Paternal Depression and Infant Cognitive Development
Implications for Research and Intervention

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Although the negative impact of maternal depression on infants' affective and cognitive development is well-documented, the contribution of paternal depression is often overlooked in the research literature and in early intervention practices. This review examines research on the link between paternal depression and infant cognitive outcomes. Although some disagreement exists, studies indicate that paternal depression limits father involvement, which, in turn, influences cognitive development. These findings have implications for research and early intervention programming that address fathers and young children. Further research on paternal depression is needed to understand how paternal depression specifically influences infant cognitive development and to clarify its implications for early intervention. The authors discuss ways that programs, including Early Head Start, have begun to address this issue, by intervening with fathers and children, building partnerships with mental health service agencies, and increasing staff members' abilities to identify and support parents who are experiencing depression. Finally, discussion focuses on directions for future research and ways to support fathers who struggle with depression. Key words: cognitive outcomes, early intervention, infants, paternal depression, paternal involvement

In recent years, fathers' contributions to early childhood outcomes have gained increasing attention in research and intervention (Lamb, 2004). Research indicates that fathers' behaviors, attitudes, and conveyed messages directly and indirectly influence their children, but the specific mechanisms through which these factors influence children are poorly understood (Cummings, Goeke-Morey, & Raymond, 2004; Fagan & Iglesias, 2000; Kaplan, Sliter, & Burgess, 2007; Lamb & Tamis-LeMonda, 2004). Based on the strong links that have been identified between maternal factors and infant cognitive development (Field, 1990), the present article suggests that 2 factors, paternal involvement and depression, are related to infant cognitive development. More specifically, we sought to examine whether paternal depression influences children's cognitive development in ways similar to maternal depression.

Some factors related to fathers' ability to influence the development of their children include fathers' mental health, motivation, skills, and self-confidence, social supports, and institutional policies and practices (Lyons-Ruth, Wolfe, Lyubchik, & Steingard, 2002; Pleck & Masciadrelli, 2004). In particular, paternal depression is increasingly being recognized by researchers and early intervention practitioners as an important influence on young children. For example, 1 study of fathers found that over one third of the fathers in an Early Head Start sample were at risk for depression (Vogel, Boller, Faerber, Shannon, & Tamis-LeMonda, 2003). In another investigation, 10% of fathers in a national sample
exhibited depressive symptoms in the postpartum period (Paulson, Dauber, & Leiferman, 2006).

Although maternal depression has been extensively studied for its effects on young children, paternal depression is less frequently addressed in the literature. The available research indicates that paternal depression influences many aspects of the lives of children and families. One area, however, that has recently received national attention is children's early cognitive development (Ruhland, 2001). This emphasis can be seen in the increasing academic focus of early childhood programs such as Head Start (Raver & Zigler, 2004). Based on this increased attention and on research focusing on the relationship between maternal depression and infant cognitive development, the present article examines paternal depression and infant cognitive development. Specifically, we review research on father involvement and the ways in which depressive symptoms can influence infants' cognitive development. We also discuss intervention research and specific strategies that target the unique needs of fathers. Finally, we offer recommendations for next steps in research and intervention.

PATERNAL INVOLVEMENT AND INFANT COGNITIVE OUTCOMES

Fathers in the United States are increasingly present and engaged in their infants' lives (Pleck & Masiadrelli, 2004). Findings from the Early Head Start Father Study revealed that 77% of newborns and 78% of children younger than 14 months had biological fathers involved in their lives (Vogel et al., 2003). Both mothers and fathers in this study reported that fathers frequently engaged with their infants in many types of activities including caregiving activities such as diaper changing and playful activities such as peek-a-boo. Researchers, however, are just beginning to understand the effects of fathers' involvement on the cognitive outcomes of their infants. In contrast, findings are available from such research with older children. Children whose fathers were involved at their school were more successful in school-based learning, even after taking into account mothers' involvement, parents' education, household income, and children's race ethnicity (Nord, Brimhall, & West, 1997). Black, Dubowitz, and Starr (1999) similarly found that fathers uniquely contributed to children's cognitive, language, and behavioral outcomes in 3-year-old children. Fagan and Iglesias (1999) also found that high-level participation in a Head Start father involvement project was linked to a change in children's mathematics readiness scores. Together, these findings suggest that father involvement has an important influence on cognitive outcomes for both preschool and elementary aged children.

Less is known about the influence of father involvement on the cognitive outcomes of younger children. One study found that fathers' engagement in unstructured play and fathers' positive ratings of their children and their children's behavior were significantly related to child cognitive outcomes between 15 months and 30 months (Clarke-Stewart, 1978). Another study found that father involvement in the first month of life had an independent effect on infant cognitive outcomes at 1 year of age (Nugent, 1991). Finally, in investigations of low-income fathers' interactions with their 24-month-olds, fathers with high-quality interactions with their children were nearly 5 times more likely to have children score within the normal range on the Bayley Scales of Infant Development (Shannon, Tamis-LeMonda, London, & Cabrera, 2002). Overall, these findings suggest that father involvement is important for the cognitive outcomes of infants, but more research is needed to establish this relationship. Considerably less is known about the link between paternal depression and infant cognitive outcomes.

PARENTAL DEPRESSION, PARENTAL INVOLVEMENT, AND INFANT COGNITIVE OUTCOMES

Maternal depression

More is known about the negative effects of maternal depression on infant outcomes
than about the effects of paternal depression. A number of studies point to maternal involvement as a mediator in this relationship (Cox, Puckering, Pound, & Mills, 1987; Harnish, Dodge, & Valente, 1995; Lovejoy, Graczyk, O’Harc, & Neuman, 2000). Specifically, maternal depression is linked to a decrease in positive parenting behaviors and engagement, which then influences infant cognitive outcomes (Baker-Henningham, Powell, Walker, & Grantham-McGregor, 2003; Cox et al., 1987; Harnish et al., 1995; Longfellow, Zelkowitz, & Saunders, 1982; Lovejoy et al., 2000; Zelkowitz, 1982). In fact, infants of depressed mothers show less attentiveness, lower activity levels, and fewer contented expressions than infants of mothers who are not depressed (Field, 1990).

**Paternal depression**

Given research findings supporting the negative influence of maternal depression on infant cognitive outcomes, it is prudent to consider the effects of paternal depression on infant cognitive outcomes. When interviewed, 40% of the fathers sampled in the Early Head Start Father Study were at risk for depression, and 23% of fathers reported being moderately to severely at risk for depression (Vogel et al., 2003). This presence of paternal depressive symptoms among Early Head Start fathers indicates a need for additional research as well as early intervention to foster positive child development.

Research findings on paternal depression, father involvement, and infant cognitive outcomes are somewhat mixed. In a national sample of fathers of 9-month-olds, depressive symptoms were negatively related to cognitively stimulating parenting activities such as reading, singing songs, and telling stories (Paulson et al., 2006). This relation was also present in the Early Head Start Father Study. Fathers who were judged to be at risk for depression were less likely to spend time with their 1- to 6-month-old infants or to participate in playful or caregiving activities (Vogel et al., 2003). In another study of low-income families, however, the interactions of depressed fathers with their 3- to 6-month-old infants were not significantly different from those of nondepressed fathers and were less negative than interactions of depressed mothers with their infants (Field, Hossain, & Malphurs, 1999).

Research with older children found that paternal depression was negatively related to child outcomes. Fathers who were depressed engaged in less complex play with their 2-year-old children unless they were involved in the Early Head Start program, where participation was significantly related to the complexity of father-toddler play (Roggman, Boyce, Cook, Christiansen, & Jones, 2004). This study indicates that early intervention programs that increase father involvement can also support the cognitive development of infants.

**Measurement issues**

Together, the available research presents a somewhat mixed picture of paternal depression and child outcomes. One possible explanation for these differing results may center on how paternal depression is measured. The studies indicating that father involvement was negatively affected by paternal depression used the Center for Epidemiological Studies-Depression (CES-D) scale to measure paternal depression (Paulson et al., 2006; Roggman et al., 2004; Vogel et al., 2003). The study conducted by Field and colleagues (1999) used a different measure of paternal depression, which may account for their differing results. Because of the relatively extensive literature on maternal depression, both the CES-D and the Beck Depression Inventory have been used more frequently to measure depression in mothers than in fathers. As such, assumptions about parental depression may reflect what is known from studying mothers and may not be relevant to fathers. Even though both assessment tools were initially validated on samples of both men and women (Beck, Ward, Mendelson, Mock, & Erbaugh, 1961; Radloff, 1977), their indicators such as how often the respondent cries may be more female specific.
It is also possible that paternal depression may induce different symptoms than maternal depression and that different ways of assessing paternal depression need to be developed. Studies have noted differences in depression symptomatology in male and female adolescents, where women reported more symptoms and more ruminating than men (Hart & Thompson, 1996). Further research is needed to examine the specific symptoms that depressed mothers and fathers experience. If gender differences are present, then assessment tools are needed that accurately capture these differences.

In addition to measurement differences of paternal depression, definitions of father involvement varied among the research studies. For example, in the study conducted by Field and her colleagues, father involvement was measured using videotaped interactions between fathers and children in which father's and the infant's characteristics were rated (Field et al., 1999). In contrast, in both of the studies of Early Head Start fathers, involvement was measured using only videotaped observations of fathers' qualities. Although the Early Head Start studies did not assess infant responses, the lower quality of father involvement observed in these studies suggests that paternal depression may negatively influence infants and young children. Finally, involvement in the study conducted by Paulson and his colleagues (2006) was measured in interviews with parents. Together, these studies suggest the need for further understanding of both the definitions and the measurements of paternal depression and father involvement.

Although the message from the available research is mixed, there is evidence to suggest that paternal depression may influence children in ways similar to maternal depression, namely, through the quality of parent-child interactions. Specifically, some of the reviewed literature suggests a possible mediating effect in which the presence of paternal depression alters paternal involvement, which in turn influences infant cognitive outcomes. In addition, there is some evidence that participation in Early Head Start may increase the quality of father-child interaction and lessen the effects of paternal depression on infants and young children. Because research has found that fathers are at risk for depression, clarifying these relationships is important for both researchers and early intervention program practitioners (Lyons-Ruth et al., 2002; Paulson et al., 2006; Vogel et al., 2003).

**PATERNAL DEPRESSION, PATERNAL INVOLVEMENT, AND EARLY INTERVENTION**

Early Head Start is an intervention program that has attempted to deal with the effects of parental depression and low parental involvement on children. A recent study from an evaluation of Early Head Start programs measured these relations, but it did not examine mothers and fathers separately. Participation in Early Head Start was not found to decrease parental depressive symptoms or increase the use of mental health services by parents (Early Head Start Research and Evaluation Team, 2003). Participation did, however, improve the quality of parental involvement in terms of parent-child interactions and relationships. Roggman and her colleagues (2004) also identified this relationship in a separate study of families with low income. These studies suggest that interventions targeting parents' involvement may benefit children.

**RECOMMENDATIONS FOR EARLY INTERVENTION PROGRAMS**

To treat paternal depression effectively and lessen its impact on children, it is important to understand which fathers might benefit from additional support and what types of support to provide. Factors such as increased confidence, nurturance, education, willingness to accept social support, and lower levels of depression have been positively related to fathers' involvement with their children (Fagan, 1999; Roggman, Boyce, Cook, & Cook, 2002; Vogel et al., 2003). Moreover, family factors such as mothers' employment...
status, mothers' hours of work and school, mothers' involvement in the child's early intervention program, and family income influence fathers' level of involvement (Fagan, 1998, 1999). In fact, research shows that when mothers believe fathers are competent in caregiving, they are less likely to restrict fathers' involvement with their children. Decreased maternal gate-keeping behaviors, that is the extent to which mothers restrict fathers' involvement with their children, relate to increased involvement of fathers with their children, but this finding depends on the residential status of the father (Fagan & Barnett, 2003). In addition to family factors, child factors such as gender and behavior problems also influence levels of father involvement (Fagan, 1999). Ethnicity and whether the child has a disability, however, do not seem to affect father involvement (Fagan, 1998; Turbiville & Marquis, 2001), although with the increased severity of a child's disability, father involvement may decrease (Markowitz, 1984). Therefore, to increase father involvement, it is necessary to target intervention services at fathers with specific individual, family, and child risk factors.

One complication with providing services is that fathers appear more reluctant than mothers to seek out and use such services (Summers, Boller, & Raikes, 2004). Research on fathers of children with special needs indicated that fathers participate most frequently in activities involving other family members, activities that do not interfere with work schedules, and activities that provide information about their child's developmental and educational needs (Hadadian & Merbler, 1995; Markowitz, 1984; Turbiville & Marquis, 2001). Keeping these programming aspects in mind when designing mental health interventions for fathers may increase their participation in services, but more research is needed to locate the sources of their reluctance and to learn how to address these issues.

When fathers were interviewed about support services, they indicated that supportive programs offered by Early Head Start included parenting information and encouragement, opportunities for socialization, employment counseling, and assistance with medical care and nutrition services (Summers et al., 2004). Fathers also noted the value of indirect supports such as providing parenting information to the child's mother, teaching the child, and reassuring fathers that their child is well taken care of by Early Head Start personnel. By expanding services that fathers describe as supportive and by designing programs to encourage their participation, interventionists may boost father involvement and increase infant cognitive outcomes. Specifically targeting services to fathers with depressive symptoms may reap even greater returns.

**Infrastructure**

To deal directly with paternal depression, early childhood programs can build community partnerships with mental health agencies. Currently, Early Head Start programs are required to employ a mental health consultant and to offer access to mental health services for parents. In 1 study, however, only 21% of families reported that family members received services for an emotional or mental health issue (Early Head Start Research and Evaluation Team, 2003). Better incorporation of mental health services that cater to fathers is needed to ensure that services will be identified and utilized by this specific population (McBride & Rane, 1997). Increased knowledge of, and connection to, mental health service providers may increase the likelihood that fathers will be effectively referred to suitable services.

Once such partnerships between mental health services and infant programs are established, mental health service providers and early intervention staff can operate as an interdisciplinary team serving the child and the family (Lyons-Ruth, Wolfe, & Lyubchik, 2000). Supporting other family members such as grandparents is also important because this assistance can indirectly support fathers (McBride & Rane, 1997; Summers et al., 2004). Collaboration may also increase a program's ability to reach out to mothers and grandparents and identify ways to involve...
them in their child's life. This type of family and provider collaboration is frequently seen in Individualized Family Service Plan meetings. Because the presence of paternal depression may have implications for infant cognitive development, it is important to include this issue in planning early intervention services.

**Staff development**

Once the infrastructure is in place to provide mental health services to fathers, investing in staff development for early intervention may also support fathers, albeit indirectly (McBride, Rane, & Bae, 2001). The majority of early intervention staff members have not been trained in strategies for working with fathers (McBride & Rane, 1997), and especially not fathers who are experiencing depressive symptoms. In particular, it is important that female staff members become aware of the communication and parenting styles of fathers (Fagan, 1996). Increasing interdisciplinary professional development opportunities and strengthening relationships with mental health service providers may help staff members develop skills that may not otherwise be addressed (Epps & Jackson, 2000) and can support infant cognitive development.

**RECOMMENDATIONS FOR FUTURE RESEARCH**

In this review, we identified the gaps that exist in the research literature on paternal involvement, paternal depression, and infant cognitive outcomes. First, research has shown that the relation between paternal involvement and child cognitive outcomes is more firmly established in elementary aged children than in infants. For infant cognitive development, more research is needed to determine whether this relation exists and in what form. Second, conflicting evidence exists regarding the relation between paternal depression and paternal involvement and infant cognitive development. There is evidence to suggest that paternal depression may operate in similar ways to maternal depression and influence child outcomes through the quality of parent-child interactions. Determining whether fathers who are depressed interact differently with their infants than fathers who are not depressed, and in what ways, would help clarify the pathways through which paternal depression influences infant cognitive outcomes. Third, research needs to address issues related to the methodology of assessment of paternal depression to enable more accurate measurement of depression in fathers. Finally, participation in early intervention programs may lessen the effect of paternal depression and improve fathers' involvement with their infants. Further research is needed to determine which strategies work well for fathers and, in particular, for depressed fathers. Because fathers spend increasing amounts of time with their children, it is important to clarify the relationships among paternal depression, paternal involvement, and the cognitive outcomes of infants (Pleck, 1997). With this information, early intervention programs will be better equipped to address the needs of depressed fathers in their programs.

**REFERENCES**


