FAMILY PROCESS

Longitudinal Associations among Fathers' Perception of Coparenting, Partner Relationship Quality, and Paternal Stress during Early Childhood

JAY FAGAN*
YOOKYONG LEE†

This study examined the longitudinal and concurrent associations among fathers' perceptions of partner relationship quality (happiness, conflict), coparenting (shared decision making, conflict), and paternal stress. The sample consisted of 6,100 children who lived with both biological parents at 24 and 48 months in the Early Childhood Longitudinal Study-Birth Cohort data set. The results showed that there are significant and concurrent associations between fathers' perceptions of the coparenting relationship and paternal stress, and between partner relationship quality and paternal stress. There was also a positive direct longitudinal association between partner relationship conflict and paternal stress. However, we found only one longitudinal cross-system mediation effect: fathers' perception of coparenting conflict at 48 months mediated the association between partner relationship conflict at 24 months and paternal stress at 48 months. The family practice implications of these findings are discussed.

Keywords: Coparenting; Early Childhood; Father; Marital Quality; Parenting Stress

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Parenting stress is more prevalent during the early childhood years than during later stages of child development (Crnic & Low, 2002). A growing body of research has also shown that parenting stress during early childhood is associated with lower quality parenting behavior (Pelchat, Bisson, Bois, & Saucier, 2003) and lower levels of engagement with children (Bronte-Tinkew, Horowitz, & Carrano, 2010). Studies have shown that fathers and mothers can experience high levels of stress in the parenting role during these early years (Calzada, Eyberg, Rich, & Querido, 2004), although most research studies have focused on maternal stress in the parenting role (Sparks, Hunter, Backman, Morgan, & Ross, 2012). There is a need for research to examine fathers' stress in the parental role (the focus of this article) because contemporary fathers have significantly increased the amount of time in which they are directly involved with their young children.

Although researchers have suggested that there are multiple sources of parental stress, research on mothers has suggested that low quality father–mother relationships are important correlates of maternal stress in the parenting role (Krishnakumar & Buehler, 2000; Sturge-Apple, Gondoli, Bonds, & Salem, 2003). Research has also suggested that fathers' parenting stress may be more strongly associated with low-quality marital and partner relationships than is mothers' parenting stress (Belsky & Volling, 1987; Nelson, O'Brien, Blankson, Calkins, & Keane, 2009). This study therefore focuses on the associa-

*School of Social Work, Temple University, Philadelphia, PA.
†School of Social Work, University of Alabama, Birmingham, AL.
Correspondence concerning this article should be addressed to Jay Fagan, School of Social Work, Temple University, 13th St. and Cecil B. Moore Ave., Philadelphia, PA 19122. E-mail: jfagan@temple.edu

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tion between quality of the mother–father relationship and fathers' parental stress. However, few studies of mothers or fathers have included both coparenting, defined as "the ways that parents work together in their roles as parents" (Feinberg, 2003, p. 1499), and partner relationship quality (e.g., relationship happiness) when examining father–mother relationship correlates of parenting stress (Bronte-Tinkew et al., 2010; Solmeyer & Feinberg, 2011). Yet, a growing body of research has shown that these two aspects of the father–mother relationship are important, distinct factors contributing to fathers' and mothers' parenting behaviors and attitudes and to child outcomes (Cabrera, Scott, Fagan, Steward-Streng, & Chien, 2012; McHale & Waller, 2012; McHale, Waller, & Pearson, 2012; Waller, 2012). On the basis of these findings, we examine the associations between coparenting and partner relationship quality and fathers' parenting stress (we refer to paternal stress throughout this article). We focus on fathers' perceptions of the father–mother relationship because subjective experiences with the relationship may be more relevant to experiencing stress in the parenting role than are objective measures of the mother–father relationship (e.g., Deater-Deckard, 2005).

Most of the existing studies of mothers and fathers have used cross-sectional research designs (i.e., measuring coparenting and parenting stress at one point in time), thus restricting our understanding of whether parents' perceptions of quality of the father–mother relationship is associated with parenting stress over time. This study addresses this shortcoming by using longitudinal data to examine whether fathers' perceptions of the coparenting relationship and partner relationship quality are concurrently and longitudinally associated with paternal stress. Although longitudinal studies still do not allow us to make causal inferences between the partner relationship and paternal stress, they are better suited to disentangle the associations between couple relationship variables and paternal stress because the temporal aspect of these variables can be addressed (Williams, 2003).

CONCEPTUAL FRAMEWORK

This study is guided by a family systems framework which suggests that families consist of interdependent components (Cox, Paley, & Harter, 2001). Specifically, the family is comprised of subsystems that exert influence on one another. This understanding necessitates considerations of the mother–father, mother–child, father–child, and mother–father–child subsystems as they exert direct and indirect influence on one another. This study focuses on fathers' perceptions of the father–child, mother–father, and mother–father–child relationships. The latter two subsystems are comprised of mother–father interactions that are focused on the partner relationship (i.e., marital quality) as well as interactions that are focused on parenting and children, also known as coparenting (i.e., mother–father–child subsystem) (Brown, Schoppe-Sullivan, Mangelsdorf, & Neff, 2010). A major difference between partner relationships and coparenting is that partner relationships involve dyadic exchanges that are not focused on children whereas coparenting interactions involve dyadic and triadic exchanges which are always focused on raising children (McHale & Irace, 2011).

As regards partner relationship quality, many studies have shown that caring, higher quality relationships between partners create a context in which parents function more competently and with lower levels of stress (Cummings & Watson O'Reilly, 1997; Erel & Burman, 1995). Researchers have suggested that loving and happy relationships between partners provide a supportive context in which parents can feel more efficacious in the parenting role and better handle the day to day stresses of parenting (Bradford & Hawkins, 2006). At the same time, relationship conflict between parents has been shown to be associated with higher levels of reactivity to parenting stressors and general

measures of parenting stress (Lavee, Sharlin, & Katz, 1996; Sturge-Apple et al., 2003). Generally speaking, research supports the notion of interdependence between subsystems in the family by showing that parents' perceptions of happiness and conflict in partner relationships are associated with quality of the parent–child relationship (Belsky, Youngblade, Rovine, & Volling, 1991). Moreover, research has shown that these associations apply to fathers (Bradford & Hawkins, 2006) as well as they do to mothers (Barry & Kochanska, 2010).

Researchers have suggested that the processes through which coparenting relationships are associated with parenting stress are similar to those of partner relationship quality. Two significant components of coparenting are shared decision making and conflict (Feinberg, 2003; McHale, Kuersten-Hogan, & Rao, 2004). The interaction of two individuals who share decision making regarding the well-being of a child is likely to be associated with fathers' confidence that they can perform difficult parenting tasks and handle stressful situations with children (Brown et al., 2010; Feinberg & Sakuma, 2011). In contrast, negative aspects of coparenting (e.g., conflict) are associated with lower levels of parental efficacy (i.e., parent's sense of not being able to competently handle a child's needs), which may also be related to fathers feeling helpless and anxious during interactions with the child (Feinberg & Sakuma; Solmeyer & Feinberg, 2011). Yet, researchers have also suggested that coparenting is more strongly correlated with functioning of the parent–child system (Elliston, McHale, Talbot, Parmley, & Kuersten-Hogan, 2008) because it is more proximally related to parenting than is partner relationship quality (McHale, Fivaz-Depeursinge, Dickstein, Robertson, & Daley, 2008; Morrill, Hines, Mahmood, & Córdova, 2010). In their longitudinal study of coresidential couples, Feinberg, Kan, and Hetherington (2007) found that coparenting conflict explained more variance in fathers' negativity toward adolescent children than did marital quality. In this study, we consider fathers' perceptions of coparenting that is high in conflict and low in shared decision making to be correlates of paternal stress. Specifically, fathers who perceive themselves to have little influence in child-related decision making (Bronte-Tinkew, Scott, Horowitz, & Lilja [2009] operationalize shared decision making as paternal influence in parenting decisions) and who perceive high levels of coparenting conflict are expected to report higher levels of paternal stress.

The research literature has focused on several mechanisms to explain the association between partner relationship quality, coparenting, and parenting stress (maternal or paternal stress). One hypothesis suggests that the association between fathers' perceptions of quality of the partner relationship and paternal stress is mediated by fathers' perceptions of the coparenting relationship (McHale, 1995; Stroud, Durbin, Wilson, & Mendelsohn, 2011). This hypothesis suggests an indirect relationship between perceptions of the partner relationship and stress; that is, the association between fathers' perceptions of the partner relationship (happiness, conflict) and paternal stress are explained by fathers' perception of the coparenting relationship (shared decision making, coparenting conflict). For example, Belsky and Hsieh (1998) found that fathers' decreased feelings of love for the mother were longitudinally associated with lower levels of fathers' supportive coparenting interactions with mothers (see also Barry & Kochanska, 2010). Researchers have referred to these associations as cross-system effects (i.e., relationship between the mother–father subsystem and the mother–father–child subsystem) (Voydanoff, 2005).

An alternative hypothesis suggests that the association between fathers' perceptions of the coparenting relationship and paternal stress is mediated by fathers' perceptions of partner relationship quality. According to this hypothesis, fathers' perception of coparenting is indirectly associated with paternal stress through its association with fathers' perceptions of partner relationship quality. For example, Schoppe-Sullivan, Mangelsdorf, Frosch, and McHale (2004) found that problems in mothers' and fathers' coparenting

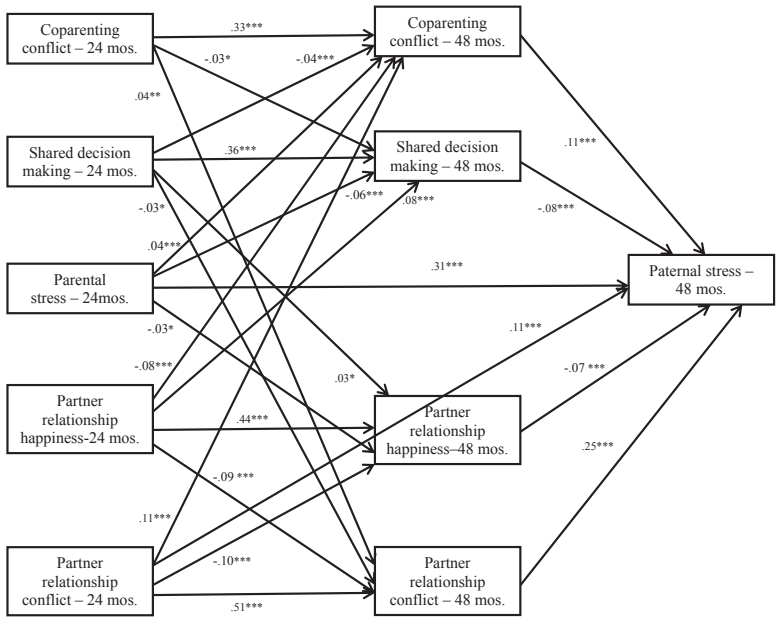
relationship during infancy and toddlerhood were associated with lower quality partner relationships during preschool, and not vice versa. Intervention studies have also shown that improved coparenting practices were associated with enhanced marital relationship skills and marital satisfaction among parents of 5- to 10-year olds (Bullard et al., 2010). We are aware of only one study that examined whether the association between fathers' perceptions of the coparenting relationship and paternal involvement with children is mediated by fathers' perceptions of partner relationship quality. DeGarmo, Patras, and Eap (2008) found that among divorced fathers, the positive association between coparenting conflict with one's former spouse and fathers' coercive parenting behavior was buffered when fathers received more support from current partners or others.

It is also possible that the associations between fathers' perceptions of partner relationship quality (happiness, conflict), coparenting quality (shared decision making, conflict), and paternal stress are not the result of mediation processes, but instead perceptions of partner relationship quality and coparenting are directly associated with paternal stress. Researchers have found that negative affective states in the family (e.g., marital discord) are directly associated with various problems in the parent–child subsystem, including use of less favorable parenting techniques as well as higher levels of parenting stress (Easterbrooks & Emde, 1988). This mechanism suggests that fathers' perceptions of partner relationship quality do not explain the association between coparenting relationship quality and paternal stress, and perceptions of coparenting do not explain the association between partner relationship quality and paternal stress. Instead the presence of perceptions of low quality partner relationships and low quality coparenting are additively and directly associated with paternal stress.

As noted above, few studies have examined both fathers' perceptions of relationship quality and coparenting at more than one time period, thus limiting our ability to determine whether the mediation relationships go from partner relationship to coparenting or vice versa. For example, although Belsky and Hsieh (1998) examined mothers' and fathers perception of marital love and coparenting support at multiple time periods, coparenting was measured as the sum of supportive interactions between parents over time. Similarly, Kitzmann (2000) only examined the associations between marital conflict and mothers' and fathers' subsequent coparenting interactions. To the best of our knowledge, Schoppe-Sullivan et al. (2004) are the only researchers who examined both coparenting and partner relationship quality at multiple times, but their study was based on a very small and selective sample of parents. Moreover, with the exception of DeGarmo et al.'s (2008) research on divorced fathers, few studies have examined how perceptions of partner relationship quality and coparenting are ultimately associated with functioning of the parent–child system. We address these gaps by examining the associations (mediation and direct mechanisms) between father's perception of partner relationship quality, coparenting, and paternal stress using a large longitudinal data set (Early Childhood Longitudinal Study-Birth cohort) in an attempt to better understand the pathways of these effects.

Current Study

This study examined the associations among fathers' perceptions of partner relationship quality (happiness, conflict), coparenting (shared decision making, conflict), and paternal stress when children were 24 and 48 months of age. Figure 1 shows the variables included in the model at each time period (Figure 1 also provides the findings of the structural equation model which are described later in this article). We focused on three pathways among these variables based on the research literature. The first pathway suggests that the association between father perception of partner relationship quality and paternal stress is mediated by father perception of coparenting. This pathway was examined by



Notes. Statistical controls include father caregiving (24, 48 mos.), mother's weekly work hours (24, 48 mos.), father's weekly hours at work (24, 48 mos.), child gender, child illnesses (48 mos.), number of siblings in household (48 mos.), SES (48 mos.). All 24 month variables are intercorrelated. All 48 month coparenting and partner relationship variables are intercorrelated.
*$p < .05$. **$p < .01$. ***$p < .001$.
Chi square = 216.79 (df = 35), $p < .001$
CFI = .99
RMSEA = .029

FIGURE 1. Structural Equation Model (using AMOS) for Father Perception of Coparenting, Partner Relationship Quality, and Father's Parenting Stress at 24 and 48 months.

testing the indirect effects of perception of partner relationship happiness and partner conflict during toddlerhood on paternal stress during preschool via perception of the coparenting relationship during preschool. The second pathway suggests that the association between perception of coparenting and paternal stress is mediated by perception of partner relationship quality. This pathway was examined by testing the indirect effects of coparenting during toddlerhood on paternal stress during preschool via partner relationship quality during preschool. The third pathway suggests a direct association between father perception of coparenting and perception of partner relationship quality and paternal stress. This pathway was tested by linking perception of coparenting and partner relationship quality during toddlerhood and preschool directly to paternal stress at preschool. Paternal stress at 24 months was included in the model to account for the possibility that paternal stress at 48 months is predicted by early stress in parenting rather than by fathers' perceptions of coparenting and partner relationship quality.

We controlled for possible confounding variables in this study, including child gender, number of children living in the household, household socioeconomic status (SES), child illnesses, fathers' and mothers' employment hours, and fathers' amount of involvement in caregiving with the child. Child gender is important to control because boys are more active and show more aggressive behaviors than girls during the preschool years, which may be associated with higher levels of paternal stress (Williford, Calkins, & Keane, 2007). Household SES was controlled because associations have been found between coparenting conflict and SES (Petterson & Albers, 2001). As regards child stressors, we controlled for child illnesses such as asthma, which have been linked with higher levels of parenting stress (Hullmann et al., 2010). We also controlled for gastrointestinal problems, respiratory illnesses, and ear infections, which may be related to paternal stress.

Fathers' employment hours were controlled because studies have shown patterns of paid work outside of the home significantly influence fathers' experiences with stress in parenting (Pleck, 2010). Finally, we controlled for amount of fathers' caregiving involvement because more involved fathers may experience higher levels of paternal stress particularly when they have difficulty balancing work and family demands (Press & Fagan, 2006).

METHOD

Data Source

The Early Childhood Longitudinal Study-Birth Cohort (ECLS-B) is a nationally representative probability sample of 10,700 children born in 2001, representing the nearly four million children born in the United States in 2001 and followed at approximately 9, 24, and 48 months (National Center for Education Statistics (NCES), 2005). The sample was selected using a clustered, list frame sampling design, which was made up of registered births in the National Center for Health Statistics vital statistics system. Children were excluded from the study if they were: (1) born to mothers under the age of 15; (2) adopted after the issuance of the birth certificate; and (3) died before the age of 9 months. The study collected data from primary caregivers (including biological, adoptive, and foster mothers, stepmothers, and a small percentage of primary caregiving fathers), resident and nonresident fathers (biological, adoptive, foster, and stepfathers currently living in the child's household), center-based and home-based child care providers, kindergarten teachers, school administrators, and through direct observation and assessment in the child's home. This study uses the primary caregiver parent interview and resident father questionnaire.

Of the 14,000 sampled births, 76% (n = 10,700) of primary caregivers were interviewed at 9 months. Of the children whose primary caregivers completed the 9 month interview, 92% (n = 9,900) had a parent who completed the 24-month protocol. At 48 months, 50 children who died or moved permanently abroad between the 24-month and preschool interviews were excluded. The total sample for the preschool (48 month) wave was 8,950 children whose parents completed the primary caregiver interview (83.6% of parents who completed the 9-month interview).

Mothers reported on whether or not a father was resident or living with the mother and child at each wave of the study. The resident father questionnaire response rate was 76% and 78% at 9 and 24 months, respectively. Among the 7,000 children with a resident father at the time of preschool data collection, 87% (n = 6,100) had a father who completed the self-administered questionnaire.

The analytic sample was restricted to children who lived with both the biological mother and father at ages 24 and 48 months. Of the 10,700 participants at 9 months, we omitted 3,300 cases in which children did not live with the biological parents at 24 months, 1,300 cases in which children did not live with both parents at 48 months, and a small number of cases (<50) because the primary caregiver reported that children lived with adoptive parents. The final analytic sample size was 6,100 coresidential biological mothers and fathers.

Participant Characteristics

Table 1 shows that the majority of fathers in the analytic study sample were non-Hispanic white (49.7%), followed by Hispanic (19.4%), Asian/Pacific Islander (13.9%), multiracial (7.5%), African American (7.3%), and American Indian/Alaskan Native (2.1%). Most fathers in the analytic sample were married at 48 months (89.5%). On an average,

TABLE 1
Descriptive Statistics (N = 6,100)

	n	%	*M*	*SD*
Socioeconomic status				
First quintile	700	11.7		
Second quintile	900	14.6		
Third quintile	1,200	19.5		
Fourth quintile	1,400	23.3		
Fifth quintile	1,900	30.9		
Gender (1 = *boy*)	3,300	51.5		
Race/ethnicity				
White	3,000	49.7		
African American	450	7.3		
Hispanic	1,200	19.4		
Asian/Pacific Islander	850	13.9		
American Indian/Alaskan Native	150	2.1		
Multiracial	450	7.5		
Marital status (48) (1 = *married*)	5,450	89.5		
Age of child (months)			52.80	4.13
Number of siblings			1.55	1.12
Age of father (years)			35.8	6.72
F hours of work per week (24)			45.86	11.50
F hours of work per week (48)			46.47	10.97
M hours of work (24)			18.45	19.39
M hours of work (48)			20.29	19.77
N asthma attacks (48)			.26	1.54
N respiratory illnesses (48)			.26	1.08
N gastro-intestinal illnesses (48)			.08	.62
N ear infections illnesses (48)			.98	1.96
Paternal caregiving (24)			51.57	7.78
Paternal caregiving (48)			24.06	4.81
Partner relationship happiness (24)			2.71	.43
Partner relationship happiness (48)			2.65	.49
Partner relationship conflict (24)			16.86	4.01
Partner relationship conflict (48)			15.42	4.01
Coparenting influence (24)			10.24	1.55
Coparenting influence (48)			10.56	1.63
Coparenting conflict (24)			2.50	.84
Coparenting conflict (48 months)			2.36	.83
Paternal stress (24 months)			9.66	2.23
Paternal stress (48 months)			10.03	2.98

Note. F = father; M = mother; N = number since the last interview.

fathers were 35.8 years of age. Approximately 54.2% of the children in the sample lived in households in the top two quintiles of socioeconomic status, whereas about 26.3% of children resided in households in the bottom two quintiles. Fathers worked an average of 46.47 hours per week.

Measures

Paternal stress

Paternal stress was measured using five items from the *Parent Stress Index* (PSI, Abidin, 1995). This instrument was designed for clinical or research use in identifying parent–child systems under stress and at risk for the development of dysfunctional parenting behavior. Only father reports of stress were included in this study because we were

interested in their perceptions of parenting in relation to their perceptions of the father–mother relationship. The ECLS-B used five self-report items from the parent domain of the PSI at 24 and 48 months. To select developmentally appropriate items, the PSI items at 24 months were not the same as those used at 48 months. Sample items at 24 months included the following: "Since becoming a parent I have given up more than I expected," and "I feel trapped by my responsibilities as a parent." Sample items at 48 months included, "Being a parent is harder than I expected," and "Caring for children is more work than pleasure." Response options ranged from 1 = *strongly agree* to 4 = *strongly disagree*. Paternal stress composites were constructed by adding the five items at 24 months (α = .68) and the five items at 48 months (α = .76).

Coparenting

Father's perception of *coparenting conflict* was measured using one item that asked about the father's arguments with the mother about children. At 24 and 48 months, fathers were asked, "Do you and your spouse/partner often, sometimes, hardly ever, or never have arguments about your children." Fathers' responses were reverse coded so that a high score indicated higher levels of coparenting conflict. Although using a single item may not be ideal for measuring a construct such as coparenting conflict, the ECLS-B did not collect more data on conflict. Even though nationally representative data sets will sometimes trade off using validated measures with single-item measures to obtain a large representative sample (i.e., increase scope of the study), the limits of single-item measures cannot be underestimated. Based on the work of Bronte-Tinkew, Scott, Horowitz, and Lilja (2009), father's perception of *shared decision-making* was measured using four items that asked about the father's influence in four areas of parenting. At 24 and 48 months, fathers were asked, "When it comes to making major decisions about the child, please tell me if you have No Influence, Some Influence, or a Great Deal of Influence on such matters as" the following: discipline, nutrition, health care, and childcare. The values of the four items were summed (range = 4–12); higher scores indicated that the father reported having more influence in decision making (α = .81 at 24 months and .94 at 48 months).

Partner relationship quality

Father's perception of *partner relationship happiness* was measured at 24 and 48 months using one father item asking, "Would you say your marriage/relationship is *very happy*, *fairly happy*, or *not too happy*." Scores ranged from 1 to 3. Scores were reverse coded so that higher scores indicated higher levels of happiness. The means were high: about 2.7 for fathers during the two waves of the study. At 24 and 48 months, father's perception of *partner relationship conflict* was measured using nine items asking fathers how often the parents argued about various topics. Topics included chores and responsibilities, money, not showing love and affection, sex, religion, leisure time, drinking, other women or men, and in-laws. Responses ranged from 1 = *often* to 4 = *never*. Responses were reverse coded and then summed to create variables for father's relationship conflict (α = .97 at 24 months and .79 at 48 months). Higher scores indicated higher levels of reported conflict.

Controls

Socioeconomic status was computed at the household level using data from the parent (mother) and father questionnaires at 48 months. This constructed variable was based on the mother's and father's education, mother's and father's occupation, and household income. Parent education level was obtained by asking parents to indicate the highest level of education completed at the time of the interview. Similarly, parents were asked about their occupation, and these data were transformed to prestige scores based on the

Standard Occupation Classification Manual. One item was used from the parent questionnaire at 24 and 48 months to measure total household income. Mothers were asked about their total household income from all sources. Respondents were asked to estimate their income within a range of $5,000 (i.e., $15,001–$20,000).

Fathers and mothers were also asked how many hours they worked for pay in the last week (*work hours*) at 24 and 48 months. Fathers and mothers who indicated that they were not employed were coded as working 0 hours. The ECLS-B included 12 items measuring fathers' perception of their *engagement in physical care activities* at 24 months (e.g., prepare food, put to sleep, change diapers, play) and 6 items measuring engagement at 48 months (e.g., prepare food, put to sleep, play, dress). All questions were scaled from 1 = *more than once a day* to 6 = *not at all*. The items were reverse coded before constructing a composite of physical caregiving ($\alpha_{24\ \text{months}} = .87$, $\alpha_{48\ \text{months}} = .83$).

We controlled for four child health problems. Mothers were asked at 48 months how often since the last interview their child had an asthma attack, a respiratory illness, a severe gastrointestinal illness, or an ear infection (ranges for these variables = 0–24). Children who had no such illnesses were coded as 0. These data were added together to construct a composite of child illnesses between 24 and 48 months. We also controlled for number of siblings (i.e., target child's siblings) in the household at 48 months.

Statistical Analyses

Structural equation models were conducted using AMOS. Full information maximum likelihood (FIML) estimation was used to handle all missing data. Goodness of fit of the model to the data is suggested when the chi-square test result is nonsignificant, the CFI is greater than .90 (Hu & Bentler, 1999), and the RMSEA is less than .06 (Browne & Cudeck, 1993). Researchers have suggested that because the chi-square is so conservative (prone to Type II error), a negative model chi-square finding can be discounted if other model fit measures such as CFI and RMSEA support the model and if the sample size is reasonable (Garson, 1998). Indirect effects were calculated to test for mediation (e.g., partner conflict → coparenting conflict → paternal stress). The Sobel test was conducted to verify the significance of the mediation analysis.

RESULTS

Preliminary Analyses

Bivariate analyses were conducted to determine the extent to which missing data were missing at random on the major study variables. First, *t*-tests were calculated to examine whether missing data were associated with SES (Table not shown). Most missing data occurred because parents did not participate in a wave of the study. There were no missing data on the SES variable. About 24% of cases were missing father data on paternal stress at 24 months, and about 15% were missing data on stress at 48 months. Lower SES fathers were more likely to be missing perception of paternal stress at 24 and 48 months, $t(6{,}098) = 10.34$, $p < .001$; $t(6{,}098) = 10.54$, $p < .001$, respectively. There was also evidence that race/ethnicity was related to missing father data. African American and Hispanic fathers were significantly more likely to be missing father perception of paternal stress data than were white, non-Hispanic fathers, $\chi(1) = 27.61$, $p < .001$; $\chi(1) = 28.93$, $p < .001$, respectively. In summary, the data were clearly not missing *completely* at random (MCAR). However, researchers have suggested that data may be missing at random (MAR, i.e., *not completely* missing at random) when there are other independent variables which are not related to missingness (Potthoff, Tudor, Pieper, & Hasselblad, 2006). We found, for example, that there were no significant relationships between number of

fathers' paid work hours and number of biological children in the household and missing paternal stress data at 48 months, $t(6,098) = .80$; $t(6,098) = .91$. These findings seem to suggest that the data are MAR but not MCAR. FIML has been viewed as an acceptable technique to handle data which are MAR (Raykov, 2011). Still, the data reveal bias because lower SES fathers were more likely to attrite from the study.

We also conducted Pearson Correlations among all study variables to examine possible collinearity among variables (see Table 2). The largest correlation was between father perception of partner conflict at 24 months and perception of partner conflict at 48 months ($r = .57$, $p < .001$), followed by perception of partner conflict at 24 months and perception of coparenting conflict at 24 months ($r = .56$, $p < .001$). However, the variance inflation factors measures for these variables when multiple regression analyses were conducted (with paternal stress at 48 months as the dependent variable) were all well below the cut-off of 5.0 (they ranged from 1.58 to 2.04). Nonetheless, the moderately large bivariate correlation between perception of conflict and perception of coparenting raises some concerns about whether these variables are measuring separate constructs.

TABLE 2

Pearson Correlation Coefficients among Study Variables

	1	2	3	4	5	6	7	8
1 SES								
2 Number of siblings	−.12***							
3 Child gender	.00	.03*						
4 Father's age	.27***	.09***	.00					
5 Father's work hours	.07***	.05***	.00	.02				
6 Father's caregiving	.04**	−.06***	−.09***	−.05***	−.15***			
7 Child illnesses	.02	−.03*	−.05***	−.03*	.06***	.02		
8 Partner happiness, 24	.03*	.02	−.01	−.02	.02	.06***	−.02	
9 Partner happiness, 48	.01	.02	.01	−.02	−.03*	.08***	−.05***	.49***
10 Partner conflict, 24	−.02	−.02	.02	−.04***	.00	−.02	.02	−.37***
11 Partner conflict, 48	.03	−.01	.01	−.03*	.06	−.04***	.03*	−.30***
12 Coparenting conflict, 24	−.01	.03*	.01	.05***	−.03*	−.05***	.01	−.26***
13 Coparenting conflict, 48	.04*	.05***	−.01	.05***	.04***	−.07***	.00	−.30***
14 Shared decision, 24	−.01	−.02	.00	−.04***	−.04***	.17***	.01	.19***
15 Shared decision, 48	.05***	−.01	.00	−.04**	−.04**	.24***	.01	.19***
16 Paternal stress, 24	−.06***	.03*	−.02	.05***	−.03*	−.03*	.01	−.15***
17 Paternal stress, 48	.04**	.03*	−.02	.01	−.03*	−.04**	−.01	−.16***

	9	10	11	12	13	14	15	16
9 Partner happiness, 48								
10 Partner conflict, 24	−.29***							
11 Partner conflict, 48	−.45***	.57***						
12 Coparenting conflict, 24	−.21***	.56***	.35***					
13 Coparenting conflict, 48	−.29***	.34***	.55***	.43***				
14 Shared decision, 24	.14***	−.17***	−.15***	−.16***	−.14***			
15 Shared decision, 48	.22***	−.15***	−.22***	−.14***	−.18***	.42***		
16 Paternal stress, 24	−.13***	.24***	.16***	.23***	.16***	−.15***	−.15***	
17 Paternal stress, 48	−.24***	.19***	.35***	.19***	.31***	−.14***	−.20***	.37***

Note. All variables refer to father self-reports (i.e., father perception). Shared decision = shared decision making; Partner happiness = partner relationship happiness; Partner conflict = partner relationship conflict.

*$p < .05$; **$p < .01$; ***$p < .001$.

Descriptive Analyses

Paternal stress was quite low, on the average. The average composite score of 9.66 at 24 months (see Table 1) is equivalent to an average item score of 1.93 (range = 1–4 per item), indicating that fathers disagree that they have stress in the parenting role. At 48 months, fathers' average composite paternal stress score of 10.03 was equivalent to an average item score of 2.01, also indicating a low level of stress. Fathers' reports of relationship happiness were high, with 72.67% of fathers indicating that they were very happy at 24 months, and 68.19% indicating that they were very happy at 48 months. Fathers' reports of partner relationship conflict were also low at 24 months, on the average. Fathers' composite scores of 16.86 were equivalent to an average item score of 1.87 (range = 1–4), suggesting that fathers perceive low levels of conflict such as arguing about religion and arguing about chores. At 48 months, fathers' composite relationship conflict scores (M = 15.42) were equivalent to an average item score of 1.71, again suggesting low levels of perceived relationship conflict. Father's perception of coparenting conflict was more frequent; about 37% of fathers indicated that they often or sometimes argue with mothers about the child at 24 months. Similarly, about 36% of fathers reported that they often or sometimes argue with mothers about the child at 48 months. Fathers' perceptions of shared decision making composite scores were high, 10.24 at 24 months and 10.56 at 48 months, respectively. These scores are equivalent to average item scores of 2.56 and 2.6 (range per item = 1–3), suggesting that fathers perceive high levels of shared decision making.

Path Analyses

Table 3 and Figure 1 show the results of the structural equation modeling, with all controls in the model. Only significant parameters are shown in Figure 1. The hypothesized model revealed a good fit to the data: χ^2 (df = 35) = 216.79, $p < .001$; CFI = .99; RMSEA = .029. With approximately 90% confidence, the RMSEA was between .026 and .033.

The results of the path diagram revealed that there was only one direct linkage between fathers' perception of coparenting or partner relationship quality at 24 months and paternal stress at 48 months. Fathers who reported higher levels of partner conflict at 24 months were more likely to report paternal stress at 48 months. All of the father perceptions of coparenting and partner relationship variables at 48 months were concurrently associated with paternal stress at 48 months. The perceptions of coparenting and partner relationship quality variables at 24 months were significantly related to most of the coparenting and partner relationship variables at 48 months.

When the indirect effects of father perception of coparenting or relationship quality variables at 24 months on paternal stress at 48 months (i.e., mediation analyses) were examined, the findings revealed that the early coparenting variables and early relationship variables were indirectly and longitudinally associated with paternal stress. For the most part, however, the indirect paths went through the same variables at 24 and 48 months, and then to paternal stress at 48 months. Almost all of the indirect effect of perception of coparenting conflict at 24 months on paternal stress at 48 months was mediated by perception of coparenting conflict at 48 months (β = .04, $p < .001$; Sobel test = 7.00). The same was true for shared decision making (β = −.08, $p < .001$; Sobel = −7.36).

Fathers' perception of partner relationship happiness at 24 months was indirectly related to paternal stress at 48 months about equally through partner relationship happiness at 48 months (β = −.03, $p < .01$; Sobel = −5.10) and through partner conflict at 48 months (β = −.02, $p < .05$; Sobel = −7.01). That is, fathers who reported feeling

TABLE 3
Path Analysis Results (N = 6,100)

	B	*SE*	β
Direct effects			
Coparenting conflict 24 → coparenting conflict 48	.33	.01	.33***
Coparenting conflict 24 → partner conflict 48	.19	.07	.04**
Coparenting conflict 24 → partner happiness 48	−.02	.01	−.02
Coparenting conflict 24 → shared decision 48	−.08	.03	−.04**
Coparenting conflict 24 → paternal stress 48	.07	.06	.02
Shared decision 24 → shared decision 48	.38	.01	.36***
Shared decision 24 → partner conflict 48	−.08	.03	−.03**
Shared decision 24 → partner happiness 48	.01	.00	.03*
Shared decision 24 → coparenting conflict 48	−.02	.01	−.04***
Shared decision 24 → paternal stress 48	−.01	.02	−.00
Partner conflict 24 → partner conflict 48	.50	.01	.51***
Partner conflict 24 → partner happiness 48	−.01	.00	−.10***
Partner conflict 24 → coparenting conflict 48	.02	.00	.11***
Partner conflict 24 → shared decision 48	−.01	.01	−.01
Partner conflict 24 → paternal stress 48	.08	.01	.11***
Partner happiness 24 → partner happiness 48	.50	.01	.44***
Partner happiness 24 → partner conflict 48	−.83	.11	−.09***
Partner happiness 24 → coparenting conflict 48	−.14	.02	−.11***
Partner happiness 24 → shared decision 48	.31	.05	.08***
Partner happiness 24 → paternal stress 48	−.01	.09	−.07
Paternal stress 24 → coparenting conflict 48	.01	.00	.04***
Paternal stress 24 → partner conflict 48	.03	.02	.02
Paternal stress 24 → partner happiness 48	−.01	.00	−.03*
Paternal stress 24 → shared decision 48	−.05	.01	−.07***
Paternal stress 24 → paternal stress 48	.42	.02	.31***
Coparenting conflict 48 → paternal stress 48	.43	.06	.43***
Shared decision 48 → paternal stress 48	−.15	.02	−.08***
Partner conflict 48 → paternal stress 48	.19	.01	.25***
Partner happiness 24 → paternal stress 48	−.41	.08	−.07***
Indirect effects			
Coparenting conflict 24 → paternal stress 48	.20	.03	.05***
Shared decision 24 → paternal stress 48	−.08	.01	−.04***
Partner conflict 24 → paternal stress 48	.11	.01	.15***
Partner happiness 24 → paternal stress 48	−.46	.06	−.07***

Note. All variables refer to father self-reports (i.e., father perception). Controls include father caregiving (24, 48 months.), mother's weekly work hours (24, 48 months), father's weekly hours at work (24, 48 months), child illnesses (48 months), number of children in household (48 months), SES (48 months). Shared decision = shared decision making; Partner happiness = partner relationship happiness; Partner conflict = partner relationship conflict.

*$p < .05$; **$p < .01$; ***$p < .001$.

happier with their partners at 24 months indicated having lower levels of paternal stress at 48 months, and these associations were mediated by perceptions of partner conflict and partner relationship happiness at 48 months. Most of the indirect effect of fathers' perception of partner conflict at 24 months on paternal stress at 48 months was mediated by partner conflict at 48 months (β = .13, $p < .001$; Sobel = 17.76). A smaller but significant indirect effect went from perception of partner conflict at 24 months to paternal stress at 48 months through perception of coparenting conflict at 48 months (β = .015, $p < .05$; Sobel = 7.17). That is, fathers who reported higher levels of partner conflict at 24 months also indicated having more paternal stress at 48 months, and this association was explained by higher levels of perceived coparenting conflict at 48 months.

DISCUSSION

This study applied family systems theory to better understand the associations among father perception of coparenting, partner relationship quality, and paternal stress among coresidential fathers during early childhood. The main interest of this study was to examine the pathways in the family linking fathers' perceptions of partner relationship quality, coparenting, and paternal stress. Consistent with the growing body of research suggesting interdependence between the mother–father and father–child subsystems (e.g., Feinberg & Sakuma, 2011; Solmeyer & Feinberg, 2011), we found significant direct associations between fathers' perceptions of the coparenting relationship and fathers' paternal stress, and between partner relationship quality and paternal stress. We also found a fairly consistent pattern of significant associations between father perception of partner relationship quality (happiness and conflict) at 24 months and perception of coparenting variables (shared decision making and conflict) at 48 months, and between father perception of coparenting variables at 24 months and perception of partner relationship quality variables at 48 months. We also expected that there would be a mediation effect from early partner relationship quality to paternal stress via coparenting, and from early coparenting to paternal stress via partner relationship quality. However, the results only provided limited evidence of these mediation effects. That is, there was a significant but small indirect association between father perception of partner relationship conflict at 24 months and paternal stress mediated by perception of coparenting conflict at 48 months. Instead, we found a consistent pattern of indirect associations between relationship variables at 24 months and paternal stress at 48 months through the same relationship variables at 48 months. For example, early perception of coparenting conflict was indirectly associated with paternal stress through its association with coparenting conflict at 48 months.

Family systems researchers have suggested that the functioning of the mother–father system should be associated with functioning of the mother–father–child system (Belsky & Hsieh, 1998). Although we found significant longitudinal associations between fathers' perceptions of partner relationship quality and coparenting, we do not find more complex cross-system longitudinal associations between these variables and paternal stress as suggested by some researchers (Belsky & Hsieh, 1998; Schoppe-Sullivan et al., 2004). There are several possible explanations for these findings. It is possible that our measures of coparenting and partner relationship quality are not sufficiently robust for detecting cross-system associations among coparenting, partner relationship quality, and paternal stress. Large data sets such as the ECLS-B often forego using validated instruments to obtain a large sample size. It is also possible that other aspects of the father–child system such as the father–child attachment relationship may be more sensitive to cross-system effects. Future research should continue to examine these mediation effects.

Although we do not find cross-system, longitudinal mediation effects in relation to paternal stress, the results showing direct associations from the father perception of coparenting variables and partner relationship variables to paternal stress support the growing body of literature showing that coparenting and partner relationship quality are uniquely and additively associated with fathers' parenting experiences (Feinberg, 2003). Moreover, the results showing that coparenting and partner relationship quality at 24 months are longitudinally and indirectly associated with paternal stress at 48 months indicate that early father perception of father–mother relationship factors are associated with the father–child system over time.

Limitations

Although the focus of this study was on fathers' perception of coparenting, relationship quality, and paternal stress, we note that research has shown that fathers sometimes

underestimate relationship conflict. For example, research has revealed that mothers report more childrearing disagreements than do fathers (Bendikas, Wade, Cassedy, Taylor, & Yeates, 2011). There was also possible bias in the sample because missing data on the major study variables (e.g., paternal stress) were more likely to occur among lower SES couples and ethnic minorities. Our findings may therefore be more representative of higher SES and non-minority couples in the United States. This study examines only one component of coparenting conflict—arguing about children. Other aspects of coparenting conflict, such as nonverbal expressions of differences, may be important correlates of paternal stress. Also, the ECLS-B item on coparenting conflict asks about all children in the family; parents may argue differently in relation to each child. In addition, the single-item coparenting conflict measure and the single-item partner relationship happiness measure may not be sufficiently sensitive to detect change in paternal stress over time. It is also noteworthy that we found moderately strong bivariate correlations between father perception of partner relationship conflict and coparenting conflict at 24 months, which may indicate that these sources of conflict are actually part of the same construct. Future research should continue to examine the extent to which coparenting conflict and partner relationship conflict are distinct constructs. The partner relationship items used in the ECLS-B were also limited because they only addressed arguing between mothers and fathers. Other more serious behaviors, such as physical aggression and violence, were not included in the instrument. Furthermore, this study only included children residing with both biological parents, and therefore does not represent the total population of U.S. families.

Implications for practice and conclusions

Despite the limitations of the data in this study, the present findings have several implications for practice. It is important to help fathers develop positive perceptions of coparenting and partner relationships. Interventions should focus on how to negotiate coparenting relationships as well as how to resolve coparenting conflict. To reduce paternal stress, coparenting conflict and shared decision making should be emphasized as early as possible when working with coresidential couples. Partner relationship quality should also be assessed and become an integral part of counseling sessions as it is also associated with paternal stress. Moreover, the father–child system should receive more attention from practitioners to better understand its associations with other family system processes. Even though longitudinal cross-system effects on paternal stress are found to be minimal in this study, practitioners should keep in mind that family functioning is shaped by how family subsystems interact with each other. Whether their effect on one another is direct or indirect, a holistic approach to family functioning is necessary to build a healthy family. The results of this study add to the already existing body of research suggesting that programs which teach and support healthy coparenting and partner relationships have the potential to enhance father–child relationships and ultimately children's developmental outcomes (DeGarmo et al., 2008).

In conclusion, this study adds to our knowledge of fathering by showing that coresidential fathers' perceptions of the coparenting relationship and partner relationship quality are longitudinally and concurrently associated with their stress in the parenting role. Also, fathers' perceptions of coparenting and partner relationship quality at 24 months are indirectly associated with fathers' paternal stress at 48 months through their associations with the same coparenting and partner relationship variables at 48 months. However, we do not find longitudinal cross-system mediation effects from coparenting to partner relationship quality (or vice versa) and then to paternal stress. Although our findings are consistent with research showing associations between the mother–father

subsystem and the mother–father–child subsystem (and vice versa), we do not find that these cross-system associations are then related to the functioning of the father–child system.

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