The Effect of Volunteer Home Visitation for Adolescent Mothers on Parenting and Mental Health Outcomes

A Randomized Trial

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Background: Children of adolescent mothers may suffer because of parenting inadequacies. The use of volunteer home visitors to enhance parenting skills has not been well studied.

Objective: To evaluate the effect of a volunteer model home visitation program on adolescent parenting outcomes.

Design: Randomized trial with assignment to home visitation or control group.

Setting: Urban, African American community.

Participants: Adolescents aged 12 to 18 years at 28 or more weeks' gestation or who had delivered a baby in the past 6 months were recruited between February 1996 and August 1999.

Intervention: Volunteers were recruited from the community and trained to implement a parenting curriculum during weekly home visits. Each volunteer was paired with one teenager.

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Main Outcome Measure: Validated instruments measuring parenting stress, parenting behaviors, and mental health.

Results: A total of 232 teenagers were successfully randomized to home visitation and control groups. At baseline, the groups were comparable on demographic, social support, and mental health measures. Almost half the teenagers had poor mental health at baseline, and high rates persisted at follow-up in both groups. In multivariate models, the home visitation group demonstrated significantly better parenting behavior scores at follow-up than did the control group (P=.01) but showed no differences in parenting stress or mental health.

Conclusions: The volunteer home visitation program significantly improved some parenting outcomes but not parental distress or poor mental health. Volunteers may be an effective means of providing parenting education, but interventions that include specific means of addressing poor mental health are likely to have greater effects.

Arch Pediatr Adolesc Med. 2002;156:1216-1222



ESPITE RECENT declines in births to teenagers, the adolescent pregnancy and birth rates in the United States are higher than in

any other industrialized country.¹ Adverse outcomes are numerous. Teenaged girls who become parents experience high rates of early repeat pregnancy,² depression,^{3,4} substance use,^{5,6} and school drop out.^{7,8} Children born to teenagers may suffer because of parenting inadequacies^{9,10} and are more likely to experience health problems,¹¹ do less well in school,¹² and exhibit social or emotional problems compared with children whose mothers delay childbearing.^{7,10}

Recently, home visitation has become a popular model of service delivery for at-risk families.¹³ Research suggests that home visitation is a cost-effective intervention¹⁴⁻¹⁶ and can be effective for enhancing parenting skills,^{8,17} decreasing child abuse and neglect,¹⁸ and improving maternal life course.^{16,18} Findings demonstrate that for poor, unmarried teenaged mothers, in particular, home visitation is associated with fewer repeat pregnancies, fewer months dependent on welfare, and fewer problems with substance abuse.¹⁶

Home visitation programs are not a single entity. Goals, services, and service delivery methods differ, as do the back-ground and training of home visitors who provide the services. Programs have used professionals, paraprofessionals, or volunteers to provide services. Randomized trials of professional^{18,19} and paraprofessional²⁰⁻²² home visitors have demonstrated positive parenting outcomes. Home visitation programs using volunteers have

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Downloaded from www.archpediatrics.com on November 4, 2010 ©2002 American Medical Association. All rights reserved. provided support and education to at-risk families but have not been rigorously evaluated.

Volunteer services for vulnerable populations have a long tradition,²³ and, despite a lack of data, there is a growing perception that as health and social service budgets shrink, volunteers might assume additional roles in service provision. Observational studies have shown that volunteers can successfully provide support to new mothers and help improve parenting confidence in low-risk families.²⁴ However, we could find no published randomized trials using volunteer home visitors to provide services to vulnerable families in general or adolescent parents in particular. This study used a randomized controlled design to evaluate the impact of a volunteer model home visitation program on parenting and mental health outcomes for teenaged mothers.

METHODS

PARTICIPANT POPULATION

Participants attending an alternative school for childbearing adolescents were recruited for this program between February 1996 and August 1999. The alternative school is an urban public junior and senior high school that draws predominantly African American and low-income students from throughout Baltimore, Md. About one third of school-attending pregnant adolescents in Baltimore choose to transfer to the alternative school.

Students were eligible for the program if they were between 12 and 18 years old and if they were in their third trimester of pregnancy or had delivered a baby in the previous 6 months. The study was approved by the University of Maryland School of Medicine Institutional Review Board. Written informed consent was obtained from all participants and their parent or guardian.

DESIGN

The study was a randomized trial, with eligible teenagers assigned to the home visitation or control group. At school enrollment, school orientation, or a recruitment drive during a homeroom period, program staff described the home visitation program to the teenager and, if present, her parent or guardian. It was explained that half the teenagers requesting home visitation would be randomly selected and the other half would receive the usual services provided by the school. Randomization was carried out using a permuted block design for consecutively presenting eligible teenagers. To be certain that assignment was truly random, evaluation staff were responsible for making assignments. When program staff identified an eligible adolescent, they explained the home visitation intervention and its evaluation and offered participation in the project. After obtaining signed informed consent, the program staff called the evaluation office, identified the new enrollee, and obtained her group assignment. There was no opportunity for program staff to bias group assignment, even unintentionally.

HOME VISITATION INTERVENTION

This project was a partnership between a university-directed school-based health and education program and a communitybased nonprofit agency. The agency had more than 20 years of experience providing volunteer-based support services in Maryland and operated a volunteer model home visitation program targeted to adolescent mothers. The agency's home visitation intervention used the Parent Aides Nurturing and Developing With Adolescents curriculum.25 The curriculum was based on theories of human ecology, attachment, and social support, which emphasize that positive child development is promoted by nurturing, empathetic parenting and is influenced by the characteristics of families and social networks.25(pp1-9),26 The home visitor was to use the curriculum in weekly home visits with the teenager to teach and model nurturing parenting behaviors, encourage the teenager to continue with her education, make general assessments of health and social problems, and initiate referral for early intervention when necessary. Through the development of a mentoring and supportive relationship, the home visitor would provide support to the adolescent and her family. The home visitor met with her teenager for 11/2 hours each week. Typical activities included discussing infant development, engaging in age-appropriate feeding or play activities, role-playing age-appropriate discipline, and taking social and cultural outings in the community.

The agency was responsible for the recruitment, training, and monitoring of home visitors. Home visitors were female volunteers older than 21 years who were recruited from the local community via public service announcements, community newspaper advertisements, and churches. Volunteers completed an extensive screening process that included assessment of their motivation and criminal background checks. Volunteers received 16 hours of home visitation training with the curriculum.

Each adolescent randomized to the home visitation intervention was paired with one volunteer home visitor. The home visitor was to make weekly home visits with the teenager and other family members. The intervention was designed to last until the child's first birthday, with an option to continue until the child's second birthday. A licensed social worker met with the teenager and home visitor during monthly group parenting classes. In addition, the social worker provided individual and family counseling, case management, and coordinated linkages with community agencies when problems were identified (eg, housing, day care, or domestic violence). Frequency of social work contact varied by individual need.

The home visitors were asked to attend monthly support groups conducted by the community nonprofit center. The group sessions served as in-service curriculum refreshers and as a means for providing support to the home visitor. The home visitor received \$200 per year to compensate partially for travel and other expenses related to the home visitation.

Teenagers in both home visitation and control groups received the usual services provided by the school. These included academics, parenting classes, day care, and health care.

DATA COLLECTION

Process data were obtained from program records to measure congruence between the home visitation model and actual implementation. Using the regular program protocol, home visitors were to complete a checklist for each contact and submit completed checklists to program staff monthly, either at monthly group meetings or via preaddressed stamped envelopes. Process variables included the date(s) of completed, attempted, and canceled home visits, telephone contacts, and other in-person encounters between the home visitor and family. The checklist contained a section for visit content (eg, whether the home visitor and teenager talked about feeding, play, or discipline) with room for the home visitor to write narrative observations.

Structured interviews were conducted at baseline and at 15 months' follow-up by research staff blinded to group assignment. The interviews assessed demographics, pregnancy and school history, social support, mental health, and parenting outcomes. We selected instruments with established psy-

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Study flowchart.

chometric properties that have been used previously with this population. Social support was measured with Barrera's Arizona Social Support Interview Schedule, which assesses the adolescent's perceived support satisfaction and need.²⁷ To measure mental health, we used the MHI-5, a short form of the RAND Mental Health Inventory (MHI), which has been shown to be highly predictive of depressive disorders and has been validated and recommended for use with adolescents.^{28,29} When MHI scores are transformed linearly to a common metric,³⁰ they range from 0 (worst) to 100 (best). The mean score for adolescent girls aged 14 to 19 years is 70.²⁸ We selected a cutoff of 67 to define poor mental health, as has been done in prior research.²⁰

The adolescent's parenting behavior was measured by Bavolek's Adult-Adolescent Parenting Inventory (AAPI), which was designed to assess high-risk parenting attitudes and childrearing practices.³¹ The AAPI subscales assess developmental expectations, use of punitive discipline practices, empathy toward the child, and parent-child role reversal. Abidin's Parenting Stress Index measured the adolescent's parenting stress and factors in the parent-child interaction that might be associated with unsatisfactory caretaking.³²

ANALYSIS

We used an intention-to-treat analysis³³ to measure the effectiveness of the intervention. A *t* test was used to assess group differences in interval-level baseline variables. Multivariable analyses were used to assess group differences in outcomes, controlling for baseline measures. We used hierarchical linear regression analyses to test for program effects on parenting stress, parenting behaviors, mental health, satisfaction with social support, and social support need. Although the 2 groups were comparable at baseline, differential attrition in collecting follow-up data created an imbalance in the 2 groups in the baseline measures of mental health and social support. Therefore, we included these measures as covariates in the regression models. To examine the independent contribution of program participation on program outcomes (parenting stress, parenting behaviors, and mental health), in all analyses separate regression models were constructed in which mothers' age and baseline measures of mental health were introduced into the regression equation first. Because bivariate analyses indicated that baseline levels of social support were highly correlated to levels at follow-up, in examining program effects on social support we controlled for their baseline levels by entering them first into the regression models. All analyses were conducted using SPSS statistical software for PC, version 10.0 (Statistical Product and Service Solutions, Chicago, III).

RESULTS

The **Figure** displays participant flow throughout the intervention and evaluation. Of 249 eligible teens who agreed to participate, 17 dropped out prior to randomization and were excluded from the analysis, leaving 232 teens who were randomized to home visitation and control groups (home visitation, 118; control, 114). Of these, 94% (home visitation, 114; control, 103) completed a baseline interview, 63% (home visitation, 77; control, 70) completed a follow-up interview, and 57% (home visitation, 73; control, 59) completed both. The reason for failure to complete a baseline and/or follow-up evaluation was inability to locate the teenager.

Of the 118 adolescents assigned to home visitation, 37 were never matched with a home visitor because of inability to locate (n=27) or becoming disinterested in participation (n=10). The Figure displays the total and mean number of home visits for the 81 teenagers who were successfully matched with a home visitor. Outcomes for home visitation and control groups are reported for all participants who completed follow-up evaluations, regardless of whether they actually received the intervention.

The study groups were comparable at baseline (**Table 1**). However, among the home visitation group there was a trend toward better follow-up of subjects with greater need for social support and poorer mental health at baseline (**Table 2**). In addition, there was a trend toward better follow-up of control group subjects with better mental health at baseline.

Process data obtained from program records were used to measure congruence between the home visitation model and actual implementation. The home visitor was expected to complete contact logs after each home visit, but completion of these logs was poor; more than half of volunteers failed to return any contact logs during their home visitation tenure. To ascertain whether home visits were actually occurring, a program social worker conferred separately with each teenager and home visitor at regular intervals to collect information on visit frequency retrospectively.

The Figure shows that of the 118 teenagers assigned to the home visitation group, 81 were matched with a home visitor. The most common reasons for a teenager not being matched were that, after enrollment in the program, the teenager could not be located or she changed her mind regarding participation. Baseline measures of social support and mental health for matched vs unmatched teens were similar except for a trend toward higher baseline social support need among those who were matched. The Figure displays the documented mean number (10.6 per year) and range (0-58 per year) of home visits.

Table 1. Baseline Comparison of Home Visitation

| Variable | Home Visitation Group (n = 114) | Control Group (n = 103) | |
|--|---------------------------------------|----------------------------|--|
| Demographics | | | |
| Age, mean (range), y | 16.0 (14.7-17.3) | 16.0 (14.8-17.2) | |
| African American, % | 98 | 98 | |
| Medical assistance, % | 82 | 80 | |
| Household composition and relationships | | | |
| Lives with mother, % | 69 | 69 | |
| Lives with or closely involved with infant's father, % | 59 | 54 | |
| No relationship with infant's father, % | 12 | 15 | |
| No. of people in household, mean (range) | 5 (3-6) | 5 (3-7) | |
| Pregnancy and school history | | | |
| Prior pregnancy, % | 22 | 22 | |
| Highest grade completed, mean (SD) | 9.2 (1.2) | 8.9 (1.4) | |
| Repeated a grade, % | 60 | 62 | |
| Social support* | | | |
| Satisfaction score, mean (SD) | 50.6 (8.6) | 51.9 (6.9) | |
| Need score, mean (SD) | 38.0 (14.3) | 39.4 (13.0) | |
| MHI-5† | | | |
| Mental health score, mean (SD) Mental health (score <67), % | 66.9 (21.1) 46 | 69.0 (19.4) 45 | |

*Higher satisfaction scores indicate greater support satisfaction; higher need scores, greater need for support.

†MHI-5 is a short form of the RAND Mental Health Inventory.^{28,29} Lower scores indicate poorer mental health.

Parenting stress and behaviors at follow-up are shown in **Table 3**. Compared with controls, the home visitation group demonstrated significantly better scores on the parent-child dysfunctional interaction subscale (home visitation, 19.5 vs control, 21.6; P=.05) but not on the other subscales or the overall scale. The home visitation group demonstrated significantly better scores or trends in the desired direction for all subscales of the AAPI. Specifically, the home visitation group demonstrated significantly lower scores for inappropriate expectations of the child and lower overall scores for the AAPI.

To control for possible bias from differential attrition or lack of comparability between groups we successfully followed, we used hierarchical linear regression, controlling for baseline measures of mental health and support to examine parenting, social support, and mental health outcomes. We found that higher parenting stress at follow-up was significantly associated with poorer mental health at baseline (data not shown) but not with whether the teen was in the home visitation group (**Table 4**). Scores on the AAPI parenting behaviors scale at follow-up were significantly better among the home visitation group.

The home visitation and control groups had similar levels of satisfaction with social support at follow-up (Table 4). However, even after controlling for baseline social support need and mental health, the home visitation group demonstrated a trend toward higher support need scores at follow-up than did the control group.

COMMENT

Rigorous evaluation of the myriad of programs developed to improve outcomes for pregnant and parenting teenagers and economically disadvantaged families is essential. To our knowledge, this is the first randomized controlled trial evaluating the impact of a volunteer home

Table 2. Baseline Comparison of Home Visitation and Control Group Subjects by Follow-up Interview Status

| | Home Visitation Group | | | Control Group | | |
|---|------------------------------------|---------------------------------------|---------|------------------------------------|---------------------------------------|---------|
| Variable | Follow-up Interview (n = 77) | No Follow-up Interview (n = 41) | P Value | Follow-up Interview (n = 70) | No Follow-up Interview (n = 44) | P Value |
| Demographics | | | | | | |
| Age, mean, y | 16.1 | 15.8 | .22 | 16.0 | 16.2 | .45 |
| Medical assistance, % | 82 | 78 | .55 | 80 | 84 | .57 |
| Household composition and relationships | | | | | | |
| Lives with mother, % | 68 | 71 | .72 | 74 | 61 | .15 |
| Close with infant's father, % | 56 | 63 | .72 | 50 | 59 | .34 |
| Pregnancy and school history | | | | | | |
| Prior pregnancy, % | 25 | 17 | .57 | 24 | 21 | .39 |
| Repeated a grade, % | 53 | 71 | .07 | 64 | 59 | .63 |
| Baseline social support* | | | | | | |
| Satisfaction score, mean (SD) | 51.9 (6.8) | 52.0 (7.1) | .96 | 50.3 (9.8) | 51.0 (7.1) | .68 |
| Need score, mean (SD) | 40.9 (13.1) | 36.6 (12.7) | .09 | 37.3 (14.7) | 38.9 (12.7) | .56 |
| Baseline MHI-5† | | | | | | |
| Mental health score, mean (SD) | 65.0 (21.2) | 70.2 (20.8) | .21 | 69.8 (21.0) | 67.9 (17.2) | .62 |
| Poor mental health, % | 51 | 37 | .15 | 39 | 52 | .18 |

*Higher satisfaction scores indicate greater support satisfaction; higher need scores, greater need for social support. †MHI-5 is a short form of the RAND Mental Health Inventory.^{28,29} Lower scores indicate poorer mental health.

Table 3. Parenting Stress, Parenting Behaviors, and Mental Health at Follow-up by Study Group*

| Scales | Home Visitation Group (n = 77) | Control Group (n = 70) | Mean Difference (95% Confidence Interval) |
|---|---|------------------------------|---|
| Parenting Stress Index (PSI) ³² † | | | |
| Parental distress | 31.4 (7.9) | 30.1 (9.0) | 1.3 (-3.3 to 2.4) |
| Parent-child dysfunctional interaction | 19.5 (6.1) | 21.6 (6.8) | -2.1 (01 to 4.2) |
| Difficult child | 33.9 (7.2) | 33.3 (6.9) | 0.6 (-3.0 to 1.7) |
| PSI total | 84.9 (17.2) | 85.8 (18.1) | -0.9 (-5.1 to 6.8) |
| Parenting | | | |
| behaviors (AAPI)† | | | |
| Inappropriate expectations | 12.2 (3.2) | 13.6 (3.4) | -1.4 (0.2 to 2.6) |
| Lack of empathy | 19.1 (5.1) | 20.2 (5.0) | -1.1 (-0.6 to 2.8) |
| Physical punishment | 23.7 (5.3) | 25.0 (5.2) | -1.3 (-0.5 to 3.2) |
| Role reversal | 21.4 (5.4) | 23.2 (5.3) | -1.8 (-0.1 to 3.6) |
| AAPI total | 76.4 (14.8) | 82.0 (15.5) | -5.6 (0.2 to 11.0) |
| MHI-5‡ | | | |
| Mental health score | 60.0 (22.7) | 64.4 (20.1) | -4.5 (-2.7 to 11.6) |
| Poor mental health, % | 56 | 48 | .41 |

*Data are given as mean (SD) unless otherwise indicated. AAPI indicates Adult-Adolescent Parenting Inventory. $^{\rm 31}$

†Lower scores represent more favorable outcomes.

‡MHI-5 is a short form of the RAND Mental Health Inventory.^{28,29} Lower scores indicate poorer mental health.

visitation program model on parenting and mental health outcomes for adolescent mothers.

Our findings regarding outcomes are mixed. This program demonstrated small but significantly better parenting outcomes for the home visitation group, particularly regarding expectations of the child, role reversal, and dysfunctional parent-child interaction. These modest positive findings are consistent with those of studies of nonvolunteer home visitation programs that target the mother's parenting attitudes and behaviors.^{13,17,18} On the other hand, this program did not affect teenagers' reports of satisfaction with social support, nor did it favorably affect teenaged mothers' high rates of poor mental health.

Possible explanations for these results derive from program conceptualization and/or program implementation. First, the intervention, weekly home visitation by a volunteer trained to provide support and parenting education, was conceived with a framework grounded in theories of social support and attachment³⁴ and empirical observation of the protective effects for adolescents who are connected to a caring, responsible adult.³⁵ Home visitors were to form supportive mentoring relationships with their teenager and through this relationship help decrease parental stress and provide social support and parenting education. Although research has demonstrated a positive relationship between social support and parenting outcomes³⁴ and social support and mental health,^{3,4,36} volunteer home visitors in this program ap-

Table 4. Home Visitation Group Effects at 15-Month Follow-up, Controlling for Baseline Measures*

| | Unstandardized Coefficients | | 95% Confidence | |
|---|--------------------------------|-----|-------------------|--|
| Variable | β | SE | Interval | |
| Parenting Stress Index ³² † | -2.5 | 3.1 | -8.6 to 3.7 | |
| Parenting behaviors (AAPI)† | -7.3 | 2.8 | -12.8 to -1.7 | |
| Mental health score (MHI-5) ^{28,29)} † | -1.0 | 3.3 | -7.6 to 5.6 | |
| Social support satisfaction‡ | -1.3 | 1.5 | -4.2 to 1.7 | |
| Social support need‡ | 3.2 | 2.1 | -1.0 to 7.3 | |

*AAPI indicates Adult-Adolescent Parenting Inventory.31

+Controlling for baseline mental health.

‡Controlling for baseline measures of mental health, social support satisfaction, and social support need.

peared to have a positive effect on the former but not the latter.

As in previous studies,¹⁹ home visitors' mentoring and role modeling activities may have produced the positive effects on parenting outcomes. Alternatively, because the AAPI parenting outcomes measure is obtained via self-report and its constructs are related to the activities of the intervention, it is possible that our findings might have been different had we measured parenting through direct observation.

The lack of intervention effect on parental distress is a bit puzzling. A possible explanation is that although social support has been shown to mitigate the effects of stress on depression,³ the support provided by volunteers in this program did not achieve this effect. This may have been due to lack of compatibility of home visitor and teenager or the failure of volunteers to meet participant expectations.^{23,25} It is also possible that the intervention itself made teenagers more aware of the responsibilities of parenthood, thereby creating a heightened sense of need and greater expectations for support.

Volunteers were laypeople and, although they received some tutelage about mental health issues and teenagers, they were not specifically trained to make mental health assessments. Consequently, serious depressive symptoms may not have been identified and referred for treatment, although this was probably true for the control group as well. Indeed, it seems unreasonable to expect that volunteers would successfully identify adolescents with depressive symptoms when professionals so often fail to.37,38 Our findings of continued poor mental health and possibly increased support need by participants could be explained by bias from differential dropout rates, although this was controlled for in the multivariable analysis. Previous research has shown that long-term home visitation program participation increases among those with greater emotional and instrumental social support needs.³⁹ The level of participation and particularly continuation by depressed teenagers in this study suggests that these kinds of programs may be an effective way to engage them. However, our findings highlight the need for programs that include specific methods for identifying depressed teens as well as procedures to engage them in effective treatment.

Although there is widespread agreement that competent parenting is related to better outcomes for chil-

What This Study Adds

dren, there is little evidence about what parenting education should consist of, who should provide it, and how it should be delivered.⁴⁰ Because volunteers came from varied backgrounds with different parenting experiences, they may not have agreed with the messages contained in the parenting curriculum and may have communicated this explicitly or implicitly to the teenager. Although the volunteers in our program were generally dedicated to helping their teenager, they faced many challenges to implementing the tasks we asked of them, including the emotional stresses of the job and lack of formal training to maintain objectivity.

Most home visitation programs struggle to engage families, maintain their involvement, and ensure that curricular materials are delivered with fidelity.¹³ Our program was no exception. Although the majority of eligible teenagers initially agreed to participate, 7% changed their mind prior to enrollment. Of those who were randomized to home visitation, only 54% remained engaged and actively participating at 12 months. Of those actively participating at 12 months, participants received significantly fewer visits than scheduled, averaging 1 visit per month or 75% fewer than specified by the model. This volunteer home visitation model achieved less intensity of services than planned (1 instead of 4 visits per month) but compared with programs using paraprofessional or professional home visitors^{41,42} the proportion of visits achieved was about the same. This low level of involvement and lower-than-planned number of visits is strikingly consistent with many other home visitation programs.^{13,42}

Another explanation for the program's low number of visits may be poor documentation. Program staff expended significant efforts, largely without success, to increase home visitor completion of contact logs. It is likely that a greater number of home visits occurred than we were able to capture through our documentation process. Additionally, receipt of fewer home visits than intended may have resulted from the chaotic nature of participants' lives. For example, participants moved frequently in a year and were a challenge to track, both for the intervention and evaluation. The instability of participants' home lives presented many challenges to volunteers as they tried to schedule visits. Other challenges derived from the nature of adolescence. Teenagers agreed to appointments but frequently did not show up. Whereas a paid paraprofessional or professional home visitor would be expected to make additional efforts to meet successfully with the teenager, it is unreasonable to expect volunteers who may have full-time jobs and family obligations to expend the same effort.

Tracking participants for the evaluation was challenging; indeed a major limitation of the study was that only 63% of teenagers were located for the follow-up assessment. However, our analysis demonstrated that important baseline measures among the home visitation and control groups did not differ significantly by follow-up interview status.

In a time of shrinking budgets for social service programs, the cost-effectiveness of programs is a major concern. The average cost per teenager of this volunteer home visitation program, calculated both for those who were matched with a home visitor and for those with docuAdolescent mothers experience high rates of depression, and their children may suffer because of parenting inadequacies. Interventions by professional and paraprofessional home visitors have demonstrated effectiveness for enhancing parenting skills and improving maternal life course. Whether similar outcomes could be achieved in programs using volunteer home visitors has not been well studied.

To our knowledge, this is the first randomized trial evaluating parenting and mental health outcomes for adolescent mothers paired with volunteer mentors. The program demonstrated small but significantly better parenting outcomes for the home visitation group. On the other hand, this program did not affect the teenagers' reported satisfaction with social support or high rates of poor mental health. Documentation from volunteers was inconsistent, and overall program costs were not significantly lower than programs using professional or paraprofessional home visitors. Expectations regarding outcomes for adolescent parents in volunteer home visiting programs should be modest.

mentation that they actually received services, was between \$3704 and \$5245 per teenager for about $1\frac{1}{2}$ years of service. These estimates include the costs to the community nonprofit organization to recruit, train, and supervise the volunteers as well as the program's social work staff, supplies, travel, and volunteer stipends. Studies of home visitation services lasting $2\frac{1}{2}$ years have cited costs of \$7681 per family for nurse home visitation and \$5178 per family for paraprofessional home visitation.⁴¹

In summary, this volunteer model home visitation program for teenaged mothers influenced parenting behaviors in a significant positive direction. The program did not have a positive impact on teenagers' reported social support, parenting stress, or poor mental health. Volunteer home visitors may be an effective means of providing parenting education to economically disadvantaged adolescent parents, but expectations regarding what they can accomplish should be tempered by our findings. Volunteer home visitors were not effective in creating or improving a social support network for the teenager, nor were they able to help the teenager reduce parental stress or improve mental health. Moreover, the intervention may have caused participants to experience a greater need for social support.

The costs of this volunteer program were not dramatically less than programs using paraprofessionals and professionals. In this time of shrinking federal resource allocation for disadvantaged families and public policy that champions faith-based initiatives and volunteerism to address social problems, policy makers might use our findings and conclude that volunteer-based programs may be complementary to but not a substitute for other forms of early intervention and support services for socially and economically disadvantaged childbearing teenagers.

Accepted for publication July 26, 2002.

This study was supported by grant APH000179 from the Office of Adolescent Pregnancy Programs, US Depart-

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ment of Health and Human Services, Washington, DC. Dr Barnet was a Robert Wood Johnson Generalist Physician Faculty Scholar during the study period.

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