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Factors Associated With Fathers' Caregiving Activities and Sensitivity With Young Children

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A multifactorial model was used to identify child, sociodemographic, paternal, and maternal characteristics associated with 2 aspects of fathers' parenting. Fathers were interviewed about their caregiving responsibilities at 6, 15, 24, and 36 months, and a subset was videotaped during father–child play at 6 and 36 months. Caregiving activities and sensitivity during play interactions were predicted by different factors. Fathers were more involved in caregiving when fathers worked fewer hours and mothers worked more hours, when fathers and mothers were younger, when fathers had more positive personalities, when mothers reported greater marital intimacy, and when children were boys. Fathers who had less traditional child-rearing beliefs, were older, and reported more marital intimacy were more sensitive during play. These findings are consistent with a multifactorial and multidimensional view of fathering.

In the last 2 decades, one of the major themes in child developmental research has been the "discovery" of the father. After abundant research on the importance of maternal sensitivity for the development of children, there is a realization that paternal sensitivity to the child's needs also is important (Lamb, 1997; Parke, 1996). Moreover, there is an appreciation that fathers often provide significant caregiving for their children, and that many fathers provide long hours of care for children while mothers work (Hofferth, Brayfield, Deich, & Holcomb, 1991). Still, within families in which mothers are employed as well as within those in which mothers are not employed, there is significant variability in the sensitivity of fathers to their children and the amount of caregiving fathers provide for their children (Parke, 1996).

Scholarship on fathering has coalesced around the idea that fathering is multifaceted

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and multidetermined, that fathering tends to be more sensitive to contextual factors than mothering, and that future inquiry on fathers is likely to be more productive if viewed from the frame of responsible or generative fathering rather than from notions that accentuate paternal absence or inadequate parenting behaviors. There has been a spate of efforts to synthesize research on fathering, to explicate the nature of paternal involvement, and to offer conceptual models aimed at identifying the key determinants of fathering (Cabrera, Tamis-LeMonda, Bradley, Hofferth, & Lamb, 2000; Doherty, Kouneski, & Erickson, 1998; Lamb, 1997; Levine & Pitt, 1995; Marsiglio, 1995; Palkovitz, 1997; Parke, 1996; Pleck, 1997). The components of these fathering models vary somewhat, but there is substantial overlap among them, and many derive from earlier conceptions about parenting in general (e.g., Belsky, 1984).

The model offered by Doherty et al. (1998) is, in most respects, representative and inclusive. It includes five major components: child characteristics including gender, temperament, and age; father characteristics including his employment, beliefs, and well-being; mother characteristics including her employment, beliefs, and well-being; coparental relationships including marital support and intimacy; and contextual or sociodemographic characteristics including income and ethnicity. In this article we examine elements of each of these components as they relate to two distinct aspects of fathers' parenting: engagement in caregiving activities and the quality (specifically, sensitivity) of fathers' interactions with their children. Fathers whose families were participants in the National Institute of Child Health and Human Development (NICHD) Study of Early Child Care were interviewed about their caregiving responsibilities when their children were 6, 15, 24, and 36 months of age. A subset of fathers also was videotaped as they played with their children at 6 and 36 months.

Multidimensional Nature of Fathers' Parenting

Much of the existing literature has focused on the global construct of "father involvement." This construct, for the most part, has referred to the amount of time fathers spend with their children or the extent of their caregiving responsibilities. Generally, when using this construct, researchers have not considered separately the quality of father's parenting as well as the amount (Lamb, 1997; Pleck, 1997), although the two are likely to have different effects on children. Recent surveys (Coltrane, 1996) indicate that some fathers regularly participate in hands-on caregiving tasks such as feeding and diapering, whereas others do not. The quality of fathers' interactions with their children also is variable, with some fathers being engaged, warm, and supportive during play with their infants and young children whereas others are considerably less so (Belsky, Hsieh, & Crnic, 1998; Cox, Owen, Lewis, & Henderson, 1989). The amount of caregiving and the sensitivity of father's care have been differentially related to children's developmental outcomes and to paternal–family characteristics (Barnett & Baruch, 1987; Parke, 1996; Volling & Belsky, 1991). Thus, it is important to consider involvement in caregiving and paternal sensitivity separately because different factors may predict each of them. In the sections that follow, we consider the research relevant to factors that may predict these different aspects of father's parenting.

Child Characteristics and Fathers' Parenting

Child characteristics such as gender and temperament have been proposed to influence fathers' parenting (Belsky, 1984; Doherty et al., 1998; Parke, 1996). Fathers appear more involved with their sons than with their daughters (Barnett & Baruch, 1987; Goldscheider & Waite, 1991; Harris & Morgan, 1991), and their involvement is more stable with sons than with daughters (Radin, 1993). With regard to temperament, fathers in single-earner families have been observed to spend more time caring for difficult infants than temperamentally easy infants (Volling & Belsky, 1991), and there are indications that fathers' interactions with difficult infants are less positive than with temperamentally easy infants (Grych & Clark, 1999). Children's birth order also has been related to father involvement. In families with several children, fathers are more likely to handle the caregiving needs of the older children while mothers care for the younger children, especially infants (Vandell, 1987). In the current

study, we consider fathers' caregiving activities and sensitivity in relation to these four child characteristics: age, gender, temperament, and birth order.

Paternal Characteristics and Fathers' Parenting

Conceptual models proposed by Doherty et al. (1998), Parke (1996), and Belsky (1984) suggest that individual characteristics of the father are associated with parenting. In general, research supports this hypothesis. Fathers who have more child-centered beliefs about child rearing (Cowan & Cowan, 1987) and more egalitarian attitudes about gender roles (Aldous, Mulligan, & Bjarnason, 1998; Baruch & Barnett, 1981) are more likely to participate in caregiving activities than fathers with more traditional beliefs. Fathers with higher self-esteem (Volling & Belsky, 1991), better overall life adaptation (Grossman, Pollack, & Golding, 1988), and lower levels of depression (Grossman et al., 1988) and hostility (Cox, Paley, Payne, & Burchinal, 1999) are more supportive and warm with their children than fathers with poorer psychological adjustment. How fathers perceive the mothers' employment appears important as well. Men who have more positive views of their wives' employment are more involved with their children than men who have more negative views (Peterson & Gerson, 1992). Fathers' employment hours also have been portrayed as an individual father characteristic that is linked to paternal involvement (Doherty et al., 1998). Coltrane (1996) found that fathers who were employed for more hours were less involved in caregiving than fathers who worked fewer hours. Fathers who had prestigious occupations requiring significant time and emotional investments have appeared less accessible and engaged than fathers whose occupations were less demanding (Grossman et al., 1988; Hood, 1993). In the current study, we consider five paternal characteristics (work hours, personality, age, child-rearing beliefs, and beliefs about maternal employment) in relation to fathers' caregiving activities and sensitivity.

Coparental Relations and Fathering

Doherty et al. (1998), Belsky (1984), and Cox et al. (1989) have argued that the marital relationship is an important support system for the father in his parenting role. Indeed, Feldman, Nash, and Aschenbrenner (1983) suggested that the father's perception of his marital relationship is consistently the most powerful predictor of his involvement in and satisfaction with parenting. A number of studies have confirmed such a link, for both the quality of the father's interactions with his young children and the amount of caregiving involvement of the father. Belsky, Youngblade, Rovine, and Volling (1991) reported that as marriages deteriorate, men become more negative and intrusive and less sensitive in their parenting. Cox and her colleagues (Cox et al., 1999; Cox, Payne, & Margand, 1995) found that both the sensitivity of fathers to their young infants and their reported involvement with the infant suffer when marriages are more conflicted and men perceive their marriages less positively. This finding occurs even when such variables as men's education, income, and adjustment, which could account for the association, are controlled. Similarly, Cummings and O'Reilly (1997) noted in their review of fathering in a family context that, in harmonious marriages as opposed to discordant marriages, mothers and fathers are more likely to have similar, shared, and reciprocal roles within the family. This might suggest that the father's provision of child care may occur more often in harmonious marriages. In the current study, both fathers' and mothers' perceptions of marital intimacy were considered as predictors of paternal caregiving responsibilities and paternal sensitivity.

Maternal Characteristics and Fathers' Parenting

Maternal characteristics need to be considered in determining how involved fathers are in parenting (Doherty et al., 1998; Parke, 1996; Pleck, 1985). Fathers have been found to be more involved in caregiving activities when mothers value their participation and when mothers view the fathers as competent caregivers (Beitel & Parke, 1998; Haas, 1988; Palkovitz, 1984). Fathers are more involved when mothers endorse more liberal attitudes about gender (Ishii-Kuntz & Coltrane, 1992). Paternal caregiving activities also have been related to maternal employment (Parke, 1996; Pleck, 1997). There is considerable evidence that fa-

thers assume more caregiving responsibilities in dual-earner households than in single-earner households (Coltrane, 1996; Grych & Clark, 1999; Robinson, 1988; Russell, 1986) and that fathers are more engaged with their offspring when mothers are employed for more hours (Baruch & Barnett, 1981; Goldscheider & Waite, 1991).

Evidence regarding relations between maternal employment and the quality of fathers' behaviors is more mixed. In 2-hr, dinner-time observations of 150 children ages 2 and 3, Clarke-Stewart, Gruber, and Fitzgerald (1994) reported that maternal employment was not related to the quality or style of paternal behavior but was related to fathers being involved in more caregiving activities when mothers were employed. Belsky (1999), however, determined that fathers of firstborn sons (n = 120) provided less sensitive, affectionate, and involved care for their sons during naturalistic home observations conducted at 15, 21, 27, and 33 months when the boys were in nonparental care for more hours. In the current study, we further examined these issues in our observations of father–child interaction and reports of caregiving activities.

Are Predictors of Fathers' Parenting Different When Mothers Are Employed?

Because households in which both parents are employed, especially on a full-time basis, may be organized differently than homes in which mothers are not employed, it seems reasonable to ask whether family processes—including the determinants of fathering—operate differently across different types of families. Is it the case, for example, that the effect on fathering of having a son (vs. a daughter), or a child who cries a lot, or a marriage that is particularly harmonious varies depending on maternal employment status?

Although there is not a great deal of study of this intriguing issue, at least with respect to the determinants of family processes, the prospect has been examined with regard to child outcomes. In these studies, there are indications that the determinants of child functioning vary as a function of whether the mother is employed, the child is in child care, or both. For example, Howes (1990) found that a composite parenting measure was a stronger predictor of child development for children who had been cared for by their mothers during the first year of life than for children who had been in child care because of their mother's employment. Relatedly, Dunham and Dunham (1992) reported that features of maternal speech to their 13-month-olds predicted child language development across the first 2 years of life when mothers were not employed but did not predict language outcomes when mothers were employed. Other research on the families enrolled in the NICHD Study of Early Child Care also provides some evidence of family processes operating differently, at least in terms of predicting child outcomes, as a function of child-care experience and maternal employment (NICHD Early Child Care Research Network, 1998). Although multivariate analyses revealed similar overall patterns between family predictors and child outcomes across groups, univariate analyses revealed some differences. Although single parenthood was associated with lower school readiness and more problem behaviors at age 3 in the case of children cared for almost exclusively by their mothers, this was not the case when children were in child care on a full-time basis beginning early in the first year of life.

Such evidence for the differential prediction of child outcomes as a function of maternal employment encourages thinking about the differential prediction of fathering as a function of maternal employment. There are two relevant studies on this issue. Crouter, Perry-Jenkins, Huston, and McHale (1987) reported that maternal work status moderated relations between marital quality and involvement in caregiving. In that study, high levels of father involvement in caregiving predicted more marital conflict in households in which mothers were employed, whereas high levels of caregiving predicted less marital conflict when mothers were not employed. In a study of 63 fathers of infants, Grych and Clark (1999) determined that maternal employment moderated relations between quality and quantity of paternal behaviors. Fathers with nonemployed wives or wives who were employed part time exhibited more positive behaviors with their infants when the fathers were more involved in caregiving activities, whereas fathers whose wives were employed full time showed no association be-

tween the quantity and quality of their parenting behaviors.

Clearly, these data raise the prospect that the determinants of family dynamics, including father involvement, may vary as a function of maternal employment. Thus, another goal in this inquiry was to test the general hypothesis that maternal employment moderates the effect of putative determinants of fathering.

Study Hypotheses

The NICHD Study of Early Child Care offered an opportunity to consider two broad questions regarding fathers' parenting behaviors. First, we asked if child characteristics, sociodemographic factors, and father characteristics predict fathers' caregiving activities and sensitivity during interactions, and if the addition of mother characteristics improves the prediction of paternal behavior over and above the other factors. Second, we asked if associations between the predictor variables (child characteristics, sociodemographic factors, and father characteristics) and paternal behavior are moderated by maternal employment, that is, if associations differ for families in which mothers are not employed, employed part-time, or employed full-time.

We expected greater father involvement with sons as opposed to daughters and with firstborn children. We expected that the father's own adjustment and attitudes would relate to caregiving involvement and sensitivity in that fathers who are better adjusted and have less traditional beliefs would be more highly involved in the care of their young children and more sensitive in that care. We expected fathers who are employed for more hours to be less engaged in caregiving activities. More positive perceptions of the marriage were expected to predict more caregiving by fathers and greater sensitivity in play because (we suspect that) couples who perceive their marriage as more supportive are more likely to work as a team with greater similarity in their roles and responsibilities within the family. Finally, we hypothesized that fathers would be more involved in caregiving activities when mothers are employed for more hours and they have more positive views about maternal employment. We did not propose a directional hypothesis with respect to relations between maternal employment hours and paternal sensitivity because the current literature in this area is conflicting. Our examination of maternal employment as a moderator of other relations also may be viewed as exploratory.

Method

Participants

Participants in the NICHD Study of Early Child Care were recruited from 10 sites located in or near Little Rock, AR; Orange County, CA; Lawrence, KS; Boston, MA; Philadelphia, PA; Pittsburgh, PA; Charlottesville, VA; Seattle, WA; Morganton, NC; and Madison, WI. During selected 24-hr sampling periods in 1991, 8,986 women were visited in the hospital following their infant's birth. Of these, 5,416 met the eligibility criteria (mother speaks English, mother is over 18 years of age, infant is healthy, and there are no plans to move from the area in the coming year) and agreed to be contacted after their return home from the hospital. A subset of this group was selected for the sample using a stratified random sampling plan that was designed to ensure that at least 10% of the recruited families had mothers who had not graduated from high school, at least 10% were headed by single mothers, and at least 10% had children who were ethnic minorities (i.e., non-White). When infants were 1 month old, 1,364 children (58% of those contacted) were enrolled in the study. The recruited families included 24% ethnic minority children, 11% mothers without a high school education, and 14% single mothers. Of the mothers enrolled, 53% were planning to work full time, 23% were planning to work part time, and 24% were not planning to be employed. The recruited families were similar to the eligible families in the hospitals on these demographic variables, except that mothers in the study were slightly more likely (4%) to report that they expected to be employed than nonparticipating mothers.

Six of the research sites (Arkansas, California, Kansas, Pittsburgh, North Carolina, and Wisconsin) obtained funding to collect additional information directly from fathers. After infants and mothers were enrolled in the study, households at these sites were invited to participate in the father protocol if a husband or partner was in residence (n = 816). In most cases, the men were married to the infants' mothers (87.7%). Of the eligible households, 585 agreed to participate in at least one data collection period. When children were 6 and 36 months old, a subsample of fathers at three sites (Kansas, North Carolina, and Wisconsin) participated in the observational component of the father protocol (n = 278 at 6 months and n = 184 at 36 months).

Table 1 shows the demographic characteristics of families who participated in the interview portion of the father protocol, those who participated in the observational component of the father protocol, and eligible households who did not participate in the father protocol. White, non-Hispanic fathers were more likely than Black, non-Hispanic fathers to participate in the interview protocol, $\chi^2(3, N = 812) = 74.20, p < .001$, and the observational protocol at 6 and 36 months, $\chi^2(3, N = 509) = 12.03, p < .007$, and $\chi^2(3, N = 415) = 11.83, p < .008$, respectively. Fathers who had received at least a college degree were more likely to participate in interviews, $\chi^2(4, N = 812) = 25.04, p < .001$, and observations at 6 months, $\chi^2(4, N = 509) = 31.88, p < .001$, and at 36 months, $\chi^2(4, N = 415) = 25.13, p < .001$, than were fathers with a high school diploma or less. There were no significant differences between fathers who participated in the observational component of the study and fathers who participated only in the interview component of the study in terms of child gender, father ethnicity, or father education.

Overview of Data Collection Procedures

During home visits, fathers completed questionnaires concerning their personality, attitudes, beliefs, relationship with their partner, and involvement in caregiving activities. Thirty-seven percent of the fathers were interviewed at four visits, 34% at three visits, 15% at two visits, and 14% at one visit. At 6 and 36 months, a subset of fathers was videotaped playing with their child during 15-min semistructured play procedures. During separate home visits, mothers were interviewed and completed questionnaires pertaining to their personality, attitudes, beliefs, family demographics, financial resources, child temperament, and their relationship with their partner. Mothers also were interviewed by phone every 3 months about their employment hours and their husband or partner's employment hours.

Measures of Fathers' Parenting

Two aspects of fathers' parenting were assessed. We examined responsibilities for caregiving activities such as diapering and feeding and observed sensitivity during father–child interaction.

Caregiving activities. When children were 6, 15, 24, and 36 months of age, fathers completed questionnaires describing their responsibilities for caregiving activities (Glysch & Vandell, 1992). The 15 items included bathing the child, feeding the child, diapering the child, dressing the child, putting the child to bed, attending to the child at night, playing with the child, reading to the child, buying clothes or toys for the child, taking the child to day care, taking the child to the doctor, and taking the child on outings. Some of these items changed for the infant, toddler, and preschool assessments, reflecting different developmental needs. A total score was calculated by averaging the 5-point ratings (1 = *partner's job,* 3 = *we share equally,* 5 = *my job*). A higher score indicated greater paternal responsibility for caregiving activities. Cronbach's alphas ranged from .72 to .80. Paternal reports of caregiving responsibilities over time were moderately correlated (r = .54 to .73, mean r = .65).

Table 1
Demographic Characteristics of the Father Sample and the Sample of Eligible Families

	Participants					
	Interview sample[a]		Observed sample[b]		Eligible nonparticipants[c]	
Variable	*n*	%	*n*	%	*n*	%
Child sex						
Male	299	51	143	51	81	58
Female	286	49	135	49	60	43
Paternal ethnicity						
White, non-Hispanic	506	87	247	89	108	77
Black, non-Hispanic	44	8	16	6	19	14
Hispanic	24	4	10	4	7	5
Other	10	2	5	2	7	5
Paternal education						
Less than 12 years	45	8	18	7	16	11
High school or GED	110	19	43	16	38	27
Some college	197	34	95	34	46	33
Bachelor's degree	125	22	60	22	21	15
Postgraduate work	97	17	60	22	20	14

[a] $n = 585$. [b] $n = 278$. [c] $n = 231$.

Observed father sensitivity. Fathers' sensitivity was assessed during 15-min videotaped observations of father–child play. When children were 6 months old, fathers were asked to play with them for 7 min with any toy or object available in the home (or none at all). Then, they were asked to play for 8 min with a standard set of toys provided by an examiner (rattles, activity center, ball, rolling toy, book, and stuffed animal). At 36 months, fathers and children were provided with three numbered containers. A set of washable markers, stencils, and paper was in the first container, a set of dress-up clothes and a cash register was in the second, and a set of Duplo blocks with a picture of a model was in the third container. Fathers were instructed that the child play with the toys in all three containers and do so in the order specified (Vandell, 1979). The toys were selected because they were expected to elicit a range of paternal behaviors. Videotapes were coded at a single location by observers who knew nothing about the families' child care, parents' employment, or other family circumstances.

At 6 months, three aspects of father sensitivity were rated using 4-point scales: (a) father's responsivity to infant signals and needs, with high scores indicating consistent and appropriate responsiveness to the infant's social gestures, needs, moods, and interests; (b) positive regard, indicating the quality and quantity of positive feelings shown to the infant through facial, vocal, and physical expressions of affection; and (c) intrusiveness, the degree to which the father attempted to control the interaction, allowing the child little self-direction.

The global ratings were made after viewing the entire videotaped interaction while taking notes on relevant behavior throughout the interaction. Coders were trained extensively and established good reliability on the coding of the larger NICHD study's videotaped mother–infant interactions prior to coding the father–child interaction videotapes. Intercoder agreement of the 6-month father–child interactions on the basis of 27 of the cases (10% of the sample observed) was calculated as the intraclass correlation (Winer, 1971). Interrater agreement was .83, .82, and .86 for responsivity, positive regard, and intrusiveness, respectively. A paternal sensitivity composite score was created by averaging the individual scales after intrusiveness was reflected. Cronbach's alpha for the composite was .71.

At 36 months, coders rated three aspects of the father's sensitivity—supportive presence, respect for the child's autonomy, and hostility toward the child—using 7-point rating scales. Supportive presence was analogous to the 6-month responsivity rating scale; high scores indicated emotional support, encouragement, and positive emotional regard. Hostility reflected the father's expression of anger, discounting, or rejection of the child. Respect for the child's autonomy (analogous to a reversed score of intrusiveness) was shown in acknowledging the child's intentions and displaying respect for the child's individuality. Low scores on this scale were given when the father was highly intrusive and controlling.

Coders of the 36-month father–child interactions were reliable coders of the mother–child interactions from the larger NICHD study. Interrater agreement on the father–child tapes on the basis of 38 (30%) of the 36-month cases was calculated using Winer's (1971) technique. Agreement was .90, .83, and .89 for the ratings of supportiveness, respect for autonomy, and hostility, respectively. The three ratings were averaged, after reversing hostility, to create a paternal sensitivity composite score. Cronbach's alpha for the composite score was .75.

The 6-month and 36-month sensitivity composites were not significantly correlated ($r = .15$). In contrast, the sensitivity composite ratings for mother–child interaction, using the same observation procedures and rating scales, were moderately stable from 6 to 36 months ($r = .42$; see NICHD Early Child Care Research Network, 1999).

Predictor Variables

Variables that were considered as predictors of father's parenting included: (a) child characteristics (gender, a difficult temperament, and birth order), (b) sociodemographic factors (family income, percentage of income earned by the father, and father's ethnicity), (c) father characteristics (age, work hours, personality, child-rearing beliefs, beliefs about maternal employment, and marital intimacy), and (d) mother characteristics (age, work hours, personality, child-rearing beliefs, beliefs about maternal employment, and marital intimacy).

Child characteristics. At the 6-month home visit, mothers completed a modified Infant Temperament Questionnaire (Carey & McDevitt, 1978). Mothers rated their infants on 55 items, using a 6-point response scale. The composite measure, difficult temperament, was created by calculating the mean of the nonmissing items with appropriate reversal of items, so that the total score had a possible range from 1 to 6 with a higher score reflecting a more "difficult" temperament. Cronbach's alpha for the composite score was .81. Child gender and birth order (scored here as firstborn yes–no) were reported by the mothers at the 1-month interview.

Sociodemographic factors. Total family income, income from the father, and income from the mother were reported by mothers at 6, 15, 24, and 36 months. Mothers reported the race and ethnicity of the infants' fathers at the 1-month interview.

Father and mother characteristics. During telephone interviews conducted every 3 months, mothers

reported their own employment hours and their husband–partner's employment hours. Average number of hours per week in all jobs was considered beginning at 3 months postpartum. Fathers and mothers who were not employed during a given 3-month epoch were assigned scores of 0 hours for that epoch.

At the 1-month visit, fathers and mothers completed a 30-item questionnaire about child-rearing beliefs (E. S. Schaefer & Edgerton, 1985). Responses were scored on a 5-point scale. Higher overall scores indicate more traditional, less progressive beliefs about child rearing. Cronbach's alphas were .87 and .84 for men and women, respectively.

At the 6-month home visit, fathers and mothers completed three subscales of the NEO Five Factor Inventory, a short form of the NEO Personality Inventory (Costa & McCrae, 1989). Five-point ratings were used to assess Neuroticism (12 items), Extroversion (12 items), and Agreeableness (12 items). Summing scores for Extroversion, Agreeableness, and Neuroticism (reversed) created a positive personality composite. The alphas for the composites for men and women were .82 and .63, respectively.

At 6, 15, 24, and 36 months, men's and women's beliefs about the effects of maternal employment on children were assessed using 11 items that were rated on 6-point scales (Greenberger, Goldberg, Crawford, & Granger, 1988). The questionnaire yielded scores reflecting beliefs about the benefits (5 items) and costs (6 items) of maternal employment for children. Summing the benefits subscale and cost subscale (reversed) created a composite positive beliefs score that was internally consistent. The mean alpha was .89.

At 6, 15, 24, and 36 months, mothers and fathers also completed a 6-item scale assessing marital intimacy (M. T. Schaefer & Olson, 1981). Ratings were made on 5-point Likert scales (1 = *strongly disagree*, 5 = *strongly agree*). Higher scores indicated greater marital intimacy. Cronbach alphas ranged from .80 to .87 (M = .85).

Results

Table 2 presents the means and standard deviations for predictor variables and outcome variables used in the data analyses. Table 3 presents the correlations between cumulative scores of predictor variables at 36 months. Similar correlations between predictors were obtained for separate analyses conducted at each observational age (6, 15, 24, and 36 months). Tables summarizing correlations are available on request.

In our major analyses we considered two questions about paternal involvement. First, we asked if child characteristics, sociodemographic factors, and father characteristics predicted fathers' caregiving activities and sensitivity during play interactions, and if the addition of mother characteristics improved the prediction of paternal involvement over and above the other factors. Second, we asked if associations between the predictor variables (child characteristics, sociodemographic factors, and father characteristics) and paternal involvement were moderated by maternal employment, that is, whether these associations differed for families in which mothers were not employed, were employed part-time, and were employed full-time.

Fathers' Caregiving Activities

Are fathers' caregiving activities predicted by individual characteristics and sociodemographic factors? Table 4 presents the Pearson product–moment correlations between predictor variables (child characteristics, sociodemographic factors, father characteristics, and mother characteristics) and fathers' caregiving activities at 6 months, 15 months, 24 months, and 36 months. Also summarized in Table 4 are the results of simultaneous hierarchical linear models (HLMs) in which individual intercepts and slopes were estimated with respect to time and time squared. For Model 1, three blocks of predictors (child characteristics, sociodemographic factors, and father attributes) were entered simultaneously as predictors of paternal caregiving responsibilities.[1] Interactions with time and time squared were tested for each block.

The HLM analyses indicated that fathers in-

[1] Because the income variables were skewed, preventing parameters from being estimated in the iterative procedure used to fit longitudinal models, we created ordinal rankings for family income and proportion of income earned by father that were used in the HLM analyses of caregiving activities. Income categories were no income, less than the 25th percentile ($17,500), between the 25th percentile and the median ($37,500), between the median and the 75th percentile ($62,750), and greater than the 75th percentile. Percentage of father earnings was categorized as less then 25%, 25% to less than 50%, 50% to less than 75%, 75% to less than 100%, or 100%. Actual income and percentage of income were used in the simultaneous regressions of sensitivity.

Table 2
Means and Standard Deviations for Study Variables

Variable	Child age							
	1 or 6 months		15 months		24 months		36 months	
	M	*SD*	*M*	*SD*	*M*	*SD*	*M*	*SD*
Child's difficult temperament	3.1	0.4						
Family income	43,638	29,679	49,637	35,784	52,420	38,725	52,044	39,165
Father's income (%)	62.4	27.9	60.3	30.4	58.0	29.6	56.8	32.4
Father's age (years)	31.0	5.8						
Father's work hours (weekly)	43.6	13.3	42.4	15.6	41.8	13.6	43.6	14.3
Father's personality	58.6	12.7						
Father's child-rearing beliefs	75.5	16.0						
Father's beliefs about maternal employment	18.9	3.0	19.0	3.2	19.0	3.1	19.0	3.2
Father's report of marital intimacy	4.0	0.8	3.8	0.8	3.8	0.8	3.8	0.8
Mother's age (years)	28.9	5.5						
Mother's work hours (weekly)	22.6	18.9	23.2	19.4	23.3	19.2	23.1	19.4
Mother's personality	60.4	14.0						
Mother's child-rearing beliefs	72.6	14.7						
Mother's beliefs about maternal employment	18.7	3.2						
Mother's report of marital intimacy	3.9	0.8	3.9	0.8	3.8	0.9	3.8	0.9
Outcome measures								
Father's caregiving activities	2.5	0.4	2.6	0.3	2.6	0.4	2.6	0.4
Father's observed sensitivity[a]	9.5	1.5					17.6	2.1

Note. For the father involvement analysis, $n = 378$; for the father sensitivity analysis, $n = 191$ at 6 months and $n = 130$ at 36 months. Descriptive statistics for the three categorical variables are as follows: child gender, 52% boys ($n = 197$), 48% girls ($n = 182$); birth order, 41% firstborn ($n = 156$), 59% not firstborn ($n = 223$); father's ethnicity, 91% White ($n = 345$), 9% non-White ($n = 34$).

[a] At 6 months father sensitivity was rated using a 4-point scale. At 36 months, a 7-point scale was used.

Table 3
Pearson Intercorrelations Between Predictor Variables

Predictors	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18
Child characteristics																		
1. Gender	—	−.01	−.02	−.05	−.12	−.06	−.11	.06	.04	−.01	.03	.16	−.08	.13	−.02	.01	.11	.07
2. Difficult temperament		—	−.02	−.06	.07	−.10	−.15	.17	−.09	.16	−.02	.03	−.16	−.11	−.34	.10	−.04	−.08
3. Firstborn (firstborn = 1)			—	−.01	−.04	.00	−.08	−.04	−.12	−.06	−.01	.01	−.12	.07	−.00	−.08	.10	−.05
Sociodemographic																		
4. Family income				—	.14	.20	**.40**	.29	.17	−.32	.06	.15	**.47**	.21	.23	−.32	.22	.16
5. Father's income (%)					—	.10	−.04	**.59**	.03	−.19	−.39	.03	−.01	−.56	.12	−.07	−.21	.09
6. Father's ethnicity (White = 1)						—	.16	−.02	.09	−.16	−.02	.00	.20	.01	.13	−.21	−.11	.03
Father characteristics																		
7. Age							—	−.05	.17	−.25	.08	.01	**.80**	.14	.12	−.30	−.03	.02
8. Work hours								—	.04	−.10	−.12	−.01	−.02	−.23	.10	−.13	.00	.05
9. Personality									—	−.29	.01	**.46**	.19	−.01	.26	−.05	−.11	.25
10. Child-rearing beliefs										—	.08	−.01	−.30	−.04	−.21	**.46**	.01	−.09
11. Beliefs about maternal employment											—	−.06	.02	**.50**	−.01	.07	**.42**	−.09
12. Report of marital intimacy												—	.07	.09	.25	.08	.13	**.49**
Mother characteristics																		
13. Age													—	.15	.19	−.33	.02	.12
14. Work hours														—	.02	−.11	**.39**	.04
15. Personality															—	−.25	.09	**.40**
16. Child-rearing beliefs																—	−.04	.01
17. Beliefs about maternal employment																	—	−.06
18. Report of marital intimacy																		—

Note. $r = .17$, $p < .05$; $r = .22$, $p < .01$; $r > .30$, $p < .001$ (boldface in table).

Table 4
Factors Associated With Father Involvement in Caregiving Activities

Variable	*r*				Hierarchical linear model analyses			
					Model 1[e]		Model 2[e]	
	6-month[a]	15-month[b]	24-month[c]	36-month[d]	*B*	*SE*	*B*	*SE*
Intercept					2.63	.06	2.57	.06
Time (years)					.042***	$.072\times10^{-2}$	.044***	.001
Time squared					−.024**	$.006\times10^{-2}$	−.023**	.000
Child characteristics								
Gender	*ns*	*M* > *F**	*M* > *F**	*M* > *F***	.068*	.30	.060*	.029
Difficult temperament	−.07	−.08	−.04	−.14	−.062	.038	−.063	.039
Firstborn (firstborn = 1)	*ns*	*ns*	*ns*	*ns*	.048	.031	.032	.030
Test of block					$F(3, 485) = 3.53$, $p = .015$		$F(3, 483) = 2.89$, $p = .035$	
Sociodemographic factors								
Family income	−.15*	−.19**	−.07	−.12	−.0126	.012	−.020	.12
Father's income (%)	−.18**	−.27***	−.22***	−.32***	−.030**	.009	−.010	.010
Father's ethnicity	White < not*				−.103	.055	−.009	.054
Test of block					$F(3, 485) = 4.77$, $p = .003$		$F(3, 483) = 2.18$, $p = .089$	
Father characteristics								
Age	−.15**	−.16**	−.06	−.11	−.006*	.003	.003	.004
Work hours	−.18**	−.22***	−.23***	−.28***	−.003***	.001	−.003***	.001
Personality	.07	.08	.15*	.12*	.004**	.001	.005***	.001
Child-rearing beliefs	.08	.08	−.09	.03	$.010\times10^{-2}$	$.100\times10^{-2}$	.001	.001
Beliefs about maternal employment	.09	.10	.07	.16*	.005	.003	.002	.003
Report of marital intimacy	.01	.02	.11	.02	−.010	.012	−.021	.012
Test of block					$F(6, 485) = 4.78$, $p < .0001$		$F(6, 483) = 5.44$, $p < .0001$	
Mother characteristics								
Age	−.24***	−.19**	−.12	−.15			−.013**	.004
Work hours	.18**	.25***	.19**	.27***			.002***	.001
Personality	−.00	−.20***	−.07	−.03			−.003	.001
Child-rearing beliefs	.04	.09	−.03	.06			−.002	.001
Beliefs about maternal employment	.10	.12*	.13*	.22**			.008	.005
Report of marital intimacy	.11	.01	.18**	.15*			.042***	.012
Test of block							$F(6, 483) = 7.95$, $p < .0001$	

Note. *M* = male; *F* = female.
[a] $n = 293$. [b] $n = 323$. [c] $n = 276$. [d] $n = 197$. [e] $n = 378$.
* $p < .05$. ** $p < .01$. *** $p < .001$.

creased their caregiving activities over time ($B = .042$, $p < .001$), but the pattern of change was nonlinear ($B = -.024$, $p < .01$) in that fathers increased caregiving responsibilities between 6 and 15 months and were relatively stable thereafter (see Table 2 for these mean scores). No significant interactions with time were found when we jointly tested the set of interactions between time and each predictor within each block.

The HLM analyses also showed that fathers' caregiving activities were related to child characteristics, $F(3, 485) = 3.53$, $p < .02$; sociodemographic factors, $F(3, 485) = 4.77$, $p < .01$; and father characteristics, $F(6, 485) = 4.78$, $p < .001$. In terms of significant individual predictors, fathers assumed more caregiving responsibilities for sons than for daughters. Fathers also assumed more caregiving responsibilities when they contributed lower proportions of family income, they were employed for fewer hours, they were younger, and they had more positive personalities.

Next, we asked if the addition of mother characteristics to the model further improved the prediction. As shown in Table 4, the block of mother predictors also was associated with fathers' caregiving activities, $F(6, 483) = 7.95$, $p < .001$. Fathers reported being more involved in caregiving activities when mothers were younger, mothers were employed for more hours, and mothers reported more intimate marriages.

Multicolinearity between predictors did not appear to substantially influence these findings. As indicated in Table 3, correlations between predictors tended to be small. Furthermore, results from the simple correlations and the HLM analyses were similar.

Are associations between predictor variables and caregiving activities moderated by maternal employment? To address this question, we crossed each predictor in the final HLM model with maternal work hours scored as a three-level categorical variable: full-time, part-time, or minimal (<10 hr per week). Overall and block tests were conducted to see if patterns of associations varied across work groups. A significant interaction between maternal work group and the father characteristics block was found, $F(12, 448) = 2.02$, $p < .02$. When we examined interactions within the father characteristics block, we found that the association between fathers' child-rearing beliefs and their caregiving activities was moderated by maternal employment, $F(2, 448) = 5.74$, $p < .003$. In households in which mothers were not employed or were employed part-time, fathers who endorsed traditional child-rearing beliefs were significantly less likely to participate in caregiving activities. In households in which mothers were employed full-time, whether the father endorsed traditional child-rearing beliefs was not significantly related to whether he participated in caregiving activities.

Fathers' Sensitivity During Play Interactions

Is father sensitivity predicted by individual characteristics and sociodemographic factors? In Table 5 we present results of Pearson product-moment correlations of the sociodemographic and individual factors with paternal sensitivity at 6 and 36 months. Also presented in Table 5 are the results of multiple regression analyses. In Model 1, paternal sensitivity was regressed on three blocks of predictors: child characteristics, sociodemographic factors, and father characteristics. In Model 2, the block of maternal characteristics was added as predictors. Separate regressions were conducted at 6 and 36 months instead of HLM analyses because different families were typically observed at the two ages.

As shown in Table 5, neither Model 1 nor Model 2 was significant at 6 months. At 36 months, paternal sensitivity was significantly predicted by Model 1, $F(12, 117) = 3.30$, $p < .001$. Within this model, both sociodemographic factors, $F(3, 117) = 2.68$, $p < .05$, and father characteristics, $F(6, 117) = 4.53$, $p < .001$, were associated with fathers' sensitivity during play interactions. Fathers who were older, who endorsed less traditional child-rearing beliefs, and who reported more marital intimacy were more sensitive during the play interactions. In addition, paternal sensitivity was higher in households in which family income was lower. The addition of maternal characteristics in Model 2 did not improve the prediction of paternal sensitivity.

Is paternal sensitivity moderated by maternal employment? In our test of this moderator question, the maternal block was omitted be-

Table 5
Factors Associated With Paternal Sensitivity During Interaction

Variable	*r*		Multiple regression analyses (Bs)			
			Model 1		Model 2 [b]	
	6-month[a]	36-month[b]	6-month[a]	36-month[b]	6-month[a]	36-month
Child characteristics						
Gender (male = 1)	*ns*	*ns*	.009	−.011	.012	−.003
Difficult temperament	−.16*	−.07	−.129	−.037	−.143	−.009
Firstborn (firstborn = 1)	*ns*	first > not**	−.050	.184*	−.059	.166*
Test of block			$F(3, 178) = 1.19$, $p = .314$	$F(3, 117) = 1.79$, $p = .154$	$F(3, 172) = 1.31$, $p = .272$	$F(3, 111) = 1.38$, $p = .254$
Sociodemographic factors						
Family income	−.04	−.08	−.071	−.278**	−.082	−.282**
Father's income (%)	.08	.09	.044	−.025	.068	−.006
Father's ethnicity (White = 1)	White > not**	*ns*	.186*	.067	.191*	.037
Test of block			$F(3, 178) = 2.25$, $p = .084$	$F(3, 117) = 2.68$, $p = .049$*	$F(3, 172) = 2.36$, $p = .073$	$F(3, 111) = 2.39$, $p = .073$
Father characteristics						
Age	−.01	.15	−.073	.214*	−.074	.281*
Work hours	−.004	.03	−.045	.101	−.062	.056
Personality	.15*	.03	.088	−.142	.100	−.152
Child-rearing beliefs	−.12	−.31***	−.069	−.331***	−.025	−.257*
Beliefs about maternal employment	−.06	−.04	−.018	−.169	−.023	−.147
Report of marital intimacy	.09	.13	.065	.217*	.079	.212
Test of block			$F(6, 178) = .87$, $p = .52$	$F(6, 117) = 4.53$, $p < .0004$***	$F(6, 172) = .75$, $p = .613$	$F(6, 111) = 2.61$, $p = .02$*
Mother characteristics						
Age	.01	.08			−.025	−.146
Work hours	.0002	−.07			.042	.019
Personality	.06	.21*			−.013	.152
Child-rearing beliefs	−.10	−.31***			−.110	−.190
Beliefs about maternal employment	−.05	−.10			.0002	−.053
Report of marital intimacy	.04	.10			−.058	.002
Test of block					$F(6, 172) = .364$, $p = .90$	$F(6, 111) = 1.47$, $p = .20$
Full model			$F(12, 178) = 1.58$, $p < .10$, $R^2 = .10$	$F(12, 117) = 3.30$, $p < .001$, $R^2 = .25$	$F(18, 172) = 1.51$, $p < .31$, $R^2 = .11$	$F(18, 111) = 2.74$, $p < .001$, $R^2 = .31$

[a] $n = 191$. [b] $n = 130$.
* $p < .05$. ** $p < .01$. *** $p < .001$.

cause maternal characteristics did not add significantly to the overall model and its deletion reduced the number of parameters being estimated. Each predictor was crossed with the three-level maternal work hours variable—full-time, part-time, or minimal (<10 hr per week) or no employment—to estimate a separate regression model for each of these three groups. Overall and block tests were conducted to see if observed patterns of associations varied across work groups.

At 6 months, there was an interaction between the overall model and maternal employment, $F(24, 152) = 1.74$, $p = .024$. When specific block interactions were examined, a significant interaction was found between maternal employment and sociodemographic factors, $F(6, 152) = 3.17$, $p = .006$. When mothers were not employed or were employed full-time, families with higher incomes had more sensitive fathers; in contrast, in households in which mothers were employed part-time, families with higher incomes had less sensitive fathers.

At 36 months, the overall model was not significantly different for the three maternal employment groups (none, part-time, and full-time) nor were there any Block × Maternal Employment interactions.

How Large Are the Effects on Paternal Involvement?

In order to evaluate the size of the associations with paternal involvement, partial correlations (controlling for all other factors) were conducted. Because there is not a standard effect size from HLM analysis, we computed the partial correlations from the data from each age separately. The partial correlations between caregiving activities and individual significant predictors were of similar magnitude and small by Cohen's criterion ($pr = .10$). The median partial correlation between paternal caregiving activities and father work hours was −.16 (range = −.15 to −.21). Other partial correlations with caregiving activities were .16 (range = .15 to .21) for father personality, −.14 (range = −.11 to −.15) for mother age, .16 (range = .12 to .17) for mother work hours, −.06 (range = −.02 to −.23) for mother personality, and .09 (range = .10 to .18) for mother-reported marital intimacy. The partial correlations between paternal sensitivity at 36 months and individual predictors were moderate in size according to Cohen's criterion ($pr = .30$). The partial correlations were −.25 with family income, .21 with father's age, −.31 with traditional child-rearing beliefs, and .21 with father-reported marital intimacy.

Discussion

Results from the current study attest to the value of a multifactor model of fathering and to the idea that fathering is better understood as multifaceted rather than global, with caregiving activities and paternal sensitivity having different sets of correlates.

Predicting Fathers' Caregiving Activities

Child characteristics. Not surprisingly we, like others, found that what fathers do with and for their children reflects characteristics of the children themselves. Fathers increased their engagement in caregiving activities between 6 and 15 months, and they spent more time in caregiving activities with sons than daughters. This latter finding mirrors findings from other studies (Barnett & Baruch, 1987; Goldscheider & Waite, 1991; Harris & Morgan, 1991). However, neither birth order nor temperament were associated with fathers' caregiving responsibilities. The finding pertaining to child temperament is consistent with recent findings by Grych and Clark (1999), who also studied single- and dual-earner households, but is at odds with findings by Volling and Belsky (1991), who studied only single-earner families. Although there are still too few studies to warrant generalizations, it seems unlikely that an infant's behavioral style will substantially impact the level of father involvement in caregiving activities except in cases where infants are highly disregulated or active, thereby putting extra demands on the parenting system (Cox & Paley, 1997).

Paternal characteristics. Fathers' level of engagement in caregiving activities was found to reflect the father's own psychological and employment characteristics. More specifically, fathers who were younger, fathers who worked fewer hours, and fathers whose incomes constituted a smaller percentage of total family income spent more time in caregiving activities.

These findings, likewise, are reminiscent of findings from earlier studies (Coltrane, 1996; Grossman et al., 1988; Hood, 1993). Fathers with more positive personality attributes also spent more time in caregiving activities with their infants. This finding appears consonant with previous research showing that fathers with higher self-esteem, lower levels of depression and hostility, and overall better life adaptation and psychological adjustment spend more time in caregiving activities (Cox et al., 1999; Grossman et al., 1988; Peterson & Gerson, 1992; Volling & Belsky, 1991).

Maternal characteristics. Congruent with models by Doherty et al. (1998) and Parke (1996), paternal involvement in caregiving activities also reflected maternal characteristics, most specifically maternal age and the number of hours that the mother works. The finding pertaining to maternal work hours jibes with recent findings by Bonney, Kelley, and Levant (1999) showing that fathers are more involved with children when mothers work longer hours (see also Clarke-Stewart et al., 1994; Goldscheider & Waite, 1991). The findings on maternal age and maternal working hours also mirror the findings on paternal age and working hours. Care is more evenly distributed between mothers and fathers when both are young and when both have similar obligations related to work.

Coparental relations. The coparental relationship also was a significant factor in predicting the level of paternal involvement in caregiving activities. Mothers who reported higher levels of marital intimacy had partners who engaged in more caregiving activities. Interestingly, father's perception of marital intimacy was not related to his amount of caregiving. This latter result runs somewhat counter to the previous literature (see Pleck, 1997, for a review, and more recently, Bonney et al., 1999; Coley & Chase-Lansdale, 1999). However, in many of the previous studies, mothers were the primary reporters on marital quality. Thus, our findings are essentially consonant with previous studies, but they may also point to an important distinction between factors related to the quality versus the quantity of fathers' behaviors (i.e., paternal reports of marital intimacy were related to paternal sensitivity in this study as will be discussed below).

Sociodemographic factors. In the current study, there was no evidence that sociodemographic or contextual factors such as family income and ethnicity were connected to the father's level of engagement in caregiving activities independent of their relation with the other factors in the model tested. Both family income and ethnicity showed small bivariate relations with paternal caregiving responsibilities as expected. These bivariate findings are consistent with earlier findings by Grossman et al. (1988) and Hood (1993) showing that fathers with more prestigious occupations tend to spend less time with their children. However, the fact that family income was no longer significant once father's age and father's percentage of family income were included as predictors suggests that family economic status may no longer be a primary determinant of the level of paternal involvement in caregiving in most families in and of itself.

Predicting Fathers' Sensitivity

The array of factors associated with paternal sensitivity was different from the array associated with fathers' level of engagement in caregiving activities. Surprisingly, although there were a number of significant bivariate correlations between fathers' level of sensitivity at 6 months and child (temperament), sociodemographic (ethnicity), and father (personality) factors, the overall model linking these classes of factors and coparental factors was not significant. This finding stands in contrast to the broader literature on factors related to paternal nurturance and sensitivity, including some previous studies of fathers and infants (e.g., Cox et al., 1999; Volling & Belsky, 1991). Perhaps the 15-min videotaped play procedure was not as successful in capturing variations in paternal sensitivity as it was maternal sensitivity (NICHD Early Child Care Research Network, 1999).

We were more successful in our multivariate prediction of paternal sensitivity at 36 months. Fathers of firstborns appeared more sensitive than were fathers of later borns. In addition, older fathers and fathers who endorsed less traditional child-rearing beliefs were rated as more sensitive. The finding regarding child-rearing beliefs comports with previous research on

egalitarian attitudes (Baruch & Barnett, 1981; Cowan & Cowan, 1987).

As expected, paternal sensitivity at 36 months was connected to fathers' reports of marital intimacy. This finding is quite congruent with the larger literature linking both the quality and quantity of paternal involvement to marital quality (for reviews, see Doherty et al., 1998; Lamb, 1997; Parke, 1996; Pleck, 1997). The finding that father's perception of marital quality was related to paternal sensitivity whereas mother's perception of marital quality was related to paternal engagement in caregiving activities lends credence to the notion that paternal involvement is multifaceted. It also suggests that there is value in looking at father involvement holistically but not as representing a single global construct.

Paternal sensitivity at 36 months was not connected to maternal characteristics—perhaps most important for this study, it was connected in no consistent way with maternal employment. These results are at odds with Belsky's (1999) report that fathers were less sensitive and affectionate when nonparental care was used for more hours during the child's first 3 years, and they are consistent with the Clarke-Stewart et al. (1994) report of no differences in the quality of father–child interactions. Because these studies differ in a number of respects (semistructured play situation in the laboratory vs. naturalistic home observations; boys only vs. boys and girls), it will be important to investigate this issue further to identify conditions under which differences may be evident.

Finally, the finding that family income was negatively associated with paternal sensitivity may well represent the impact of paternal characteristics rather than family economic status per se. First, the bivariate correlation between family income and paternal sensitivity was nonsignificant. Second, bivariate correlations between family income, paternal age, father's ratings of marital intimacy, and father's views on child rearing were in the same direction as correlations between paternal sensitivity and the latter three father factors. These patterns of correlations suggest the possibility of a suppressor effect. The precise factors responsible for the negative residual relation between family income and paternal sensitivity are not directly determinable from data available in the NICHD study. However, a separate analysis determined that the amount of time fathers spent in caregiving did not account for these results.

Identity theory may provide some leads as to the factors that may have operated to produce this last finding. Specifically, Marsiglio (1995) and Ihinger-Tallman, Pasley, and Buehler (1995) have argued that paternal behavior can be understood as an extension of paternal identity. In constructing a view of the self, different roles (parent, worker, partner, etc.) have different salience at any given time. In effect, there is a salience hierarchy among roles that determines how much commitment a person has to each role at that time. Relatedly, within every major role identity (e.g., parenting), there is a salience hierarchy among its constituent subroles (e.g., breadwinner, playmate, moral teacher, disciplinarian, nurturer). Thus, for some men the role of worker may have higher salience than the role of parent—such men may make more money but be less sensitive as fathers (see Grossman et al., 1988; Hood, 1993). And even within their role as father, such men may value the role of breadwinner more than their role as nurturer. By contrast, other fathers may eschew the idea of success in business in favor of the role as parent. In effect, the negative residual relation between family income and paternal sensitivity observed in this study may be masking the impact of unmeasured father factors pertaining to commitment to the role of parenting rather than the effect of economic well-being per se.

Are These Relations Moderated by Maternal Employment?

Although we had suspected that maternal employment might be a pervasive moderator of fathers' caregiving activities and sensitivity, we did not find this to be the case. In the case of the current analyses, it did not appear that the factors associated with fathers' involvement were fundamentally altered by mothers' employment. In fact, only two interactions involving maternal employment were observed. This relatively modest evidence is consistent with a previous report from the NICHD Early Child Care Research Network (1998) that indicated generally similar patterns between family predictors and child outcomes for children with extensive versus minimal child-care hours.

At the same time, it should be noted that maternal employment did modify the relation between fathers' child-rearing beliefs and their caregiving activities. In households where mothers did not work or worked only part time, fathers were more likely to participate in caregiving activities if they espoused less traditional child-rearing philosophies, whereas in households in which mothers were employed full time, fathers were involved in caregiving activities regardless of their child-rearing beliefs. This finding suggests that mothers' full-time employment creates demands on family life that necessitate fathers assuming more caregiving responsibilities regardless of their underlying beliefs. It is informative to juxtapose these findings to earlier reports by Cowan and Cowan (1987), Baruch and Barnett (1981), and Peterson and Gerson (1992), who have found that fathers who endorsed child-centered and egalitarian beliefs were more likely to assume caregiving responsibilities than were fathers who had more traditional beliefs. An evolving consciousness about what constitutes appropriate male and female parenting roles may partially account for the discrepancy in findings as might sampling differences between the NICHD study and the other studies cited. As well, there is now an even higher percentage of women in the workforce and a higher percentage of men who are aware of the kinds of family adjustments being made to care for children.

The second significant interaction involved maternal employment and family income in the prediction of paternal sensitivity at 6 months. In households in which mothers were not employed or were employed full time, fathers were observed to be more sensitive when family incomes were higher. In households in which mothers were employed part time, fathers were less sensitive when family incomes were higher. We are cautious about placing too much emphasis on this interaction, however, because the overall prediction model was not significant at 6 months and because the interaction was not replicated at 36 months.

Summary

Overall, the findings pertaining to the multiple factors associated with paternal involvement attest to the importance of not thinking of involvement in a global way (Doherty et al., 1998; Lamb, 1997; Parke, 1996). Fathers' involvement in caregiving activities and their sensitivity during play interactions were predicted by different factors. In particular, fathers were more involved in caregiving when fathers worked fewer hours and mothers worked more hours, when fathers and mothers were younger, when the fathers had more positive personalities, when mothers reported greater marital intimacy, and when the child being cared for was a boy. Fathers were more sensitive during play interactions when fathers had less traditional child-rearing beliefs, were older, and reported more marital intimacy. It was notable that no single predictor accounted for more than a small fraction of the variance in either the level of paternal caregiving or paternal sensitivity. As such, our results vouchsafe Pleck's (1997) conclusion that "no single predictor exerts a predominant influence [on paternal involvement]" (p. 95). Of importance, they also extended findings pertaining to two important components of fathers' parenting: fathers' engagement in caregiving activities and their sensitivity. The complexity of these findings, together with the differences observed between the sets of findings pertaining to engagement and sensitivity, suggests that neither set may be applicable to other components of paternal involvement.

Implications for Applications and Public Policy

These findings have implications for educators, practitioners, and policymakers who are seeking ways to help families respond to the recent macrolevel social, political, economic, and technological changes. These changes, individually and collectively, impact the meaning of fatherhood for men and their families (Cabrera et al., in press). In this context, there is widespread agreement on the importance of facilitating responsible, generative fathering—the question is one of how to do so (Tamis-LeMonda & Cabrera, 1999; Tanfer & Mott, 1998). Numerous suggestions and recommendations have been made, from those focused on how to inculcate a stronger sense of fatherhood in men to those focused on increasing incentives for and reducing barriers to responsible fathering at community or societal levels. The results

of the current study suggest that pressures for fathers to assume caregiving responsibilities are likely to continue to increase as more mothers join the workforce. Opportunities for increased involvement can be facilitated by more family-friendly policies in the workplace that allow fathers more flexibility in their work hours. Improving the quality of father–child interactions may require different strategies. Our results suggest that developing educational programs for new fathers that target their child-rearing beliefs (by focusing on their children's needs and capacities) might be beneficial.

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