variable. In G. A. Kohnstamm, J. E. Bates, & M. K. Rothbart (Eds.), *Temperament in childhood* (pp. 27–34). Chichester, England: Wiley.
- Huston, T., McHale, S., & Crouter, A. (1986). Changes in the marital relationship during the first year of marriage. In R. Gilmour, & S. Duck (Eds.), *The emerging field of personal relationships* (pp. 109–132). Hillsdale, NJ: Erlbaum.
- Katz, J., & Joiner, T. E., Jr. (2002). Being known, intimate and valued: Global self-verification and dyadic adjustment in couples and roommates. *Journal of Personality, 70*, 33–58.
- Kerig, P. K. (1996). Assessing links between interparental conflict and child adjustment: The conflict and problem-solving scales. *Journal of Family Psychology, 10*, 454–473.
- Konold, T. R., & Abidin, R. R. (2001). Parenting alliance: A multifactor perspective. *Assessment, 8*, 47–65.
- Kyrios, M., & Prior, M. (1990). Temperament, stress and family factors in behavioral adjustment of 3–5-year-old children. *International Journal of Behavioral Development, 13*, 67–93.
- Leary, A., & Katz, L. F. (2004). Coparenting, family-level processes, and peer outcomes: The moderating role of vagal tone. *Development and Psychopathology, 16*, 593–608.
- Leerkes, E. M., & Crockenberg, S. C. (2002). The development of maternal self-efficacy and its impact on maternal behavior. *Infancy, 3*, 227–247.
- Lindsey, E., Caldera, Y., & Colwell, M. (2005). Correlates of coparenting during infancy. *Family Relations, 54*, 346–359.

- Mangelsdorf, S., Gunnar, M., Kestenbaum, R., Lang, S., & Andreas, D. (1990). Infant proneness-to-distress temperament, maternal personality, and mother–infant attachment: Associations and goodness-of-fit. *Child Development, 61*, 820–831.
- McBride, B. A., & Rane, T. R. (1998). Parenting alliance as a predictor of father involvement: An explanatory study. *Family Relations, 47*, 229–236.
- McConnell, M. C., & Kerig, P. K. (2002). Assessing coparenting in families of school-age children: Validation of the coparenting and family rating system. *Canadian Journal of Behavioural Science, 34*, 44–58.
- McHale, J. P. (1995). Coparenting and triadic interactions during infancy: The roles of marital distress and child gender. *Developmental Psychology, 31*, 985–996.
- McHale, J. P., Kazali, C., Rotman, T., Talbot, J., Carleton, M., & Lieberman, R. (2004). The transition to coparenthood: Parents' prebirth expectations and early coparental adjustment at 3 months postpartum. *Development and Psychopathology, 16*, 711–733.
- McHale, J. P., Kuersten-Hogan, R., Lauretti, A., & Rasmussen, J. L. (2000). Parental reports of coparenting and observed coparenting behavior during the toddler period. *Journal of Family Psychology, 14*, 220–236.
- Minuchin, P. (1985). Families and individual development: Provocations from the field of family therapy. *Child Development, 56*, 289–302.
- Pauli-Pott, U., Mertesacker, B., Bade, U., Bauer, C., & Beckman, D. (2000). Contexts of relations of infant negative emotionality to caregiver's reactivity/sensitivity. *Infant Behavior and Development, 23*, 23–39.
- Pleck, J. H., & Masciadrelli, B. P. (2004). U.S. residential fathers: Levels, sources, and consequences. In M. E. Lamb (Ed.), *The role of the father in child development* (4th ed., pp. 222–271). Hoboken, NJ: Wiley.
- Proulx, C. M., Helms, H. M., & Payne, C. C. (2004). Wives' domain-specific "marriage work" with friends and spouses: Links to marital quality. *Family Relations, 53*, 393–404.
- Putnam, S. P., Sanson, A. V., & Rothbart, M. K. (2002). Child temperament and parenting. In M. Bornstein (Ed.), *Handbook of parenting: Children and parenting* (2nd ed., vol. 1, pp. 255–277). Mahwah, NJ: Lawrence Erlbaum Associates.
- Rothbart, M. K. (1981). Measurement of temperament in infancy. *Child Development, 52*, 569–578.
- Rothbart, M. K. (1986). Longitudinal observation of infant temperament. *Developmental Psychology, 22*, 356–365.

- Rothbart, M. K., & Derryberry, D. (1981). Development of individual differences in temperament. In M. E. Lamb, & A. Brown (Eds.), *Advances in developmental psychology* (pp. 37–86). Hillsdale, NJ: Lawrence Erlbaum Associates.
- Schermerhorn, A. C., Cummings, E. M., DeCarlo, C. A., & Davies, P. T. (2007). Children's influence in the marital relationship. *Journal of Family Psychology, 21*, 259–269.
- Schoppe, S. J., Mangelsdorf, S. C., & Frosch, C. A. (2001). Coparenting, family process, and family structure: Implications for preschoolers' externalizing behavior problems. *Journal of Family Psychology, 15*, 526–545.
- Schoppe-Sullivan, S. J., Mangelsdorf, S. C., Brown, G. L., & Sokolowski, M. S. (2007). Goodness-of-fit in family context: Infant temperament, marital quality, and early coparenting behavior. *Infant Behavior and Development, 30*, 82–96.
- Schoppe-Sullivan, S. J., Mangelsdorf, S. C., Frosch, C. A., & McHale, J. L. (2004). Associations between coparenting and marital behavior from infancy to preschool years. *Journal of Family Psychology, 18*, 194–207.
- Sternberg, C. R., & Campos, J. J. (1990). The development of anger expressions in infancy. In N. L. Stein, B. Leventhal, & T. Trabasso (Eds.), *Psychological and biological approaches to emotion* (pp. 247–281). Hillsdale, NJ: Lawrence Erlbaum Associates.
- Stright, A. D., & Bales, S. S. (2003). Coparenting quality: Contributions of child and parent characteristics. *Family Relations, 52*, 232–240.
- Suitor, J. J. (1991). Marital quality and satisfaction with the division of household labor across the family cycle. *Journal of Marriage and Family, 53*, 221–230.
- Talbot, J. A., & McHale, J. P. (2004). Individual parental adjustment moderates the relationship between marital and coparental quality. *Journal of Adult Development, 11*, 191–205.
- Thompson, L., & Walker, A. (1989). Gender in families: Women and men in marriage, work, and parenthood. *Journal of Marriage and Family, 51*, 845–871.
- van den Boom, D. C., & Hoeksma, J. B. (1994). The effect of infant irritability on mother–infant interaction: A growth curve analysis. *Developmental Psychology, 30*, 581–590.
- Van Egeren, L. A. (2004). The development of the coparenting relationship over the transition to parenthood. *Infant Mental Health, 25*, 453–477.
- Ventura, J. N., & Stevenson, M. B. (1986). Relations of mothers' and fathers' reports of infant temperament, parents' psychological functioning and family characteristics. *Merrill-Palmer Quarterly, 32*, 275–289.