

Long-term maternal effects of early childhood intervention: Findings from the Infant Health and Development Program (IHDP) [☆]

Anne Martin ^{a,*}, Jeanne Brooks-Gunn ^{a,1}, Pamela Klebanov ^{a,1},
Stephen L. Buka ^{b,2,3}, Marie C. McCormick ^{b,2}

^a Teachers College, Columbia University, United States

^b Harvard School of Public Health, United States

Available online 17 January 2008

Abstract

The Infant Health and Development Program (IHDP) was a randomized clinical trial of early intervention services for low birth weight, premature infants. Mothers and infants received services for 3 years beginning at neonatal discharge. At the intervention's conclusion, mothers in the intervention group who had lighter (< 2001 g) birth weight infants had been employed longer than mothers in the comparison group. Intervention group mothers also reported less emotional distress, scored higher on the home environment measure and used harsh discipline less frequently with sons. Among measures of mothers' employment, mental health and home environment at 2-, 5- and 15-years post-intervention, employment was the only domain showing a treatment effect over time; this effect depended on child birth weight. Results suggest that early intervention services may have more success altering a mother's life course than her mental health or parenting style. Further research is needed to investigate the factors influencing the decisions made by low birth weight infants' mothers regarding whether and when to work outside the home.

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Keywords: Early childhood; Intervention; Birth weight; Maternal employment; Mothers

[☆] This study was supported through a grant (ID No. 039543) from the Robert Wood Johnson Foundation. Participating universities and site directors were: Patrick H. Casey, University of Arkansas for Medical Sciences (Little Rock, AR); Camilia Martin, Beth Israel Deaconess Medical Center (Boston, MA); Elizabeth Woods, Children's Hospital Boston (Boston, MA); Charles R. Bauer, University of Miami School of Medicine (Miami, FL); Judith Bernbaum, University of Pennsylvania School of Medicine (Philadelphia, PA); Libby Kay, University of Texas Southwestern Medical Center (Dallas, TX); Forrest Bennett, University of Washington (Seattle, WA); and David Scott, Yale University (New Haven, CT). For a list of past participants see The Infant Health and Development Program: Enhancing the outcomes of low-birth weight, premature infants: A multisite, randomized trial. *JAMA* 263: 3035–3070, 1990; Brooks-Gunn et al.: Early intervention in low-birth-weight premature infants: Results through age 5 years from the Infant Health and Development Program. *JAMA* 272: 1257–1262, 1994; and McCarton et al.: Results at age 8 years of early intervention for low-birth-weight premature infants. *JAMA* 277: 126–132, 1997.

* Corresponding author.

E-mail address: arm53@columbia.edu (A. Martin).

¹ National Center for Children and Families, Teachers College, Columbia University.

² Department of Society, Human Development, and Health, Harvard School of Public Health.

³ Now at the Department of Community Health, Brown University.

1. Introduction

Several early intervention programs have succeeded in conferring long-term benefits to children's academic achievement (Barnett, 1995; Campbell & Ramey, 1995; Campbell, Ramey, Pungello, Sparling, & Miller-Johnson, 2002; Currie, 2001; Gray, Ramsey, & Klaus, 1982; Karoly, Kilburn, & Cannon, 2005; Reynolds, Ou, & Topitzes, 2004; Reynolds, Temple, Robertson, & Mann, 2001) and antisocial behavior (Campbell et al., 2002; Karoly et al., 2005; Lally, Mangione, & Honig, 1988; Nelson, Westhues, & MacLeod, 2003; Olds, Henderson, Cole et al., 1998; Reynolds et al., 2001; Reynolds et al., 2004; Schweinhart, Barnes, & Weikart, 1993; Schweinhart et al., 2005; Yoshikawa, 1995) that are sustained in adolescence or early adulthood. These programs often vary by service delivery model. Some have provided a center-based educational program for children (Campbell & Ramey, 1995; Campbell et al., 2002), others have provided home visiting to families (Olds, Henderson, Cole et al., 1998), and still others have combined the two (Andrews et al., 1982; Gray et al., 1982; Schweinhart et al., 1993; Reynolds et al., 2001; Lally et al., 1988). Many programs have targeted parents in addition to the children themselves, in recognition of the contribution of parental behavior to young children's development (Collins, Maccoby, Steinberg, Hetherington, & Bornstein, 2000).

Of the early intervention programs that serve parents, the home visiting model has demonstrated the greatest success in altering parental (maternal) behavior. Although not all home-based programs have been effective (St. Pierre, Goodson, Layzer, & Bernstein, 1997), some have been shown to enhance responsiveness and warmth, reduce harshness, and in some cases improve parent mental health as evidenced by a reduction of depressive affect and an increase in positive coping and provision of maternal support (Barnard et al., 1988; Booth, Mitchell, Barnard, & Spieker, 1989; Erickson, Korfmacher, & Egeland, 1992; Lyons-Ruth, Connell, Grunebaum, & Botein, 1990; Olds et al., 1999; see Brooks-Gunn, Berlin, & Fuligni, 2000 for a comprehensive review of the literature from 1975 to 1999, and Sweet & Appelbaum, 2004 for a meta-analytic review). Other home visiting programs have found effects on maternal education, employment, and self-sufficiency (Olds, Henderson, Tatelbaum, & Chamberlin, 1988).

The question of whether salutary effects on parents can be sustained over time is important because parents continue to influence their children long after an intervention has ended. However, only a minority of early childhood intervention evaluations have examined whether the effects on parents remain evident a decade or more after the intervention. Even fewer have found such sustained effects (for an exception, see Olds, Henderson, Kitzman et al., 1998).

The present study examines whether the effects on mothers found in an early intervention program persist up to 15 years after the intervention. Data come from the Infant Health and Development Program (IHDP), a multisite randomized controlled trial of center-based services and home visitation for low birth weight (LBW; < 2500 g), premature (< 37 weeks gestation) infants and their families. The intervention began at the infant's discharge from the hospital and lasted for 3 years. Its two primary components consisted of home visits for mothers throughout all 3 years, and day-long center-based care for children in the second and third years. Parent support group meetings were also offered during the second and third years. Children in both the intervention (INT) and follow-up only (FUO) groups received ongoing medical care and referral to specialists. First, results at the end of the intervention, and at 2 and 5 years after the intervention, are summarized, followed by the research questions posed for 15 years after the intervention.

At the time of the intervention's conclusion, when children were 3 years old, INT children had higher cognitive test scores and lower reports of behavior problems than FUO children (Infant Health and Development Program [IHDP], 1990). By 2 years post-intervention (age 5), the effects on cognitive scores were sustained for the heavier birth weight (2001–2500 g) children only (Brooks-Gunn, McCarton et al., 1994). Similar results were found at 5 years post-intervention at age 8 (McCarton et al., 1997). At age 5 the treatment effect on behavior problems was of borderline significance and present only among the heavier weight group (Brooks-Gunn, McCarton et al., 1994). At age 8 there was no treatment effect on behavior at all (McCarton et al., 1997). However, a recent follow-up of the children 15 years post-intervention, at age 18, revealed significant treatment effects on risk behaviors (Buka & Indurkha, 2005) and treatment effects on cognitive scores approached significance in the heavier weight group (McCormick et al., 2006).

By the conclusion of the intervention, the IHDP also had affected four domains of mothers' lives: employment, mental health, the home environment, and parenting quality. First, emotional distress was lower among INT mothers than FUO mothers at the end of the intervention (Klebanov, Brooks-Gunn, & McCormick, 2001). Second, the quality of the home environment was higher for INT mothers than FUO mothers (Bradley et al., 1994). Third, INT mothers used less harsh discipline with boys than FUO mothers did (Smith & Brooks-Gunn, 1997), and INT mothers demonstrated greater supportiveness and quality of assistance to their children on a problem-solving task (Spiker, Ferguson, & Brooks-Gunn, 1993). Finally, mothers in the INT group were employed longer than mothers in the FUO

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