BEST BEGINNINGS: A RANDOMIZED CONTROLLED TRIAL OF A PARAPROFESSIONAL HOME VISITING PROGRAM

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Executive Summary

Elizabeth Anisfeld, Ph.D.
James Sandy, Ph.D.
with
Neil B. Guterman, Ph.D.

Columbia University College of Physicians and Surgeons,
Department of Pediatrics,
Alianza Dominicana, Inc., and
Columbia University School of Social Work

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Dr.Virginia Rauh was Co-Investigator on this project.

Preamble

This report consists of three major parts: an "Executive Summary," a "Narrative Summary" and a "Technical Report." The Technical Report describes the background, methods, statistical analyses and findings of a randomized controlled trial testing the effectiveness of a paraprofessional home visitation program. It includes a review of the relevant literature, a bibliography and an Appendix. The Narrative Summary provides a summary of the methods and findings of the study and refers the reader to the relevant sections of the Technical Report for further information. The Executive Summary provides a short overview of the most important findings of the study.

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Executive Summary

This final report describes the background, methods, and findings of a randomized controlled trial testing the effectiveness of a paraprofessional home visitation program. The project was undertaken in order to assess the impact of paraprofessional home visitation services on the health and wellbeing of a group of high-risk inner-city minority families. The service program, "Best Beginnings," is located in the Washington Heights neighborhood of New York City, one of the city's most impoverished communities, comprised largely of immigrants from the Dominican Republic.

Data analyzed for this report come from two cohorts: a cohort of 535 non substance-affected families, 273 randomly assigned to the program group and 262 to the control group, recruited from December 1994 through October 2000, and a cohort of substance-affected families recruited from October 1996 through February 2003. The retention rates to 12 and 24 months postpartum for the non substance-affected families were 68% and 55%, respectively.

Families assigned to the program group received an intensive intervention based on the Healthy Families America (HFA) model with service provided in the home beginning on a weekly basis and tapering to quarterly. Families assigned to the control group received twice yearly home visits with referrals for needed services and collection of information on the current status of the family.

Both process and outcome data were analyzed. The process analyses used data on the amount and type of services received. The outcomes analyzed included measures of maternal self-sufficiency and psychosocial adjustment, child health and development, and health care utilization.

Findings are presented in summary form, with results from different content areas presented under the specific project goal to which the findings correspond. Statistically significant benefits of program group membership (exposure to the intensive intervention) were found for:

- measures of mothers' educational achievement,
- rates of exclusive breastfeeding at discharge from the hospital,
- developmental level of boys at 24 months of age, and
- appropriate use of the pediatric emergency department after hours and for urgent medical conditions.

No significant effects of program group membership were detected on measures of:

- maternal psychosocial functioning or
- parent-child interaction.

Findings Related to the Amount and Nature of the Intervention Delivered

Analyses of process data indicated that paraprofessional workers from the same community as the study participants generally adhered to the program protocol as illustrated by the following:

1. The total *number of visits* received by program and control group families at different ages of the target child and across different assessment intervals was as expected given the protocol.
2. The *specific types of activities* that occurred on visits corresponded in a logical manner to the needs of specific families and to the target child's age at the time of the visit (that is, logical given the goals of the program, the guidelines specified in the protocol, and HFA philosophy).
3. The *specific types of service referrals* that families received corresponded to the socio-demographic and psychosocial characteristics and needs of mothers and families. Once again, this was consistent with program guidelines and HFA philosophy about the importance of matching the identified needs of individual families to provision of referrals to appropriate service agencies in the community.

Findings Related to Goal 1.: Assess Families for Strengths and Needs, and Refer for Needed Services

1. The Kempe Family Stress Inventory (Kempe) was used successfully to characterize current and historical psychosocial risk factors in a sample of immigrant, Latina women living in an inner city neighborhood. Risk factors identified using the Kempe pointed to specific areas of need for supportive services that were important for study participants/families.
2. Use of the Drug Use Screening Inventory (DUSI) in addition to the Kempe increased the numbers of substance-affected families that were identified beyond those identified using the Kempe alone.
3. Through initial and ongoing contact and assessment of strengths and needs, paraprofessional support workers were able to identify the psychosocial and concrete needs of individual families, and to make appropriate referrals for service.

4. Families provided with intensive services in the context of an HFA-type prevention program were found to be more likely to receive several types of needed services (e.g., immigration services, daycare) compared to similar families assigned to a control group that received a less intensive intervention.

Findings Related to Goal 2: Enhance Maternal Psychosocial Functioning and Maternal Life-Course

Maternal Psychosocial Functioning

Through implementation of the protocols, family support workers identified maternal psychosocial and maternal life-course issues, discussed them during home visits, provided relevant information and educational materials, and made referrals to appropriate community agencies.

1. No statistically significant effects of the intervention were detected on maternal psychosocial functioning, as measured by mothers' reports of perceived social support, level of depressive symptoms, or level of perceived parenting burden.
2. The number of concurrent maternal/family problems reported by mothers (at 12 or 24 months postpartum, respectively) significantly predicted increases across time in mothers' levels of depressive symptoms, and perceived parenting burden, and decreases in perceived social support (that is, from intake to 12 months and from 12 to 24 months postpartum).
3. Mothers' depressive symptom scores were consistently unrelated to socio-demographic variables, such as mother's age, marital status, highest grade in school completed, and the number of years a mother had resided in the United States at intake.
4. The level of parenting involvement of the father of the baby (assessed shortly after the birth of the target child) was negatively correlated with mothers' depressive symptom scores at prenatal intake, and at 6 and 24 months postpartum. That is, lower levels of biological father's parenting involvement were associated with higher levels of maternal depressive symptoms.
5. Perceived social support at 12 and 24 months postpartum was significantly related to the number of relatives that a mother reported seeing weekly. In general, mothers who reported having more contact with relatives also reported relatively high levels of perceived social support.

Maternal Life-Course/Self-Sufficiency

1. Significant effects of program group membership were found for mothers' educational level. Program group mothers were 150% more likely than control group mothers to have advanced their education by one level or more between intake and 24 months postpartum (for example, from having completed grade 8-11 to earning a high school or General Equivalency diploma (GED)).
2. Program group mothers were also significantly more likely than control group mothers to report having attended a GED preparation class regularly at some point between 6 and 24 months postpartum (10.7% of program group mothers compared to only 2.9% of control group mothers).
3. The strongest predictor of mothers' full-time employment status at both 12 and 24 months postpartum was whether a family had been receiving public assistance (AFDC or TANF) at intake. Mothers from families who had been receiving AFDC or TANF at the time of program enrollment were employed full-time *less often* from intake through 12 months postpartum and from intake through 24 months compared to mothers from families who had not been receiving public assistance at intake.
4. Older mothers and those who had at least a high school education at intake were more likely to be employed full-time from intake through 12 and/or 24 months postpartum.
5. Program group membership had no effect on whether or not a family was receiving public assistance at any assessment point, and no effect on whether families who had been receiving public assistance at intake were still receiving it at 12 and/or 24 months postpartum.
6. Families received public assistance *less often* from intake through 12 and/or 24 months postpartum when the target child's biological father had been designated as second primary caregiver for the target child at intake, when the mother was a recent immigrant, and when the mother was a first-time mother.
7. Because of changes in eligibility rules in New York City, families who enrolled in Best Beginnings after September 1998 were less likely to receive public assistance compared to families who enrolled before that time.

Findings Related to Goal 3: Promote Positive Parent-Child Interaction

Quality of Parent-Child Interaction

1. No statistically significant effects of the intervention were detected at any assessment point on any of the measures of the quality of parent-child interaction that were used. However, the completion rate for these measures was relatively low.
2. The most powerful predictor of caregivers' responsiveness to their children's distress at each assessment point (6, 12, 24 months postpartum) was the child's negative responsiveness to his or her caregiver during the videotaped interaction. On average, the lower the level of negativity shown by a child, the more responsive his or her caregiver was to the child's distress.
3. Children who were rated high on positive responsiveness towards their caregivers generally had mothers who were seen as providing more cognitive-emotional growth fostering for their children.
4. Children who received the highest levels of cognitive-emotional growth fostering from their mothers tended to be rated as *both* high in positive responsiveness and low in negative responsiveness towards the caregiver.

Findings Related to Goal 4: Promote Healthy Childhood Growth and Development

Feeding Method at Hospital Discharge

1. Mothers who were exposed to the prenatal intervention were nearly two times as likely, or 100% more likely, to report that they were exclusively breastfeeding at discharge from the hospital after delivery of the target child compared to mothers who had not been exposed to the prenatal intervention.
2. Mother's educational level at intake was also significantly and independently associated with the probability of a mother exclusively breastfeeding a target child. Mothers who had at least a high school education were more likely to report exclusive breastfeeding.
3. The findings that exposure to the prenatal intervention and mothers' educational level were predictive of exclusive breastfeeding each remained statistically significant after controlling for the effects of other variables related to breastfeeding, including the number of years a mother had lived in the United States, and designation of the target child's biological father as second primary caregiver for the target child.

Health Care Utilization

1. Documented immunization rates approached 100% for both program group and control group children.
2. There was no difference between program and control group children in the average age at target children's initial outpatient (primary care) visit, which was just under 1 month of age for children from both groups of families.
3. Infants who were exclusively breastfed made their first outpatient visit at an average age of 0.8 months, significantly earlier than infants who were bottle fed, whose average age at the first outpatient visit was 1.1 months.
4. The following variables were all associated with target children being *older* on the date of the first outpatient visit: birth before 37 weeks gestation, low birth weight, *not* having been in the well-baby nursery after birth, being bottle-fed at discharge from the hospital, being delivered by C-section, and a target child's mother having been a teenager at the time of the target child's birth.
5. Ninety-percent of mothers in the total sample had a primary care provider (PCP) at intake. Prenatally enrolled mothers were significantly more likely to have a PCP at intake than were postnatally enrolled mothers (96% vs. 80%).
6. Among postnatally-enrolled mothers who had been living in the United States for less than 2 years at intake, 93% of primiparous (first-time) mothers had a PCP at intake, compared to only 50% of multiparous mothers.
7. Among prenatally-enrolled mothers, a significantly higher percentage of program group than control group mothers had a regular PCP by 24 months postpartum (89% vs. 75%).

Use of the Pediatric Emergency Department (PED)

1. Compared to control group participants, program group participants made significantly more visits overall to the Pediatric Emergency Department (PED), and significantly more visits for urgent conditions, to 36 months postpartum.
2. Among PED visits that were made during hours when the offices of primary medical care providers in the community were closed (for example, at night), program group participants were twice as likely to have been *referred* to the PED for the visit compared to control group participants.

3. The strongest predictor of the total number of PED visits made for a target child through 36 months postpartum was the target child's age at the time of his or her very first PED visit. The younger the target child at the time of initial PED visit, the greater the total number of PED visits to 36 months postpartum.

Child Development Outcomes: Child Cognitive and Psychomotor Development

1. Program group membership was significantly associated with higher developmental screening scores (ASQ Composite Score) at 24 months postpartum among boys, but not among girls. Exposure to the intensive intervention through program group membership appears to have raised the average level of boys' developmental screening scores to match that of girls.
2. The strongest independent predictor of children's ASQ performance (ASQ Composite Score) at 24 months postpartum was mothers' reports of the number of maternal/family problems experienced at 24 months postpartum. On average, children from families with more maternal/family problems performed relatively poorly on the ASQ at 24 months postpartum.

Conclusion

The intensive intervention that was implemented by Best Beginnings staff, following the model established by Healthy Families America, had several demonstrable positive effects on participating families. First, although the needs of program group *and* control group families were assessed and referrals for services made, program group families were more likely to actually *receive* certain types of needed services compared to control group families (for example, immigration assistance/services, daycare/babysitting , and English as a Second Language instruction).

Significantly more program than control group mothers advanced to a higher educational level between intake and 24 months postpartum, and significantly more reported they had attended a GED preparation class regularly. This finding has added importance in this group of immigrant women, only 35% of whom were proficient in English. The fact that this was achieved by 24 months and not by 12 months postpartum is consistent with the idea that, following the birth of a child, it often takes time for mothers to return to the process of moving towards self-sufficiency.

We did not detect any impact of the intervention on mothers' full-time employment status within the timeframe of the data analyses presented here. However, mothers who had more education were

significantly more likely to be working full-time. This finding suggests that the increase in educational level achieved by some program group mothers by 24 months postpartum may represent an important step toward finding a job and discontinuing the need for public assistance.

Another important finding is that *significantly more mothers who received the prenatal intervention reported that they were exclusively breastfeeding their infants at discharge from the hospital*. This raises the possibility that breastfeeding rates among low-income, inner city women may be raised by programs such as Best Beginnings in which information, educational materials, and support for breastfeeding are provided in the home during the prenatal period. In Best Beginnings, paraprofessional family support workers who had been trained as peer counselors provided this information and support.

Consistent with the results of many previous studies, rates of exclusive breastfeeding were found to be related to mothers' educational levels, with higher rates among mothers who had at least a high school education at intake. Thus, the intervention for program group mothers, by raising the educational level of the mothers, may increase the probability that subsequent children born to these mothers will receive a healthier start in life through breastfeeding.

At 24 months postpartum, mothers with higher educational levels were rated as engaging in significantly more cognitive-emotional growth fostering of their children compared to less well-educated mothers. This is another area where the increase in educational level of the mothers achieved through the intervention may be expected to reap additional benefits for the children in the future.

By 24 months postpartum, the intensive intervention, with its emphases on parent-child interaction and child cognitive and psychomotor development, showed a significant positive effect on the developmental screening test (ASQ Composite) scores of boys. By 24 months postpartum, the average developmental screening scores of boys in the program group matched those of girls (except in the area of communication/ language). In contrast, boys in the control group received significantly lower developmental screening test scores than girls in the control group.

The finding that program group participants were more likely than control group participants to have been *referred* for night-time visits to the pediatric emergency department suggests that family support workers followed the recommended guidelines and encouraged program group families to contact a primary medical care provider *before* going to the emergency room whenever possible. Thus, receiving the

intensive intervention may have helped some families to learn to use the health care system more appropriately. This finding suggests that an HFA-type home visiting program may serve as a useful tool for teaching and reinforcing appropriate utilization of health care services.

No statistically significant effects of program group membership were detected in several areas. For example, on each of three measures of mothers' psychosocial functioning, the group that received the intensive intervention was not significantly different from the control group at any assessment point. In the areas of maternal depressive symptoms and perceived social support, our findings are very clearly consistent with results of prior research. This lack of findings raises questions about why this and other HFA-type interventions have not been effective in this domain, and how such programs might be modified in an attempt to have a positive impact in this important domain in the future.

The number of maternal/family problems reported by mothers was found to be a powerful independent predictor of all three measures of mothers' psychosocial functioning, and also of children's developmental screening (ASQ) scores. Reporting a greater number of maternal/family problems was associated both with higher levels of depressive symptoms among mothers, for example, and with lower developmental screening test scores among children.

Substance-affected families differed from non substance-affected families on a number of socio-demographic characteristics assessed at intake, as well as on several indices of psychosocial risk derived from the Kempe interview. In addition, and consistent with the protocol, substance-affected program families received significantly more visits/contacts. However, somewhat to our surprise, families' substance-affected status was *not* significantly related to any of our outcome measures, either before or after controlling for demographic correlates of substance-affected status. As we increase the numbers of families in our substance-affected sample in the near future, we will begin using more sophisticated screening/assessment tools for quantifying different aspects of substance use and misuse among the substance-affected families. This, in turn, may help us to better quantify variables related to substance abuse and dependence among our substance-affected families that may have predictive validity vis a vis our outcome measures.

The collection of detailed information on the implementation of the intervention and the analyses we were able to conduct as a result provided us with valuable information about the extent to which

implementation of the intervention was consistent with the program protocol. By examining which aspects of the protocol were well-adhered to and which were not, we may be able to improve on the methods that are used in the future to implement a home visiting intervention for the benefit of families and children in high-risk environments.
