

The influence of a paraprofessional, home-visitation program on parenting behaviors

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Abstract

Home visitation has long been used to facilitate skill-building within clientele. Empirical studies have shown that the efficacy of home-based parent education varies with the characteristics of the intervention, participants, and intended outcomes. Research is needed to determine the variables that are the most salient in meeting the needs of diverse groups of parents.

This study investigated whether low-income parents involved in a home-visiting program taught by paraprofessionals would show greater increases in positive parenting behaviors than a comparison group of parents. Parents in the intervention group participated in Michigan State University Extension's Building Strong Families parenting program. Parents in the comparison group were randomly selected from program waiting lists. Analysis of Covariance (ANCOVA) and paired t-tests were used to assess differences between pretest and posttest scores. The results showed that parents who participated in the parenting program had greater improvements in parenting behaviors than a comparison group of parents.

Keywords: parent education, home visitation, paraprofessional, parenting behaviors, low-income parents, young children

Introduction

For many years Cooperative Extension Service organizations across the nation have used home visiting to deliver food and nutrition information to low-income families. More recently Cooperative Extension Service educators have been using home-based instruction to deliver additional types of information, such as parenting education, breastfeeding support, and environmental health education.

One reason that home-visitation programs may have increased within Cooperative Extension Service organizations is that more formal methods of education were found to be ineffective for some parents, particularly limited-resource parents of young children (Webster-Stratton 1997). Conceptually, home visiting can provide education to parents in a unique manner. Through home-based instruction, the educator and recipient can have one-on-one interaction that leads to a trusting relationship. Consequently, the educational process and content can be customized to the specific needs of the recipient. Moreover, home-based delivery reduces stress for the recipient by eliminating the need to find transportation, child care, and time off of work (Sweet and Appelbaum 2005).

In theory, home-visitation programs appear to be an educational strategy that would effectively support parents of young children in their caregiving responsibilities. However, the results of studies assessing the effectiveness of home visitation programs have been mixed (Sweet and Appelbaum 2004). Studies showing evidence supporting positive changes have associated this delivery method with increased parenting knowledge, attitudes, and behaviors (Middlemiss and McGuigan 2005, Sweet and Appelbaum 2004), parent-child interaction (Middlemiss and McGuigan 2005, Daro and Harding 1999), maternal parenting efficacy (Duggon et al. 1999, Luster et al. 1996); maternal-child attachment (Jacobson and Frye 1991), child IQ (Blair, Ramey, and Harden 1995; Liaw, Meisels, and Brooks-Gunn 1995), prenatal care and fewer pre-term births (Rogers, Peoples-Sheps, and Suchindran 1996). Other studies have not found evidence to associate home-visitation parent education with changes in parenting outcomes (Choi, Berger, and Flunn 1997; Duggan et al. 2004; Silver, Ireys, Bauman, and Stein 1997). These mixed results create the need for additional research assessing the effects of home-visitation programs on parenting behaviors of diverse groups of parents. This research examines the effects of a paraprofessional, home-visitation parent education program on the parenting behaviors of limited resource parents.

Methods

Sample: The sample for this study consisted of 123 low-income parents of children ages newborn to 36 months, selected from six counties in Michigan. "Low income" was defined as having a gross income that was >185 percent of the poverty rate. Michigan State University Extension parenting instructors in the six participating counties invited all enrollees in the Building Strong Families parent education program to participate in this study. Sixty-three parents were enrolled in the treatment group. Participants in the comparison group were randomly selected from waiting lists for the parent education intervention. Sixty parents were enrolled in the comparison group.

Instrumentation: The instruments in this study included an intake questionnaire and two parenting assessment tools. The intake questionnaire contained 14 demographic questions,

including parents' and children's genders and ages, family composition, ethnicity, residence, household income, parental education, and number of children in the home.

The Home Observation for Measurement of the Environment (HOME) Inventory (Caldwell and Bradley 1984) was one of the instruments used to assess parenting behaviors. This inventory used a combination of observation and interview questions to determine the quality and quantity of support for cognitive, social, and emotional development being provided to the child by the parent. The HOME Inventory contains six subscales, including (a) emotional and verbal responsiveness, (b) acceptance of the child's behavior, (c) organization of the environment, (d) provision of play materials, (e) parental involvement with the child, and (f) opportunities for variety. The 45-item assessment was coded in a binary (yes-no) manner. The number of "yes" answers was counted to obtain both a subscale score and a total score. Analysis of alpha coefficients for this sample showed an internal consistency of .69.

The second instrument used to examine parenting behaviors was the Parenting Behavior Assessment. It was adapted from the Q-Sort Inventory of Parenting Behaviors (Lawton et al. 1983). The Parenting Behavior Assessment was a 32-item instrument designed to assess self-reported changes in parenting behaviors related to the promotion of children's physical, intellectual, social, and emotional development. A 5-point response scale (1=never, 2=seldom, 3=sometimes, 4=often, 5=always) was affixed to each parenting behavior on the instrument. The Parenting Behavior Assessment had a great deal of content validity because it was developed specifically for the curriculum used in this study. Reliability for the Parenting Behavior Assessment involving this sample showed a Cronbach's alpha of .92. The split-half reliability score was .90.

All three assessments were administered at the initial visit. The HOME Inventory and Parenting Behavior Assessment were also completed on the final visit with the family. Parenting instructors were trained in the use of the assessments before administering them. Since the parenting instructors were gathering some of the data, there was the possibility of evaluator bias. To help eliminate this bias, inter-rater comparisons were conducted during the study. Every tenth evaluation had an inter-rater comparison made to examine consistency in the results. To conduct the inter-rater comparisons, the parenting instructor and her supervisor both completed the HOME Inventory on the family and compared their scores. The scores were examined to ensure a high degree of consensus between the ratings. Also, an unbiased research assistant carried out the data collection with approximately one-half of the families. The research assistant was trained and experienced in the use of the instruments involved in this study.

Tests of correlation were conducted to determine if the two parenting assessments were measuring similar constructs. The Pearson's r was computed on the HOME Inventory and the

Parenting Behavior Assessment. Test results showed that the two instruments were correlated ($r=.27, p=.009$).

Intervention Curriculum: The intervention used in this study was the Building Strong Families parent education program developed by Michigan State University Extension. The intervention included weekly parent education classes delivered through home visits. The curriculum was taught by paraprofessionals and had four units covering the topics of child development, positive discipline, parent-child interaction, and parental problem solving and goal setting. The mean number of visits was 12, with each unit lasting approximately 3 weeks. Instructors covered parenting information related to the child's current age, as well as the next developmental stage.

Measures and analysis: Descriptive statistics were computed for all demographic variables. Independent t-tests and Chi-square computations were used to determine the equivalency of the parents in the treatment and comparison groups. Hypothesis testing was done through the use of Analysis of Covariance (ANCOVA) tests and paired t-tests. In the ANCOVA computations pretest scores were used as the covariate, posttest scores were the outcome variables and the groups (treatment group and comparison group) were used as the factor.

Results

Demographics of study participants: Average ages of study participants were 22.65 years in the treatment group and 26.09 in the comparison group. A majority of the participants were female (treatment group: 87 percent, comparison group: 61 percent) who lived in two-parent households (treatment group: 58 percent, comparison group: 73 percent), and earned less than \$1,000 per month (treatment group: 72 percent, comparison group: 73 percent). Descriptive statistics for all key demographic variables are listed in Tables 1 and 2.

Table 1. Independent t-test comparisons of ratio demographic variables

Variable	Statistic	Treatment group participants (n=63)	Comparison group participants (n=60)	t-value (p-value)
Maternal age	Mean	22.65 years	26.09 years	-3.426 (.001)
	Standard deviation	5.04 years	5.21 years	
Paternal age	Mean	25.18 years	29.48 years	

	Standard deviation	5.09 years	6.92 years	-2.996 (.004)
Education	Mean	11.63 years	11.98 years	-1.988 (.279)
	Standard deviation	2.03 years	1.22 years	
Number of children	Mean	1.71 children	2.54 children	-3.910 (.0005)
	Standard deviation	1.17	1.02	

Table 2. Pearson Chi Square analysis of interval and nominal demographic variables

Variable		Research participants		Comparison group participants		(P) Pearson Chi square
		%	N	%	N	
Gender	Male	87	55	61	37	.002
	Female	13	8	39	23	
Residence	Rural	58	36	50	30	.246
	Urban	42	27	50	30	
Household Composition	Single parent	25	16	20	12	.177
	Two parent	58	36	73	43	
	Extended family	17	11	7	5	
Monthly income	\$800 or less	43	27	46	28	.321
	\$801-\$1,000	29	18	27	18	
	\$1,001-\$1,200	11	7	20	10	
	\$1,201 or more	17	11	7	4	
Ethnicity	Caucasian	76	48	82	49	.027
	African-American	8	5	2	1	
	Hispanic	6	4	16	10	
	Asian	8	5	0	0	
	Multi-cultural	2	1	0	0	

Comparison of treatment group and comparison group participants: Analysis using independent t-tests showed equivalency at the .05 level of probability for education (Table 1). Results from the Pearson Chi Square showed that the groups were equivalent for the variables of residence, household composition, and income (Table 2). Statistically significant differences were found for the variables of age, number of children, gender, and ethnicity. While the number of Caucasian participants was comparable between the two groups, the treatment group had a larger number of African-American and Asian participants and the comparison group had a higher number of Hispanic participants. Moreover, the comparison group parents were older, more predominately male, and reported having more children in the household.

Changes in parenting behaviors: Higher scores recorded on the Parenting Behavior Assessment meant that parents performed positive parenting behaviors more frequently. The maximum number of points possible for the Parenting Behavior Assessment was 160. As shown in Table 3, the mean pretest score for the treatment group was 125.8 (SD=22.0) and the mean posttest score was 133.8 (SD=15.3). The mean pretest score for the comparison group was 128.7 (SD=16.3) and the mean posttest score was 131.0 (SD=15.4). ANCOVA tests were run, resulting in an F of 4.89 for the main effect of group (treatment vs. comparison group) and a significance level of .029. Based upon the results of this analysis, parents in the treatment group were found to have greater increases in positive parenting behaviors than parents in the comparison group.

Table 3. Equality of group means for parenting behaviors (Parenting Behavior Assessment)

Group	N	Pretest		Posttest		Difference		F	P
		Mean	SD	Mean	SD	Mean	SD		
Treatment	63	125.8	22.0	133.8	15.3	8.0	-6.7	4.89	.029
Comparison	60	128.7	16.3	131.0	15.4	2.3	-.9		

The HOME Inventory was selected as an additional assessment of parenting behaviors because it provided this study with a triangulation of evaluation methods. While the Parenting Behavior Assessment was a self-report instrument, this measure allowed the instructor to observe the quality and quantity of care being provided to the child by the parent. Higher scores on the HOME Inventory indicate that the parent was observed performing more of the behaviors on the assessment. The maximum number of points possible for HOME Inventory was 45 points. As shown in Table 4, the mean pretest score for the treatment group was 33.6 (SD=7.47) and the mean posttest score was 39.4 (SD=4.66). The mean pretest score for the comparison group parents was 31.8 (SD=5.01) and the mean posttest score was 32.5 (SD=4.58). Initial analysis on the equality of groups means for parenting behaviors as assessed through the HOME Inventory were conducted using ANCOVA tests. The results of the ANCOVA allowed us to conclude

again that parents in the treatment group showed greater increases in positive parenting behavior than parents in the comparison group. The main effect of group (treatment vs. comparison group) had an F of 76.2 and a significance level of .0005.

Table 4. Equality of group means for parenting behaviors (HOME)

Group	N	Pretest		Posttest		Difference		F	P
		Mean	SD	Mean	SD	Mean	SD		
Treatment	63	33.6	7.47	39.4	4.66	5.8	-2.81	76.2	.0005
Comparison	60	31.8	5.01	32.5	4.58	.7	-.43		

The HOME Inventory contains six subscales, including (a) emotional and verbal responsiveness, (b) acceptance of child's behavior, (c) organization of the environment, (d) provision of play materials, (e) parental involvement with the child, and (f) opportunities for variety. The 45-item assessment was coded in a binary (yes-no) manner. The "yes" answers were counted to obtain both a subscale score and a total score. Further investigation was conducted to determine changes in group means for specific subscales with the HOME assessment.

Paired t-tests were computed to determine changes in group means from pretest to posttest for parents in the treatment group. The results of the analysis of specific subscales on the HOME are found in Table 5. Paired t-tests showed that statistically significant changes were found for all six of the subscales in the HOME Inventory. Parents were observed to increase positive parenting behaviors in the areas of emotional and verbal responsiveness ($t=6.22, p<.0005$), acceptance of the child's behavior ($t=3.40, p<.0005$), organization of the environment ($t=2.87, p<.0005$), provision of play materials ($t=5.24, p<.0005$), parental involvement with the child ($t=6.46, p<.0005$), and opportunity to offer the child variety ($t=2.69, p<.009$).

Table 5. Paired t-test analysis of HOME subscale (treatment group)

HOME subscales	N	Pretest		Posttest		Difference		t-value (p)
		Mean	SD	Mean	SD	Mean	SD	
Emotional and verbal responsiveness	60	8.14	2.328	9.89	1.52	1.75	2.155	6.22 (.0005)
Acceptance of child's behavior	60	5.76	1.829	6.62	1.424	.86	1.933	3.40 (.0005)

Organization of environment	60	5.04	1.228	5.43	.838	.39	1.006	2.87 (.0005)
Provision of play materials	60	6.89	2.454	8.26	1.09	1.37	1.980	5.24 (.0005)
Parental involvement with child	60	4.04	1.611	5.24	1.189	1.2	1.424	6.46 (.0005)
Opportunities for variety	60	3.59	1.257	3.97	1.139	.38	1.073	2.69 (.009)

Discussion

In general, the findings from this study add support to the use of home-based education by Cooperative Extension Service educators. The results showed that parents who participated in a home-based parent education program had greater improvements in parenting behaviors than a comparison group of parents.

It is important to note that positive changes in parenting behaviors were supported through two different parenting measures. The use of two methodologically different parenting instruments strengthened the study because the data was assessed through the use of both a parental self-report measure and observation.

This study was limited by the differences in demographics between the treatment and comparison groups. Even though the two groups were similar in education, income, household composition, and residence, there were differences in the number of children in the household, and participants' age, gender, and ethnicity. These differences make it more difficult to determine the actual effects of the intervention.

While the findings of this study may lend credence to the idea that home visitation programs are an effective way for Cooperative Extension systems to provide various types of education to low-income families, there are still many questions to be answered. Specifically, it is not known if the changes found in this study were a result of the curriculum, the style of information delivery, or the interaction of the two. Furthermore, if the changes can be attributed to a specific part of the intervention, we do not know what aspects caused the change. Critical questions still need to be answered regarding the optimal conditions for home-visitation programs, including program protocol, such as the number, intensity, frequency, and content of visits; staffing experience, supervision, and training; recipient characteristics; and evaluation procedures

(Gomby, Culross, and Behrman 1999, Middlemiss and McGuigan 2005, Sweet and Appelbaum 2004).

Even though this type of investigation is a good start in helping educators determine the best method of information delivery for their clientele, the work cannot stop here. Clearly more research is needed in order to make definitive recommendations for home-based programs.

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