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Meta-Analytic Review of Components Associated with Home Visiting Problems

Executive Summary

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Meta-Analytic Review of Components Associated with Home Visiting Programs: Executive Summary

Home visiting is a widely supported method for delivering a vast array of preventive and early intervention services to families in need of support. However, research summarizing the effects of home visiting programs across a wide range of outcomes suggests mixed, modest findings depending on the outcomes examined (Bilukha et al., 2005; Gomby, 2005; Guterman, 1999; Howard & Brooks-Gunn, 2009; Layzer, Goodson, Bernstein, & Price, 2001; Sweet & Appelbaum, 2004). Further investigation is warranted to determine what factors are associated with the greatest likelihood of program success. This is particularly important in an environment where funding for health and human services programs is limited, budget cuts are widespread, and programs are being held more accountable for producing positive outcomes and cost savings. Therefore, a meta-analytic component analysis of home visiting programs for pregnant women and families with children birth to age three was conducted to determine which program components have the most potential to improve key parent and child outcomes.

Methods

A literature search produced 5,127 articles that were screened using the following inclusion criteria: home visiting program evaluation published in English as a journal article, book, or book chapter; program implemented in the U.S. in a universal or selective population targeting primary caregivers with home visiting as the primary delivery strategy; home visiting program is of sufficient duration to expect change with data to support calculation of effect size and results able to be generalized to a broad population of normally developing children and parents. Two coders trained to 90% reliability captured information from the final 126 studies about the published document, home visiting program content and delivery, study participants, evaluation design, and outcome measures, which were used to predict effect sizes on measures of parent and child outcomes.

Program effects were first examined as a single effect size per study at immediate post-test, to make general statements about the overall effectiveness of home visiting programs. We also examined the impact of indicators of methodological rigor and category of outcome measure on post-test effect sizes. To investigate the association between particular components and program effects, we selected the two categories of outcomes with the greatest number of studies reporting those outcomes at immediate post-test: Parent Behavior/Skills and Child Cognitive/Language Development. For those outcome categories, we conducted inverse-variance weighted analyses of variance (ANOVAs) to examine the relationship between individual program characteristics and the reported effect size.

Relationships between program characteristics and program outcomes were next examined with inverse-variance-weighted linear regressions predicting effect sizes, controlling for the indicators of methodological rigor. These analyses were conducted first as fixed-effect models, then again as (more stringent) random-effects models to determine the most robust program characteristics in predicting effect sizes. Finally, the series of ANOVAs and fixed-effect and random-effects linear regressions were repeated on other key outcomes and other time points of particular relevance to home visiting programs: maternal life course outcomes; birth outcomes; child physical health, illnesses, and injuries; and child maltreatment at any time point in a study; and children's externalizing behaviors at any follow-up time point in a study.

Results

The overall weighted post-test effect size of the final set of 55 studies across all coded outcomes (aggregated to a single effect size per study) was .15 (95% CI = .12 - .19), reflecting a significant mean difference between treatment and comparison groups at immediate post-test of approximately one sixth of a standard deviation, favoring the treatment group. The 366 effect sizes ranged from – 0.07 to 3.23. The Q test of homogeneity of effect sizes was significant, indicating marked variability in reported effect sizes across studies.

Four methodological rigor variables significantly predicted overall program effect size at post-test: the use of random assignment, a true no-treatment control/comparison group, testing home visiting as a “stand-alone” intervention, and intent-to-treat analyses were all associated with smaller program effects. Analysis of initial equivalence and the use of covariates by study designers did not predict program effects at post-test. For six outcome categories (parenting attitude and value change; parenting behavior and skill acquisition; parent life course; child cognitive development and language; child physical health, illness and injury; and child social competence), effect sizes were positive and significantly different from zero, indicating that on average, the programs included in this review were associated with positive effects at immediate post-test on those outcomes.

Component Analyses: Immediate Post-Test

Significant predictors in random-effects, inverse-variance-weighted linear regressions controlling for methodological rigor (i.e., the most robust predictors) of parenting behavior and skills outcomes at post-test were: content related to providing a stimulating home environment, content on parental mental health and substance use (all associated with larger program effects) and educating parents about the need for social support or support network (associated with smaller program effects).

The most stringent analyses of child cognitive and language outcomes at post-test revealed that programs with significantly larger effect sizes were those that included content on: developmental norms and expectations; responsiveness, sensitivity to cues, or nurturing; promotion of child's socio-emotional development; promotion of child's cognitive development; as well as rehearsal opportunities. Programs with significantly smaller effect sizes on child cognitive outcomes were those that included case management and were delivered in a language other than English.

Component Analyses: Other Outcomes and Other Time Points

In random-effects regression models of parent life course outcomes, the only significant components were matching home visitors and client on race/ethnicity (predictive of larger effects), offering home visiting only and content related to public assistance (both predictive of smaller effects). Three components were significant in random-effects models of birth outcomes: content on prenatal health and matching home visitors and clients on race/ethnicity predicted larger effects, while using professional home visitors predicted smaller effects.

Only two components were significant predictors in the random-effects models of child physical health, illness and injury: offering home visiting only (predictive of larger effects) and providing a support group (predictive of smaller effects). Five components were significant in random-effects regression models of child maltreatment. Programs that matched home visitors and clients on race/ethnicity and delivery in a language other than English were associated with better child maltreatment outcomes. Programs that addressed nutrition and feeding and parental relationships, and those using professional home visitors were all associated with smaller effects on child maltreatment measures. In random-effects models of long-term child outcomes, two components were reliably associated with more successful programs: provision of child-related supplies and having a standardized curriculum. Three components were reliably associated with less successful program effects on long-term child outcomes: home visiting delivered to a universal population, providing a support group, and delivery in a language other than English.

Discussion

There were no components that significantly predicted both parenting behavior and child cognitive outcomes at post-test. Among the outcomes investigated at any time point in a study, three predictors emerged as consistent predictors. Matching home visitors and their clients on race or ethnicity was associated with larger program effects on parent life course, birth, and child maltreatment outcomes. Professional home visitors, on the other hand, were associated with smaller program effects

on birth and child maltreatment outcomes. Providing parents with a support group was associated with smaller program effects on child physical health, illness and injury and on long-term child behavior outcomes. These three components therefore appear to be consistently associated with program effects across a range of home visiting programs, research designs, and outcomes.

Several theoretically related components (case management, providing a support group, teaching about the need for social support, and public assistance) were all associated only with smaller program outcomes in the random-effects models. Programs that incorporate those components might focus parents' attention on meeting their families' needs with external supports, and neglect to foster parents' sense of self-efficacy.

Delivering the program in a language other than English was associated with smaller effects on child cognitive outcomes at post-test and on children's long-term outcomes. Programs conducted in the parents' native language may not be fostering parents' English language proficiency, making it more difficult for the parents to foster the children's language development, which often impacts long-term child outcomes. However, non-English program delivery was associated with better child maltreatment outcomes. This pattern suggests that although non-English delivery may be an effective way of connecting with parents who are more comfortable in other languages, full program delivery in another language may not produce optimal program outcomes. With respect to program "type," programs that offer only home visiting were associated with larger effects on child physical health, illness, and injury, but smaller effects on maternal life course outcomes. In order to impact parents' life course, home visiting alone may not be sufficient.

This meta-analysis marks a distinct departure from the common practice of recommending the wholesale adoption of evidence-based programs. Although model ratings are important for guiding adoption of a packaged program model, any particular program may not include the most effective combination of components to produce maximum results for a given population or community. This study disassembled home visiting programs into specific components and investigated the contribution of those components individually. The findings point to new home visiting program and research opportunities, whether through the development or selection of a home visiting program, or for improving programs that are already labeled efficacious or effective. This is particularly important in the context of the Maternal, Infant, and Early Childhood Home Visiting Program, in which grantees are required to demonstrate improvement in benchmarks over time. Although careful evaluation of modifications to existing programs would be critical, changes informed by this study's results may increase effectiveness or efficiency in producing positive outcomes for children and families.