

## Fathers and Mothers at Play With Their 2- and 3-Year-Olds: Contributions to Language and Cognitive Development

Catherine S. Tamis-LeMonda, Jacqueline D. Shannon, Natasha J. Cabrera, and Michael E. Lamb

Father–child and mother–child engagements were examined longitudinally in relation to children’s language and cognitive development at 24 and 36 months. The study involved a racially/ethnically diverse sample of low-income, resident fathers (and their partners) from the National Early Head Start evaluation study ( $n = 290$ ). Father–child and mother–child engagements were videotaped for 10 min at home during semistructured free play, and children’s language and cognitive status were assessed at both ages. Fathers’ and mothers’ supportive parenting independently predicted children’s outcomes after covarying significant demographic factors. Moreover, fathers’ education and income were uniquely associated with child measures, and fathers’ education consistently predicted the quality of mother–child engagements. Findings suggest direct and indirect effects of fathering on child development.

Studies of father involvement have proliferated over the past three decades (Amato & Rivera, 1999; Cabrera et al., 2004; Cooksey & Fondell, 1996; Furstenberg & Harris, 1993; Lamb, 1997, 2004; Lerman, 1993; MacDonald & Parke, 1984; Marsiglio, 1987; Mosley & Thomson, 1995; Mott, 1990; Perloff & Buckner, 1996; Seltzer & Bianchi, 1988; Yogman, Kindlon, & Earls, 1995). Although many researchers initially contrasted absent and present fathers, or quantified father involvement solely in terms of financial contributions or time spent with children, they revolutionized the developmental literature by challenging the presumed insignificance of fathers’

influences. Researchers have since moved beyond binary and unidimensional measures of father absence and presence or financial support to descriptions of the many roles fathers play in their children’s academic achievement, peer relations, cognitive development, and behavioral or emotional regulation (Cabrera, Tamis-LeMonda, Bradley, Hofferth, & Lamb, 2000; Lamb, 1997, 2004; Tamis-LeMonda & Cabrera, 2002).

In response to this heightened recognition of fathers’ importance, large-scale national efforts have been designed to examine the nature, antecedents, and consequences of father involvement in low-income families (Black, Dubowitz, & Starr, 1999; Brophy-Herb, Gibbons, Omar, & Schiffman, 1999; Cabrera et al., 2002; Fagan, 1996; Kelley, Smith, Green, Berndt, & Rogers, 1998; Shannon, Tamis-LeMonda, London, & Cabrera, 2002). Limited resources, unstable employment, and inadequate education often make it difficult for fathers to establish and maintain positive and emotionally supportive relationships with their children (Black et al., 1999; Brophy-Herb et al., 1999; Cabrera et al., 2004; Cochran, 1997; Furstenberg & Harris, 1993; Garfinkel, McLanahan, & Hanson, 1998; Lerman, 1993; Marsiglio, 1987; McAdoo, 1986, 1988; McLoyd, 1989, 1990; Perloff & Buckner, 1996). These same obstacles pose methodological and practical challenges to researchers who seek to understand the nature and meaning of fathering in economically disadvantaged, ethnically diverse groups (Cabrera et al., 2004).

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Consequently, little is known about the ways in which low-income men interact with their young children, and whether their engagements have immediate or enduring effects, or both, on their children's development. Two investigations explored determinants of low-income fathers' engagements with their young children (Brophy-Herb et al., 1999; Fagan, 1996), but neither assessed fathers' influences on their children's development. To our knowledge, only three studies have examined the contributions of low-income fathers' engagements to young children's development. Shannon et al. (2002) found that fathers' positive engagements with their 24-month-olds led to a fourfold decrease in the likelihood that their children would have developmental delays as indexed on the Bayley (1993) Mental Developmental Index (MDI). Kelley et al. (1998) reported concurrent associations between fathers' sensitivity during free play and children's social and motor competencies, but they did not explore patterns of influence over time. Black et al. (1999) conducted a comprehensive study of low-income fathers' contributions to children's language and play. In their study of 175 low-income African American families, fathers' satisfaction with parenting, financial contributions, and nurturance during play predicted children's cognition, language competence, and emotional behaviors at age 3 after accounting for the effects of maternal age, education, and parenting satisfaction.

In the present longitudinal study, father-child engagements were examined in a group of resident, low-income fathers. We ask whether aspects of father and mother engagement relate to children's outcomes similarly, and whether father-child associations remain after accounting for the influence of maternal engagements and demographic factors. New findings suggest that a substantial proportion of children from low-income families live in the same household as their fathers, even though father coresidency rates are lower in poorer families than they are in middle-class families. For example, nearly half of children in the Early Head Start (EHS) national study, the sample from which the present participants were drawn, resided with their fathers at 2 years (Cabrerera et al., 2004). Children who live in marital households characterized by low levels of conflict fare better on cognitive and socioemotional indicators than children who live in other households (e.g., Cox, Owen, Lewis, & Henderson, 1989; Cummings, Goeke-Morey, & Raymond, 2004; Lamb & Lewis, 2004). However, extant studies have typically relied on dichotomous indicators of father residency versus nonresidency, especially in low-income families. It is important to examine whether

and how variation in fathering within resident or nonresident groups promotes positive outcomes in young children. Inquiry into the nature and consequences of father-child engagements in low-income families is vital to developmental theory as well as to policymakers, practitioners, and researchers who seek to promote positive father involvement in families facing economic hardship.

#### *Engagement by Fathers and Mothers*

Since Ainsworth's (1969, 1973) analysis of sensitive parenting, researchers have studied the nature and consequences of mother-infant engagement. Despite methodological and conceptual differences across studies, scholars agree that maternal sensitivity and responsiveness benefit children, whereas controlling, harsh, and punitive behaviors adversely affect developmental outcomes (Burchinal, Campbell, Bryant, Wasik, & Ramey, 1997; Tamis-LeMonda, Bornstein, & Baumwell, 2001). Although the bulk of this research has been conducted with mothers, several investigators have also examined father-infant attachment and have shown that infants become attached to their fathers (Lamb & Lewis, 2004). Less clear is whether the content and meaning of father-child interactions are similar to or different from mother-child interactions. Researchers who stress differences note that fathers are more likely to tease their children (Labrell, 1994), engage in "rough-and-tumble play" (Clarke-Stewart, 1980; Hossain & Roopnarine, 1994; MacDonald & Parke, 1984; Parke, 1996; Stevenson, Leavitt, Thompson, & Roach, 1988; Yogman, 1981), encourage risk taking and socialize gender roles (Fitzgerald, 1977; Power, 1981), prohibit their infants' activities (Brachfeld-Child, 1986), and be less engaged and sensitive (Belsky, Gilstrap, & Rovine, 1984; Power & Parke, 1983).

In contrast, others note more similarities than differences between parents (Pederson 1980). Fathers and mothers both encourage exploration during play with their infants (Power, 1985), speak slowly and use shorter phrases when addressing infants (Dalton-Hummel, 1982; Golinkoff & Ames, 1979; Rondal, 1980), respond to their infants' cries and smiles (Berman, 1980), are sensitive to their 1-year-olds when preoccupied with a task (Notaro & Volling, 1999), and adjust their behaviors to accommodate their infants' developmental status (Belsky et al., 1984; Crawley & Sherrod, 1984). Clarke-Stewart (1980) observed 30-month-old children at home with their parents and found that fathers and mothers were largely similar with respect to their responsiveness, stimulation, affection, and teaching. More

recently, mothers and fathers were reported to engage in more physical play with their sons than with their daughters (Lewis, 1997), and a review of the literature comparing father– and mother–child interactions failed to reveal consistent stylistic differences on a variety of measures (Lamb & Lewis, 2004; Lewis, 1997). It is worth emphasizing that virtually all of these studies involved observations of middle-income, two-parent families. Little is known about differences in parenting among low-income families.

### *Fathers' Influence on Children's Development*

In attempts to understand the complex associations that exist between father involvement and child outcomes, it is essential to study fatherhood in the context of a network of relationships that has both direct and indirect influences on children (Cabrera et al., 2000; Clarke-Stewart, 1977; Lamb, 1997, 2004; Lewis, Feiring, & Weinraub, 1981; Lewis & Weinraub, 1976).

Fathers' engagements directly affect children's linguistic, literacy, and cognitive abilities (e.g., Conner et al., 1997; Easterbrooks & Goldberg, 1984; Gleason, 1975; Perlmann & Gleason, 1993). Moreover, fathers who are more educated and economically secure might have more positive exchanges with their young children. But fathers can also affect their children indirectly in a variety of ways. First, fathers might affect children through their influence on the mother–child relationship. Fathers who behave sensitively with their children might have more positive relationships with their partners, who in turn also interact sensitively with their children. These mother–child engagements might then have the major impact on child outcomes. Second, fathers' demographic characteristics, including years of education and income, might indirectly influence children's outcomes. Fathers who provide for their families might have better relationships with their partners, and this has a positive effect on the home environment. Fathers' financial contributions also provide the resources that ensure better housing, more food, and living in better neighborhoods, which in turn promote desirable childhood outcomes (Cabrera & Peters, 1999).

Associations between paternal engagement and child outcomes might also be explained by children's own contributions to their development (Tamis-LeMonda & Cabrera, 1999). Fathers' interactions vary with children's gender, temperament, and health status (Field, 1981; Harrison & Magill-Evans, 1996; Lamb, 1997, 2004; Power, 1981). Consequently, associations between fathers' interactions and chil-

dren's cognitive achievements might depend on the characteristics of individual children or be explained by temporal stability in children's abilities.

### *The Present Study*

In summary, studies on the influence of father engagements on child development in low-income households are rare, and no researchers have examined the independent contributions of low-income, resident father engagements after taking into account the effects of mother–child engagements and fathers' demographic characteristics. It is imperative to examine whether father–child associations are explained by demographic characteristics, effects on mother–child relationships, or stability in children's competencies. To address these questions, we observed father–child and mother–child interactions during free play when children were 24 and 36 months of age. We assessed children's cognitive status on both occasions and compared patterns of parent–child associations in the context of family demographics and child stability.

We hypothesized that fathers' and mothers' engagements would directly relate to children's cognitive and language outcomes above one another. We also expected fathers' age, employment, years of education, and marital status to predict children's outcomes beyond the contributions of fathers' engagements. Furthermore, we hypothesized that fathers' demographics would promote children's development through associations with the mother–child relationship.

## **Method**

### *Participants*

Participants were drawn from 9 of 17 research sites that had been recruited into the National EHS evaluation study (8 sites opted not to participate in the father study). A total 1,168 families were enrolled in the study when they applied to have their children receive child care and parenting services at community agencies. During the application process, parents were informed of the research being conducted at the agencies through university partnerships. Written consent to participate in the evaluation study was obtained from mothers at the start of the study and from fathers at their initial visit.

Of the 1,168 mothers, 628 (53.8%) identified a biological father who resided with his child at 24 or 36 months, or both. Of those identified resident fathers, 242 (38.5%) did not participate for various reasons:

136 mothers (56.1%) did not permit researchers to contact fathers, 52 fathers (21.5%) refused to participate, 27 (11.2%) had moved out of the area or could not be located, and 27 (11.2%) did not participate for unknown reasons. The remaining 386 (61.5%) participated in the survey or videotaped portions of the study when their children were 24 or 36 months, or both. Of these fathers, 73 were excluded from the present study because they participated in the survey portion only, and an additional 23 were excluded because of their age (i.e., 18 years or younger). As a result, the analyses reported here are based on a sample of 290 adult, biological, resident fathers (and their partners) who were both observed and interviewed, with sample sizes decreasing to 111 for lagged associations in which complete mother and father data were obtained at 24 and 36 months.

Three fourths of the mothers were married to the target children's biological fathers at both ages. Fathers came from diverse racial/ethnic backgrounds: 60% ( $n = 174$ ) European American, 21.7% ( $n = 63$ ) African American, 15.2% ( $n = 44$ ) Latino, and 3% ( $n = 9$ ) other (i.e., Asian American, American Indian). Mothers' racial/ethnic backgrounds were similar to fathers: 63.1% ( $n = 183$ ) European American, 20% ( $n = 58$ ) African American, 12.4% ( $n = 36$ ) Latino, and 4.4% ( $n = 13$ ) other (i.e., Asian American, American Indian, biracial). More than 85% of the fathers ( $n = 252$ ) and mothers ( $n = 258$ ) spoke English. Of the non-English speakers, 27 fathers and 30 mothers spoke Spanish, and 5 fathers and mothers spoke Cantonese. Approximately one third, 36.2% ( $n = 105$ ), of the fathers had completed 11 or fewer years of high school, 27.2% ( $n = 79$ ) had graduated from high school or received their GED, and 36.6% ( $n = 106$ ) had completed some college or had graduated from college. One fourth of the mothers, 25.9% ( $n = 75$ ), had completed 11 or fewer years of high school, 35.9% ( $n = 104$ ) had graduated from high school or passed their GED, and 38.3% ( $n = 111$ ) had completed some college or graduated from college.

At the birth of their children, fathers ranged from 19 to 51 and mothers from 15 to 43 years of age. All mothers were eligible to receive some form of governmental assistance; 75.2% received welfare, food stamps, Aid to Families With Dependent Children (AFDC), or Medicaid. Almost all fathers (93% at 24 months and 96% at 36 months) reported working full- or part-time, and their mean monthly income was \$1,610 ( $SD = \$935$ ) at 24 months and \$1,854 ( $SD = \$974$ ) at 36 months. Approximately half (45.9%) of the children were firstborn, and on average, two children lived in the mothers' households. The fathers reported between 1 and 8 biological children

(24 months  $M = 2.36$ ; 36 months  $M = 2.63$ ). Children averaged 25.01 months ( $SD = 1.40$ ) at the time of the 24-month visit and 37.10 months ( $SD = 1.61$ ) at the 36-month visit. About half ( $n = 142$ ) were boys.

### Procedures

Mother-child and father-child dyads were observed in separate home visits when children were 24 and 36 months of age. Both father and mother visits involved interviews and videotaped sequences of parent-child play. A trained tester administered the Mental scale of the Bayley Scales of Infant Development, 2nd ed. (BSID-II; Bayley, 1993) to children during the mother visits at both ages, and the Peabody Picture Vocabulary Test, 3rd ed. (PPVT-III; Dunn & Dunn, 1997) was administered at 36 months. After the visits, parents were given \$20 and a small gift for their child. All interviews, videotaped interactions, and child assessments were completed in the family's primary language.

Mother-child and father-child interactions were videotaped during three activities, including 10 min of semistructured free play, which was the focus of the investigation. During free play, toys were presented to parents in three separate bags (24-month father toys: 1—a book, 2—a pizza set and telephone, and 3—a farm with farm animals; 24-month mother toys: 1—a book, 2—a kitchen set, and 3—a large boat with animals; 36-month father toys: 1—a book, 2—toy medical kit and teddy bear, and 3—set of interlocking blocks; 36-month mother toys: 1—a book, 2—a cash register, money, and food, and 3—set of interlocking blocks). Because mother-child and father-child interactions were typically videotaped within a week of each other, different sets of toys were used to maximize child interest. However, both sets were selected to be age appropriate and to offer dyads the opportunity to engage in both concrete and symbolic forms of play.

Each parent was asked to sit on a mat with his or her child, to try to ignore the camera, and to do whatever felt most natural. They were instructed to play only with the toys from the three bags and to start with Bag 1, move on to Bag 2, and finish with Bag 3. They were told that they could divide the 10 min as they liked. Parents were asked not to allow their children to use pacifiers during the videotaping so that the researchers could hear children's verbalizations.

### Measures

*Demographic data.* During interviews with the fathers and mothers, information was gathered on

marital status, number of fathers' and mothers' biological children, number of children living at home, parents' ages, race/ethnicity, years of education, employment status (not working vs. working), income, fathers' residency (i.e., whether father resided with child at 24 and 36 months), and children's age and gender.

*BSID-II.* The Mental scale of the BSID-II (Bayley, 1993) was administered at 24 and 36 months. The Mental scale assesses memory, problem solving, early number concepts, generalization skills, classification abilities, vocalizations, language, and social skills. An MDI score of 85 to 100 is within normal limits. MDI scores are correlated with scores on the McCarthy Scales of Children's Abilities ( $r = .79$ ) and the Wechsler Preschool and Primary Scale of Intelligence ( $r = .73$ ).

*PPVT-III (TVIP).* The PPVT-III or TVIP (Spanish version where relevant) were administered at 36 months (Dunn & Dunn, 1997). The PPVT-III is an untimed, norm-referenced test that measures children's receptive vocabulary. PPVT-III scores are highly correlated with verbal ability scores on the Wechsler Intelligence Scale for Children, 3rd ed. (WISC-III;  $r = .91$ ) and Kaufman Brief Intelligence Test (K-BIT) Vocabulary test ( $r = .81$ ).

*Father-child and mother-child videotaped engagements.* The quality of father-child and mother-child engagement was assessed using scales adapted from the National Institute of Child Health and Human Development (NICHD) Study of Early Child Care's Three Box scales (Clarke-Stewart, Vandell, Burchinal, O'Brien, & McCartney, 2002; NICHD Early Child Care Research Network, 1999). This scale assesses six parent dimensions (three positive and three negative) on 7-point rating scales ranging from 1 (*very low*) to 7 (*very high*): (a) sensitivity: the parent takes the child's perspective, accurately perceives the child's signals, and promptly and appropriately responds to these signals; (b) positive regard: the parent demonstrates love, respect, and admiration for the child; (c) cognitive stimulation: the parent teaches and actively attempts to expand the child's knowledge and abilities; (d) intrusiveness: the parent is overcontrolling and overinvolved; (e) detachment: the parent is underinvolved and lacks awareness, attention, and engagement; and (f) negative regard: the parent appears discontented and rejects the child angrily (see the Appendix for examples). One trained coding team leader worked with coding teams of five to six members. Weekly interrater reliability data were conducted on 15% of the sample, randomly selected. Interrater reliabilities ranged from 84% to 100% agreement (exact and within 1-point agree-

ment), with an average of 93%. Coders were unaware of the children's performance on the standardized tests (Bayley MDI and PPVT). Coders of mother-child and father-child engagements were fluent in the language of the participants.

## Results

Before addressing the main questions under examination, we conducted various analyses to explore the selective nature of our sample of resident fathers. Mothers who identified resident biological fathers,  $\chi^2(1, N = 1140) = 557.72, p < .001$ , were more likely to be married to their children's biological fathers than mothers who identified nonresident fathers,  $\chi^2(1, N = 971) = 646.11, p < .001$ . Mothers and fathers who resided together were also more likely to be older than mothers and fathers who did not reside together,  $t(1158) = 4.72, p < .001$ , versus  $t(1105) = 4.61, p < .001$ ; more educated,  $\chi^2(2, N = 1146) = 11.95, p < .01$ , versus  $\chi^2(2, N = 1015) = 37.87, p < .001$ ; and more often European American or Latino,  $\chi^2(2, N = 1104) = 117.29, p < .001$ , versus  $\chi^2(3, N = 920) = 96.51, p < .001$ . Resident fathers were also more likely to be employed,  $\chi^2(1, N = 976) = 71.30, p < .001$ , than nonresident fathers,  $\chi^2(1, N = 845) = 71.01, p < .001$ . Children living with their biological fathers received higher scores on the 24- and 36-month MDI and 36-month PPVT than children who did not live with their fathers ( $ts = 3.08$  to  $4.56, ps < .01$ ), with differences ranging from 2.3 to 4.9 points. Specifically, the scores for children of resident versus nonresident biological fathers were: 24-month MDI:  $M_s = 92.1$  versus  $89.4$ ; 36-month MDI:  $M_s = 93.3$  versus  $89.9$ ; 36-month PPVT:  $M_s = 88.2$  versus  $83.3$ .

Fathers who ultimately participated in the study had completed more years of education,  $\chi^2(2, N = 601) = 26.8, p < .001$ , and were more likely to be married,  $\chi^2(1, N = 543) = 3.42, p = .07$ , and employed at 36 months,  $\chi^2(1, N = 539) = 2.87, p = .09$ , than were fathers who did not participate in the study. Also, families of fathers who participated were more likely to be European American and African American,  $\chi^2(2, N = 605) = 27.69, p < .001$ , than those who did not participate,  $\chi^2(2, N = 567) = 31.54, p < .001$ . Mothers' age and educational level; fathers' age, marital status, and employment at 24 months; and children's 24- and 36-month MDI and 36-month PPVT scores were unrelated to fathers' participation.

Participants were further distinguished based on whether they were seen at both ages or at only one age. Of the 290 participating families, 256 mothers and 217 fathers were seen at 24 months (190 pairs), and 241 mothers and 197 fathers were seen at 36

months (182 pairs). There were 218 mothers but only 124 fathers who participated at both time points. Complete data were available for 111 dyads (i.e., mothers and fathers seen at both ages). We therefore compared families in which fathers and mothers participated in the study at both ages ( $n = 111$ ) with those in which fathers and mothers participated at 24 or 36 months only ( $n = 179$ ).

Mothers and Fathers who participated both times were more educated,  $\chi^2(2, N = 290) = 7.19$ , and  $9.42$ ,  $ps < .05$ , and fathers were more likely to be European American than those who did not participate at both time points,  $\chi^2(2, N = 281) = 8.56$ ,  $p < .01$ . At 36 months, mothers from families that participated in the study at both time points obtained higher sensitivity, positive regard, and cognitive stimulation scores and lower intrusive and negative regard scores than mothers from families who only participated at 36 months ( $ts = -3.15$  to  $1.67$ ,  $ps = .002$  to  $.10$ ). Mothers' marital status, age, and race; fathers' age and employment; and children's 24- and 36-month MDI and 36-month PPVT scores were unrelated to families' consistent participation.

**Summary.** The resident group of fathers included in this study was more educated, more likely to be employed, and more likely to be married than non-resident fathers in the sampling population. Additionally, their children had higher scores on the Bayley MDI and PPVT. Although 290 families participated in the study, complete data were available for only 111 families. These consistent participants differed from sporadic participants with respect to years of education and race/ethnicity. These differences should be kept in mind when interpreting results.

#### Descriptives on Parenting and Child Outcomes

As shown in Figures 1a and 1b, fathers and mothers received similar scores on all measures of parenting at both 24 and 36 months. They had comparably high scores on positive aspects of parenting (i.e., sensitivity, positive regard, and cognitive stimulation) and equivalently low scores on negative aspects of parenting (i.e., detachment, intrusiveness, and negative regard). In the context of these similarities, however, a series of one-way analyses of variance (ANOVAs) indicated that mothers scored slightly higher than fathers on positive regard and cognitive stimulation at 24 months, whereas fathers scored slightly lower on intrusive-

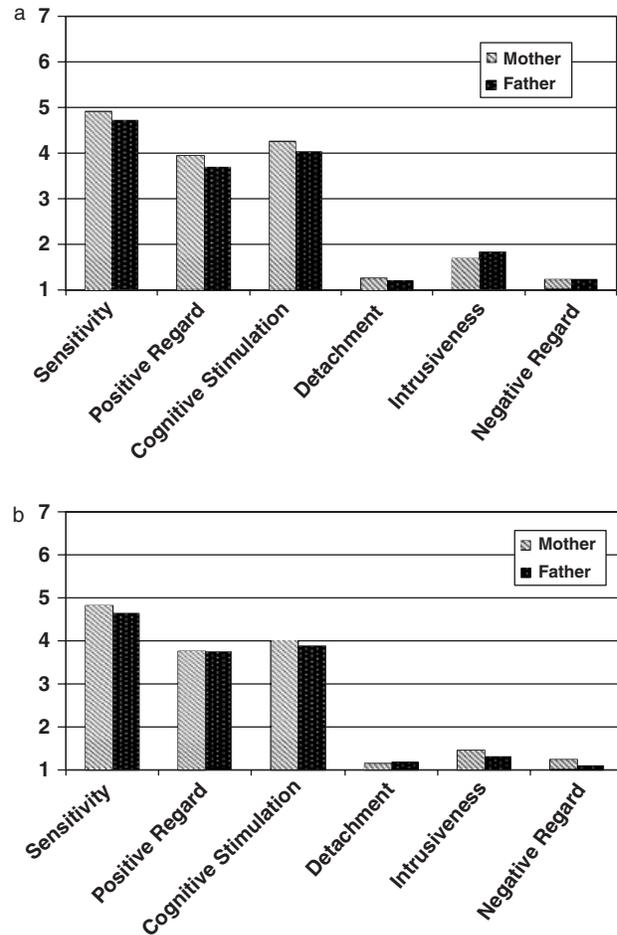


Figure 1. Patterns of fathering and mothering at 36 months: Likert ratings (y axis) for parents' sensitivity, positive regard, cognitive stimulation, detachment, intrusiveness, and negative regard (x axis).

ness and negative regard at 36 months ( $F_s = 4.38$  to  $14.26$ ,  $ps < .05$ ).

At an individual level, fathers' and mothers' engagement items were associated at both ages. Fathers' scores on sensitivity, positive regard, cognitive stimulation, intrusiveness, and negative regard at the 24-month assessment related to mothers' scores on these same items ( $r_s = .24, .24, .22, .32$ , and  $.20$ , respectively,  $ps < .05$ ). At the 36-month assessment, fathers' and mothers' sensitivity, positive regard, cognitive stimulation, and intrusiveness were associated ( $r_s = .22, .23, .19$ , and  $.25$ , respectively,  $ps < .05$ ). Fathers' sensitivity, positive regard, cognitive stimulation, and intrusiveness at the 24-month assessment predicted mothers' sensitivity, cognitive regard, and intrusiveness at the 36-month assessment ( $r_s$  range =  $.26$  to  $-.17$ ,  $ps < .05$ ). Only mothers' intrusiveness predicted fathers' intrusiveness over time ( $r = .18$ ,  $p < .05$ ).

Children's MDI scores (24 months:  $M = 92.9$ ,  $SD = 14.1$ ; 36 months:  $M = 92.9$ ,  $SD = 13.4$ ) and PPVT scores at 36 months ( $M = 86.7$ ,  $SD = 15.2$ ) averaged .5 to 1.0  $SD$  below the national norms.

### Demographics to Parenting and Child Outcomes

Table 1 presents associations between demographic characteristics and parenting and child outcomes. Fathers with more years of education and higher incomes displayed more sensitivity and less

intrusiveness toward their 24-month-olds. Fathers with higher levels of education displayed more sensitivity, positive regard, and cognitive stimulation with their 36-month-olds, although associations were marginally significant. Fathers' income was marginally associated with fathers' cognitive stimulation at 36 months.

Of important note, fathers' demographics were consistently associated with the quality of mother-child engagements, lending support to the idea that fathers might affect children through their

Table 1  
Associations Between Demographics and Parenting and Child Outcomes

Parenting and child outcomes	Children's characteristics		Mothers' characteristics			Fathers' characteristics		
	Age	Gender	Age	Education	Marital status	Age	Education	Monthly income
24 months								
Mothers								
Sensitivity	.02	-.06	.07	.28***	.14*	.13*	.25***	.13 <sup>†</sup>
Positive regard	-.06	-.02	.04	.26***	.11 <sup>†</sup>	.15*	.14*	.14*
Cognitive Stimulation	-.03	.01	.13*	.24***	.03	.12 <sup>†</sup>	.21***	.09
Detachment	.08	-.06	-.09	-.12 <sup>†</sup>	.07	-.13*	-.07	-.06
Intrusiveness	-.06	.03	-.04	-.24**	-.27**	-.04	-.18**	-.09
Negative regard	.03	.01	-.07	-.04	-.10	-.03	-.13*	-.08
Fathers								
Sensitivity	.07	-.15*	.03	.14*	.18**	.08	.21**	.15*
Positive regard	-.02	-.08	.01	.13 <sup>†</sup>	.15*	.04	.09	.06
Cognitive Stimulation	.01	-.11	-.02	.09	.08	.00	.06	.00
Detachment	.05	.13 <sup>†</sup>	.06	-.04	.01	.09	-.06	-.02
Intrusiveness	-.02	.02	.14*	-.21**	-.19**	.06	-.21**	-.19*
Negative regard	.01	.09	-.05	-.04	-.08	-.03	-.11	-.08
Children								
Bayley MDI	-.10 <sup>†</sup>	-.07	-.03	.31***	.14*	-.02	.25***	.18**
36 months								
Mothers								
Sensitivity	-.12 <sup>†</sup>	-.06	.04	.31**	.11	.02	.21***	.21**
Positive regard	-.11	-.05	.10	.21**	.08	.12 <sup>†</sup>	.20**	.11
Cognitive Stimulation	-.12 <sup>†</sup>	-.07	.10	.26**	.12 <sup>†</sup>	.10	.15*	.16*
Detachment	-.02	.07	-.02	-.02	-.10	-.04	-.07	-.07
Intrusiveness	.05	.08	.07	-.24**	-.17**	-.11 <sup>†</sup>	-.13*	-.15*
Negative regard	.01	.02	-.10	-.07	-.05	-.06	-.11	-.12 <sup>†</sup>
Fathers								
Sensitivity	-.06	-.16*	.10	.14*	.01	.09	.13 <sup>†</sup>	.10
Positive regard	-.05	-.13 <sup>†</sup>	.08	.17*	.02	.09	.12 <sup>†</sup>	.08
Cognitive Stimulation	.00	-.07	.08	.12 <sup>†</sup>	-.01	.06	.12 <sup>†</sup>	.12 <sup>†</sup>
Detachment	.02	-.04	-.03	-.04	.02	-.05	.05	.06
Intrusiveness	-.04	.14 <sup>†</sup>	-.05	-.02	.08	-.02	-.07	.07
Negative regard	.09	.17*	-.03	-.02	.08	-.10	.05	.08
Children								
Bayley MDI	-.04	-.05	.05	.28***	.21**	.01	.28***	.33***
PPVT	.07	-.14*	.09	.29***	.21**	.06	.26***	.18***

Note. MDI = Mental Developmental Index; PPVT = Peabody-Picture Vocabulary Test.

<sup>†</sup> $p \leq .10$ . \* $p \leq .05$ . \*\* $p \leq .01$ . \*\*\* $p \leq .001$ .

associations with the mother–child relationship. Fathers’ level of education was positively associated with mothers’ sensitivity, positive regard, and cognitive stimulation at both child ages; inversely associated with mothers’ intrusiveness at both child ages; and inversely associated with mothers’ negative regard toward their 24-month-olds. Similarly, higher incomes in fathers were associated with more sensitivity and positive regard in mothers when children were 24 months, more sensitivity and cognitive stimulation in mothers when children were 36 months, and less intrusiveness and negative regard in mothers when children were 36 months. At the 24-month assessment, fathers’ age was positively related to mothers’ scores on all three positive parenting measures and was inversely related to mothers’ detachment. Associations between fathers’ demographics and the quality of mothers’ engagements maintained after covarying fathers’ own engagements from all analyses.

Mothers with more years of education displayed more sensitivity, more positive regard, more cognitive stimulation, and less intrusiveness toward their children at both ages. Mothers’ age correlated with mothers’ scores on cognitive stimulation at 24 months.

Parents who were married were more sensitive, expressed more positive regard, and were less intrusive at 24 months. Married mothers also displayed more cognitive stimulation and less intru-

siveness at 36 months. Children’s age and gender were generally unrelated to measures of either fathers’ or mothers’ parenting, although fathers were less sensitive with sons at both ages, nonsignificantly more detached with sons at 24 months, and exhibited less positive regard, more negative regard, and more intrusiveness toward sons at 36 months.

Mothers’ and fathers’ years of education, fathers’ income, and marital status all predicted children’s MDI and PPVT scores. Boys obtained lower PPVT scores than did girls.

*Fathers’ and Mothers’ Engagements in Relation to Child Outcomes*

Concurrent and lagged associations between parenting and child outcomes revealed similar predictive patterns for mothers and fathers on positive parenting items but not on negative parenting items (see Table 2). Mothers’ and fathers’ sensitivity, positive regard, and cognitive stimulation were associated with higher MDI scores at 24 and 36 months and higher PPVT scores at 36 months. Negative regard, intrusiveness, and detachment were inversely associated with child outcomes, although mother–child associations achieved statistical significance more often than did father–child associations.

*Regression analyses.* A series of regressions were conducted to examine the joint and unique

Table 2  
Concurrent and Predictive Associations Between Parenting and Child Outcomes

	Concurrent			Predictive	
	24 months	36 months		36 months	
	MDI	MDI	PPVT	MDI	PPVT
<b>Mothers</b>					
Sensitivity	.31***	.29***	.27***	.38***	.38***
Positive regard	.24***	.21**	.20**	.29***	.20**
Cognitive stimulation	.26***	.31***	.26***	.37***	.37***
Detachment	-.05	-.06	-.11 <sup>†</sup>	-.16*	-.09
Intrusiveness	-.26***	-.11 <sup>†</sup>	-.15*	-.18**	-.25***
Negative regard	-.06	-.20**	-.18*	-.12	-.14 <sup>†</sup>
<b>Fathers</b>					
Sensitivity	.21**	.22**	.22**	.30***	.26***
Positive regard	.21**	.14 <sup>†</sup>	.18**	.22**	.25***
Cognitive stimulation	.28***	.24**	.21**	.30***	.25***
Detachment	-.02	-.01	-.04	-.17*	-.08
Intrusiveness	-.15*	-.09	-.05	-.18*	-.08
Negative regard	-.05	.01	-.05	-.12	-.12

Note. MDI = Mental Developmental Index; PPVT = Peabody-Picture Vocabulary Test.  
<sup>†</sup>*p* ≤ .10. \**p* ≤ .05. \*\**p* ≤ .01. \*\*\**p* ≤ .001.

contributions of mothers' engagement, fathers' engagement, and demographic characteristics to child outcomes. These regressions were based on a reduced number of parenting and demographic variables, and only significant predictors were included in the final models.

To reduce the number of parenting items included in the regressions, we created composite measures of supportive parenting (i.e., the sum of sensitivity, positive regard, and cognitive stimulation) and overbearing parenting (i.e., the sum of negative regard and intrusiveness) for mothers and fathers separately. These composites were created because sensitivity, positive regard, and cognitive stimulation covaried in both mothers ( $r_s = .47$  to  $.73$ ,  $p_s < .05$ ) and fathers ( $r_s = .55$  to  $.77$ ,  $p_s < .05$ ) and predicted children's outcomes similarly. Likewise, negative regard and intrusiveness covaried, although not as strongly ( $r_s$  for mothers =  $.42$  and  $.49$ ,  $p_s < .05$ ;  $r_s$  for fathers =  $.48$  and  $.14$ ,  $p_s < .05$ ). Detachment was analyzed separately because this variable was unrelated to the other parenting items.

Five regression models were tested: Three assessed the concurrent predictors of 24-month MDI scores, 36-month MDI scores, and 36-month PPVT scores, and two tested predictions from 24-month measures to 36-month MDI and PPVT scores. (Note that lagged models were based on the sample of 111 who had complete mother and father data at both ages.) All models included six predictors: mothers' and fathers' education level; fathers' income; and mothers' and fathers' supportive parenting, overbearing parenting, and detachment. We initially included all demographic measures, but marital status dropped out of the equations after we controlled for

parents' level of education and income. Therefore, we did not include marital status in the final models.

For both mothers and fathers, the only parenting measure that uniquely predicted child outcomes was supportive parenting. Mothers' and fathers' years of education and fathers' income continued to contribute unique variance to child outcomes, although fathers' income was the weakest and least consistent predictor.

Based on these analyses, the final, reduced models are presented in Table 3. These models included the predictors of maternal and paternal supportive parenting and level of education and fathers' income. Together, the predictors explained between 19% and 28% of the variance in child outcomes. As shown, fathers' supportive parenting and level of education predicted children's outcomes independently even after mothers' contributions to child outcomes were taken into account. Moreover, when children's 24-month MDI scores were included in lagged regressions, fathers' level of education and supportive parenting continued to explain unique variance in the children's outcomes. Predictive models that included children's 24-month MDI scores explained 41% and 50% of the variance in children's 36-month PPVT and MDI scores, respectively.

*Summary.* Bivariate correlations indicated that positive aspects of fathers' and mothers' engagements (i.e., sensitivity, cognitive stimulation, and positive regard), and level of education, income, and marital status predicted children's MDI and PPVT scores, both within and across time. Negative regard, intrusiveness, and detachment in mothers were inversely associated with children's outcomes. When all the measures of maternal and paternal behaviors

Table 3  
Parents' Supportive Parenting and Significant Demographics in Relation to Child Outcomes

Step	Variables	Concurrent						Predictive			
		24 MDI		36 MDI		36 PPVT		36 MDI		36 PPVT	
		$\beta$	R <sup>2</sup> change	$\beta$	R <sup>2</sup> change	$\beta$	R <sup>2</sup> change	$\beta$	R <sup>2</sup> change	$\beta$	R <sup>2</sup> change
1	Mother's supportive parenting	.14 <sup>†</sup>	.09***	.18*	.10***	.07	.05***	.20*	.13***	.14 <sup>†</sup>	.10***
2	Father's supportive parenting	.14*	.03*	.12 <sup>†</sup>	.02 <sup>†</sup>	.17**	.03***	.25**	.07***	.25**	.08***
3	Significant demographics (block)		.07**		.16***		.15***		.08**		.10***
	Mother's level of education	.23**		.13 <sup>†</sup>		.22**		.08		.26**	
	Father's level of education	.11		.27***		.27***		.18*		.16 <sup>†</sup>	
	Father's income	.04		.12 <sup>†</sup>		.01		.14 <sup>†</sup>		-.02	
	R <sup>2</sup> total		.19		.28		.23		.28		.28

Note. MDI = Mental Developmental Index; PPVT = Peabody-Picture Vocabulary Test. Beta weights presented are from the final regression equation.

<sup>†</sup> $p \leq .10$ . \* $p \leq .05$ . \*\* $p \leq .01$ . \*\*\* $p \leq .001$ .

as well as demographic characteristics were considered jointly, negative parenting items and marital status no longer predicted children's MDI and PPVT scores. In contrast, fathers' and mothers' supportive parenting (a composite measure of sensitivity, cognitive stimulation, and positive regard), mothers' level of education, and fathers' level of education (and sometimes fathers' income) consistently explained unique variance in children's outcomes over and above the significant contributions of one another. In lagged models, these same measures significantly predicted later outcomes even when measures of children's earlier performance were taken into account.

### Discussion

The two overarching aims of this study were to compare the engagements of low-income fathers and mothers at play with their 2- and 3-year-olds, and to determine how fathers' engagements, in particular, relate to children's language and cognitive development. To these ends, we observed low-income fathers directly and focused on variation in the behaviors of fathers who resided with their children. Paternal and maternal engagements were studied in relation to children's early language and cognitive development, at a time when representational competencies are rapidly emerging. Few researchers have conducted longitudinal observational studies of parents and young children in low-income families, and few have controlled for the possible effects of demographic factors when exploring associations between fathering and children's development. Our findings suggest beneficial effects of supportive father engagement for children's outcomes and offer encouragement to policymakers, practitioners, and researchers who aim to promote positive father-child relationships.

In the first phase of our analyses, we asked whether families with resident fathers differed from families in the larger EHS sampling population. Mothers who identified resident biological fathers were more likely to be married to their children's biological fathers than were those who identified nonresident fathers, and both parents were more likely to be older, more educated, and European American. Resident fathers were also more likely to be employed than nonresident fathers, and their children achieved higher scores on the 24- and 36-month MDI and 36-month PPVT.

Based on this subsample of fathers, we examined how they engaged with their children, how their engagements compared with those of mothers, and

whether their engagements uniquely predicted children's language and cognitive status. Observational measures of parent-child interactions are central to identifying the affective and social processes that characterize father-child and mother-child relationships (Shannon et al., 2002) and we found that mothers and fathers engaged their toddlers similarly. In our sample, positive behaviors were much more common than negative behaviors, challenging extant assumptions that low-income parents primarily engage in authoritarian exchanges with their young children and that fathers are harsh disciplinarians. Fathers were just as sensitive, positive, and cognitively stimulating as mothers and did not display more negative or controlling behaviors. Moreover, both positive and negative engagements in fathers were associated with the same behaviors in mothers at both assessments, and fathering at 24 months predicted mothers' later engagements with children. In contrast, mothers' earlier engagements did not predict fathers' later engagements, with the exception of maternal intrusiveness. These findings indicate that, at least to some extent, individual children experience similarly high or low levels of parenting from their mothers and fathers. Lagged father-to-mother associations suggest that fathers may affect children over time through their lagged influence on mothers' engagements.

Fathers' level of education, income, and marital status were significantly associated with parenting in both mothers and fathers, although effect sizes were small to modest. In fact, the demographic characteristics of fathers were more consistently related to measures of maternal than paternal behavior. Mothers whose partners had higher incomes and more education received higher scores on sensitivity, positive regard, and cognitive stimulation at both child ages. Also, married mothers were more sensitive and less intrusive than were unmarried mothers. Moreover, associations between fathers' demographics and the quality of mothers' engagements maintained after covarying fathers' own engagements with children. Presumably, educated and employed coresident fathers whose partners nominated them for this study were more involved with their children and more supportive of their partners than were nonparticipants. They may thus have fostered positive mother-child interactions and promoted their children's development, thereby confirming our prediction that more educated, employed, and married fathers can affect children's development by enhancing mother-child relationships.

Mothers' and fathers' sensitivity, positive regard, and cognitive stimulation predicted children's MDI

and PPVT scores within and across time. Detachment, intrusiveness, and negative regard were consistently related to negative child outcomes, and these negative associations tended to be stronger for mothers. When both positive and negative parenting items were considered simultaneously, only supportive parenting (a composite measure of sensitivity, positive regard, and cognitive stimulation) uniquely predicted child outcomes. This is not to say that negative aspects of parenting are unimportant for developmental outcomes. Indeed, negative aspects of parenting are likely to affect children's socioemotional outcomes and behavior regulation in children (Mistry, Melsch, & Taheri-Kenari, 2003). In this sample of participants, negative behaviors were infrequently observed, and their restricted range may have precluded a fair test of their associations to child outcomes.

When parenting measures were included in regressions with significant demographics, both sets of predictors continued to explain unique variance in children's outcomes. Specifically, composite measures of fathers' and mothers' supportive parenting were independently associated with children's MDI and PPVT scores even after considering associations with level of education and employment. In other words, these fathers' positive behaviors appear to benefit children directly. Moreover, fathers' and mothers' level of education consistently predicted children's outcomes after considering the effects of fathers' and mothers' supportive parenting. This suggests that supportive parenting does not mediate associations between parents' level of education and children's cognitive and language outcomes. However, it is likely that associations between demographic characteristics and child measures were mediated by aspects of parenting and other factors that we did not assess (Hoff, Laursen, & Tardif, 2002), such as parents' vocabulary size, provision of age-appropriate learning materials, daily routines, child care quality, and the quality of the home environment. Taken together, fathers appear to affect children's language and cognitive development through the quality of their play engagements, their effects on mothers' engagements, and their level of education and income, even in this selected group of families.

Several limitations of this research should be acknowledged. Foremost is the selective nature of our sample. The participants were not representative of low-income men or families in the United States but were drawn from a larger sample of families enrolled in the National Evaluation of Early Head Start, one of three ongoing large-scale studies that includes

fathers (Cabrera et al., 2002). Moreover, we focused analyses on a subset of fathers who resided with their children at 24 or 36 months, or both. Paternal residency is dynamic, however, and this choice further biased our sample in terms of ethnicity and demographics. Specifically, the resident fathers we studied tended to be older, more educated, employed, and likely to be married than other low-income families in the National Evaluation of Early Head Start—all characteristics associated with greater nurturance, devotion to family, and commitment to children (Fagan, 1996; Tiedje & Darling-Fischer, 1993; Volling & Belsky, 1991). They were also less likely to be African American than were participants in the larger EHS sample. The children of these resident fathers received higher language and cognitive scores than their peers without resident fathers. Relatedly, we were unable to visit many of the biological, resident fathers whom mothers identified, either because the mothers did not give permission for us to contact fathers or because the fathers themselves refused to participate. If we view selection by mothers as an index of positive partner relationships, those fathers not selected into the study may have had less positive relationships with their children than those we studied.

The reliance on observations of parent-child interactions during a brief 10-min sequence of free play may also limit generalization. Because parent-child play tends to elicit positive behaviors, it is not surprising that negative parenting was rarely observed. Parent-child interactions in other settings, such as during teaching tasks or clean-up, might produce different styles of engagement. However, the fact that mother's and father's supportive parenting during these brief sessions related to individual differences in children's cognitive status is important and may reflect a lower limit of mothers' and fathers' unique and combined contributions to children's development. Also, because mother-child and father-child dyads were typically seen within a week of each other, mothers and fathers were provided with different sets of toys, which may confound our findings and be attributable to the slight differences that were observed in mother and father behaviors.

Moreover, conclusions about the role of fathering in children's language and cognitive development are constrained by the measures included in the study. Measures of children's cognitive and language development were based on standardized assessments of the BSID and PPVT, which are limited in their ability to capture the rich variation that exists in children's semantic, pragmatic, and syntactic uses of language during this important developmental

period. It is also likely that unobserved variables contributed to our results. For example, the finding that fathers' level of education predicted children's developmental outcomes can be interpreted in various ways. Fathers who complete more years of education might be those who persist in the face of challenge, and this persistent quality might predict children's developmental outcomes.

Despite these caveats, this study offers a valuable opportunity to understand how a sample of low-income men (the "missing men" in national surveys) relate to their families and children. Although the select nature of the sample precludes broad generalizations, the richness, scope, and design of the study permit us to generate hypotheses about this population, patterns of engagement of low-income men with children, and their impact on children's development. Our findings provide a lens through which the behavior and potential influence of low-income men can be viewed.

By focusing on variation in the quality of parenting in a substantial sample of low-income families, we were able to emphasize the engagements of resident low-income men who share positive relationships with their children. At least this selective sample of low-income men—who were living with their partners and more likely to be employed and to have completed high school—displayed sufficiently high quality engagements to ensure positive effects on their children's cognitive development. These findings are provocative and have important implications for research, practice, and policy. Future researchers should examine whether these associations hold for other groups of involved, low-income fathers and whether fathers' contributions persist over time, particularly when there is early and steady involvement.

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## Appendix

*Parent Engagement Table*

Variable	Examples	Very high	Very low
Sensitivity	Includes acknowledging the child's affect, vocalizations, and activity; facilitating the child's play; changing the pace of play when the child seems understimulated or overexcited; and demonstrating developmentally appropriate expectations of behavior.	Parent is very sensitive and responsive throughout the interaction. Insensitivity is never striking. Interactions are child centered. Parent praises child.	Interactions are characteristically adult centered and/or the parent is unavailable and unresponsive to the child's signals, moods, interests, and needs.
Positive regard	Includes praising the child, smiling or laughing with the child, expressing affection, showing empathy for the child's distress, and showing clear enjoyment of the child.	Parent is very positive throughout the session in terms of facial and vocal expressiveness and behavior. Affect is positive and spontaneous.	Parent displays no positive regard.
Cognitive stimulation	Includes encouraging the child to talk about the materials, illustrating or teaching concepts such as colors or sizes, labeling the child's experiences or actions, asking questions, presenting activities in an organized series of steps, and elaborating on the pictures in books.	Parent clearly seeks to stimulate a higher level of understanding or sophistication (i.e., trying to engage in pretend play) and does so consistently throughout the session.	Parent provides no cognitive stimulation. No attempt is made to teach the child anything or to provide any cognitive stimulation.
Intrusiveness	Includes the parent controlling the play agenda, not allowing the child to influence the focus or pace of play, grabbing toys away from the child, not taking turns in play with the child, and persisting with or even escalating an action that the child clearly wishes would stop.	Parent is very intrusive, physical, and/or forceful in controlling the child. Most of the session is marked by the parent completely controlling the interaction.	No signs of intrusive behavior are observed. Child does not respond defensively in any way to parental behavior.
Detachment	Includes barely making eye contact with or talking to the child, not responding to the child's vocalizations or bids for attention, and not trying to engage the child with new toys.	Almost no attention is given to the child, even when parent is within a suitable distance for interacting. In the minimal instances of involvement, the parent's behaviors are simple, mechanical, stereotyped, repetitive.	Parent shows no signs of detachment. When interacting with the child, the parent is clearly emotionally involved. The parent may be behaving in a sensitive or intrusive manner
Negative regard	Includes using a disapproving or negative tone; showing frustration, anger, physical roughness, or harshness toward the child; threatening the child for failing at a task or not playing the way the parent desired; or belittling the child.	Parental behaviors are strongly characterized by negativity. Parent negativity is expressed as anger toward the child, accompanied by strong, barely controlled emotions, physical roughness, threatening, and/or punitive.	Parent shows no signs of negative regard. No signs of subtle negative behaviors (cold looks, sighs of frustration) are noted.

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