

Efficacy of a Parent-Based Sexual-Risk Prevention Program for African American Preadolescents

A Randomized Controlled Trial

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Objective: To evaluate the efficacy of a parent-based sexual-risk prevention program for African American preadolescents.

Design: Randomized controlled trial.

Setting: Community-based study conducted in Athens, Georgia; Atlanta, Georgia; and Little Rock, Arkansas from 2001 to 2004.

Participants: From 1545 inquiries, 1115 African American parent-adolescent dyads (child, aged 9-12 years) formed the analytic sample.

Intervention: Participants were randomized into 1 of 3 study arms: enhanced communication intervention (five 2½-hour sessions), single-session communication intervention (one 2½-hour session), and general health intervention (control, one 2½-hour session).

Outcome Measures: Continuous measures of parent-adolescent sexual communication and parental responsiveness to sex-related questions at preintervention, post-intervention, and at 6- and 12-month follow-ups; and dichotomous measure of adolescent sexual risk (having engaged in or intending to engage in sexual intercourse at 12-month follow-up).

Results: Using intent-to-treat participants, differences of mean change from baseline for continuous measures and relative risk for the dichotomous measure of sexual risk were calculated. Participants in the enhanced intervention had higher mean changes from baseline scores, indicating more sexual communication and responsiveness to sexual communication at each assessment after intervention for all continuous measures than those in the control intervention and single-session intervention. Preadolescents whose parents attended all 5 sessions of the enhanced intervention had a likelihood of sexual risk at the 12-month follow-up of less than 1.00 relative to those whose parents attended the control (relative risk, 0.65; 95% confidence interval, 0.41-1.03) and single-session (relative risk, 0.62; 95% confidence interval, 0.40-0.97) interventions.

Conclusions: These results provide preliminary evidence for the efficacy of a parenting program designed to teach sexual communication skills to prevent sexual risk in preadolescents.

Trial Registration: clinicaltrials.gov Identifier: NCT00137943.

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ADOLESCENTS' SEXUAL ACTIVITY in the United States is a serious public health issue because of the prevalence of unplanned pregnancy¹ and sexually transmitted diseases, including HIV infection.² Almost 50% of adolescents in grades 9th through 12th have engaged in sexual intercourse.³ Seven percent of adolescents reported engaging in intercourse before the age of 13 years, with the prevalence substantially higher in African American adolescents (19%) than in other racial/ethnic groups.³

Although more than 100 interventions to reduce sexual risk among youth have been developed, only a few have un-

dergone rigorous empirical validation.^{4,5} Of those validated, almost all were implemented directly with adolescents in school- or community-based settings. Although few prevention programs have targeted families, parents play critical roles in shaping adolescent sexual behavior through their use of effective strategies and communication about sexual values.^{6,7} Moreover, preadolescents cite their parents as one of their preferred sources of information about sex.⁸ Therefore, parents are in a unique position to deliver sexual-risk prevention messages.

In this article, we report the primary outcome measures at baseline through 12-month follow-up assessments for the Parents Matter! Program, a sexual-risk pre-

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ventive group intervention for African American parents of 9- to 12-year-old preadolescents. We focused on African American youth primarily because of the disproportionate effect of HIV/AIDS, other sexually transmitted diseases, and unplanned teen pregnancy on the African American community.^{6,9} To prevent early onset of sexual activity, preadolescents were the target age group. Parents were randomly assigned to 1 of 3 intervention arms: a single-session general health intervention (control); a single-session communication intervention (single session); or a 5-session enhanced communication intervention (enhanced); the latter two were designed to reduce youth sexual risk. The conceptual framework guiding the intervention components was derived from social and behavioral theories employed to understand the role of parenting on preadolescent socialization or the prediction of adolescent sexual risk behavior.¹⁰⁻¹²

We proposed several hypotheses regarding how participation in the intervention would relate to the following 2 categories of outcome variables: (1) parent-preadolescent sexual communication and (2) preadolescents' sexual risk (being sexually active or having intentions of becoming sexually active). Communication about sex was the primary focus of the intervention, whereas preventing sexual risk was the primary goal of the intervention. Because anticipating engaging in sexual intercourse is the best predictor of actually engaging in sexual intercourse in the near future,¹³ sexual intentions and having engaged in sexual intercourse were examined and served as an early marker of program efficacy. Specifically, we hypothesized that, relative to the single-session and control arms, participation in the enhanced arm would result in higher levels of the following behaviors and perceptions after intervention: parent-reported and preadolescent-reported parental sexual communication; parent-reported responsiveness (comfort and confidence) to sexual communication; and preadolescent perceptions of the parent being responsive and open to sexual communication. We also expected that participants in the single-session arm would demonstrate higher levels of these outcome variables than those in the control arm.

We hypothesized that a lower percentage of youth whose parents participated in the enhanced intervention, particularly if they attended all 5 sessions, would be at sexual risk than youth whose parents participated in the single-session or control interventions. Differences were not examined prior to the 12-month follow-up, as they were not expected until this point. Other prevention programs indicate that proximal variables (those directly targeted in a prevention program, eg, sexual communication) change during and shortly after intervention, whereas distal variables (preadolescent outcome variables that the targeted variables should affect, eg, sexual risk) change 1 year later.¹⁴

METHODS

RECRUITMENT ACROSS SITES

Parent-preadolescent dyads were recruited at 3 study sites between 2001 and 2004 in the southern United States (Athens, Georgia; Atlanta, Georgia; and Little Rock, Arkansas), each of

which obtained institutional review board approval. The Centers for Disease Control and Prevention also received institutional review board approval. Relationships were developed between the community liaison at each site and individuals and agencies that offered potential avenues for recruitment (eg, housing authorities, recreation programs, schools, and churches). Participants were recruited through these avenues and through flyers, referrals, and community events (eg, health fairs and parent-teacher association meetings).^{15,16} Parents were told that the study consisted of 3 programs to support their efforts to promote preadolescents' health and they would be randomly assigned to 1 of 3 of the programs: 2 focusing on sexual-risk reduction, 1 on general health.

PARTICIPANTS

From 1545 inquiries, 1115 African American parent-preadolescent dyads were enrolled. The eligibility criteria were as follows: the preadolescent was in the fourth or fifth grade and aged 9 to 12 years at baseline assessment; parent was the legal guardian of the preadolescent and lived continuously with him/her for the past 3 years; the parent self-identified as African American; and the parent and preadolescent were fluent in English.

STUDY PERSONNEL

All key study personnel who interacted with participants were African American, residents of the same communities as participants, and underwent extensive and ongoing training on issues of diversity, ethics, and project procedures.¹⁵ A community liaison recruited participants. Interviewers, who were blind to group assignment, obtained informed consent from participants and prepared each dyad for computer-administered assessments. Facilitators conducted the intervention groups.

INTERVENTIONS

All 3 interventions were administered to parents in a group format. Each session lasted 2½ hours. The enhanced intervention's first 2 sessions consisted of 2 preliminary components on risk awareness—focused on raising parents' awareness of adolescent sexual-risk behavior and teaching parents how they can help their preadolescents avoid such risks—and parenting practices—focused on skills known to reduce sexual-risk behavior among adolescents, including the use of positive reinforcement, monitoring, and effective parent-preadolescent communication. Sexual communication—focused on increasing parents' communication about sexual topics and their confidence, comfort, and responsiveness in communicating with their preadolescents about sexual behavior—was delivered in sessions 3 through 5. The enhanced intervention used multiple teaching strategies, including structured learning experiences, discussion, videotapes, overhead projections, modeling, role playing, group exercises, and homework assignments. Preadolescents attended part of the fifth session so that parents could practice and receive feedback on their communication skills.

The single-session intervention covered the same topics as the enhanced intervention but in a single session that was primarily a lecture format with visual aids and some videos but no opportunity to practice skills. The single-session control intervention focused on general health issues and emphasized how parents can help their preadolescents establish long-term health habits that would reduce the risk of such diseases as obesity, diabetes, cardiovascular disease, and hypertension. Preadolescents did not attend the single-session or control interven-

tions.¹⁷ Sessions for all 3 interventions were co-led by 2 African American facilitators (n=17). Each facilitator co-led all 3 intervention arms.

PROCEDURES

Each cohort consisted of a mean 25 parent-preadolescent dyads (range, 16-37 dyads). Fourteen, 13, and 16 cohorts were in Athens, Atlanta, and Little Rock, respectively. Within each cohort, potential participants were first screened to determine eligibility. If the dyad met eligibility criteria and agreed to participate, then they completed the baseline assessment. One parent and 1 preadolescent per family were targeted. If there was more than 1 eligible preadolescent per family, the older one was selected for participation. After baseline assessment, dyads were randomly assigned to an intervention arm.

Parents and preadolescents were assessed at postintervention and at 6 months and 12 months postintervention. Parent-preadolescent dyads were considered lost to follow-up if they failed to attend at least 1 intervention session or missed 2 consecutive assessments. Assessments and intervention groups were typically held in the participants' community (eg, a school, community center, or campus of a children's hospital).

All assessments were conducted via audio computer-assisted structured interviews.¹⁸ Parents and preadolescents were situated at computers in different areas to ensure confidentiality. Questions were delivered audibly by a computerized voice over headphones and visually on the computer screen. Preadolescent and parent assessments took approximately 30 and 45 minutes to complete, respectively. After completion of each assessment and intervention session, the dyad was given \$25 for any expenses incurred (eg, childcare or transportation).

MEASURES

Steps were taken to ensure that measures were reliable, valid, age-appropriate, and culturally relevant. All items were reviewed for readability by focus groups, elementary school teachers, and community advisory boards. Measures were pilot tested and revised based on community feedback. The measures reported in our study were previously used by Miller et al¹⁹ in the Family Adolescent Risk Behavior and Communication study, which included African American adolescents and mothers. In addition to demographic information, the subsequent constructs, which were of primary interest as outcome variables, were assessed.

Sexual Communication

Both the parent and preadolescent completed the same 9 communication items about sexual education and sexual-risk reduction (eg, parent report, "How many times have you talked to your child about what sex is?"; child report, "How many times has your parent talked to you about what sex is?"). Each item was completed on a 2-point scale: 0, never; 1, once or twice; and 2, lots of times. The α coefficient for the parent report and preadolescent report measures, each averaged across the 4 assessments, was 0.88 and 0.86, respectively.

Parental Responsiveness to Sexual Communication

The parent's comfort and confidence in communicating with her/his preadolescent about sex was assessed by 5 items reported by the parent (eg, "I feel prepared to talk with my child about sexual topics as she/he gets older."). Each item was completed on a 3-point response scale: 1, not true at all; 2, a little true; and 3, very true. The α coefficient, averaged across the 4 assessments, was 0.80.

Preadolescents' Perception of Parental Responsiveness to Sexual Communication

Preadolescents perceptions of their parents' responsiveness and openness to sexual communication were assessed by 6 items (eg, "If I asked my parent a question about sex, she/he would be glad I asked."). Each item was completed on a 3-point scale with higher scores, after recoding, indicating higher levels of perceived parent responsiveness. The α coefficient, averaged across 4 assessments, was 0.70.

Preadolescents' Sexual Risk

A series of questions was used to classify youth into a typology of heterosexual experience, consisting of 3 groups²⁰: delayers (those who have never engaged in sexual intercourse and have less than a 50% likelihood of engaging in sexual intercourse in the next year); anticipators (those who have never engaged in sexual intercourse and have a 50% or greater likelihood of engaging in sexual intercourse within the next year); and sexually active (those who have engaged in sexual intercourse at least once). Gated questions were asked so that advanced sexual activity was queried only if earlier questions were answered affirmatively. Following early questions in the gated procedure, there were 2 questions of interest: (1) "Have you ever willingly had sexual intercourse with a girlfriend/boyfriend? Sexual intercourse is when a boy or man puts his penis in a girl's or woman's vagina" (0, no; 1, yes); and (2) "How likely is it you will or will not have sex in the next year? Pick the statement that is most true for you" (1, "I am sure I will not have sex in the next year"; 2, "I probably will not have sex in the next year"; 3, "There is an even chance I will or will not have sex in the next year"; 4, "I probably will have sex in the next year"; 5, "I am sure I will have sex in the next year"). Preadolescents answering the first question with a 0 (no) and the second question with a 1 or 2 were classified as low risk (delayers). Preadolescents who answered the first question with a 1 (are sexually active and likely to continue engaging in sexual intercourse) or who answered the first question with a 0 and then answered the second question with a 3, 4, or 5 (virgins who are likely to engage in sexual intercourse) were classified as high risk (anticipators or sexually active).

STATISTICAL ANALYSIS

Summary statistics of demographic variables and baseline measurements were generated by intervention arms. Retention rates were calculated at each assessment. Primary analyses were conducted with intent-to-treat participants (n=1115; those who were randomized regardless of compliance to the intervention). The analyses for the continuous variables (parental and preadolescent report of sexual communication, parental responsiveness, and preadolescents' perceptions of parental responsiveness) were conducted using analysis of covariance with the treatment arm as the independent variable and the baseline score as the covariate. The difference of mean change from baseline at each assessment between treatment arms was calculated.

The likelihood of preadolescent sexual risk (engaging in sexual intercourse or intentions of engaging in such behavior) was examined at the 12-month follow-up. The relative risk (RR) for each intervention arm was computed. A subgroup analysis was conducted to compare the enhanced program effects for preadolescents whose parents attended all 5 sessions with those whose parents attended the single-session and control arms of intervention. The incidence of preadolescent engagement in sexual intercourse was reported.

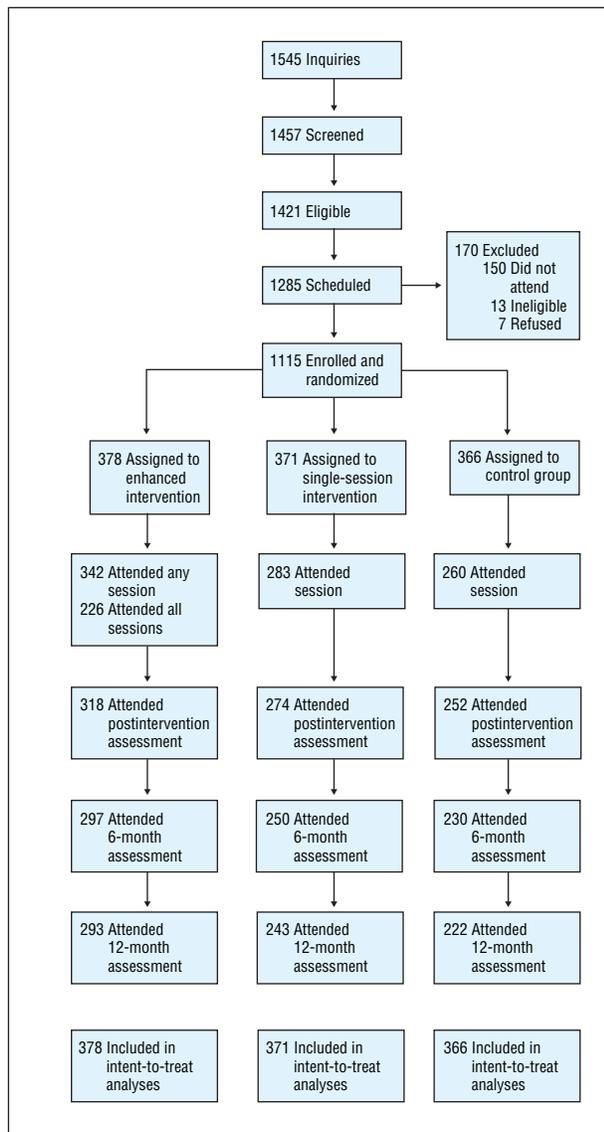


Figure 1. Flowchart of participants (parent-child dyads) at each stage of the Parents Matter! Program study.

RESULTS

RETENTION, ATTENDANCE, AND TREATMENT FIDELITY

Figure 1 shows that 1115 participants were randomized. The number of participants in each intervention arm included in the intent-to-treat analyses is 378, 371, and 366 for the enhanced, single-session, and control arms, respectively.

As expected, participants in the enhanced intervention (84%) had a higher retention (attended at least 1 session) from the baseline to postintervention assessment than either participants in the single-session (74%) or control (70%) interventions. Follow-up retention (postintervention to 12-month follow-up) was similar in the 3 arms of intervention (enhanced, 92%; single-session, 90%; control, 90%). Session attendance in the enhanced intervention averaged 90% across the 5 sessions.

Table 1. Demographics and Dependent Variables at Baseline for the 3 Study Arms for Intent-to-Treat Participants^a

Characteristic	Enhanced Intervention ^b (n=378)	Single-Session Intervention (n=371)	Control Intervention (n=366)
Preadolescent mean age, y	10.79	10.83	10.74
Preadolescent sex			
F	55	55	55
M	45	45	45
Parent education			
≤ High school degree	65	51	57
> High school degree	35	49	43
Monthly family income, \$			
≤ 199	6	3	4
200-499	17	14	12
500-999	19	21	24
1000-1999	30	31	28
2000-2999	16	18	16
3000-3999	8	6	10
≥ 4000	4	7	6
Participating parent			
Mother	88	88	87
Other	12	12	13
Mean sexual communication score, parent ^c	10.10	10.11	10.53
Mean sexual communication score, preadolescent ^d	9.36	9.60	9.63
Mean parental responsiveness score, parent ^e	11.64	11.65	11.67
Mean parental responsiveness score, preadolescent ^f	14.43	14.51	14.48
No. of preadolescents at sexual risk (%) ^g	21 (6)	28 (8)	33 (9)

^a Values are percentages unless otherwise indicated.

^b Reported for participants who attended 0 to 5 sessions; participants who attended all 5 sessions were similar to those in single-session or control interventions.

^c Parental report of sexual communication on a 0- to 18-point scale.

^d Preadolescent report of sexual communication on a 0- to 18-point scale.

^e Parental report of comfort and confidence about sexual communication on a 5- to 15-point scale.

^f Preadolescent perceptions of parental responsiveness to sexual communication on a 6- to 18-point scale.

^g Preadolescents reporting 50% or greater likelihood of engaging in sexual intercourse during the next year or reporting having had sexual intercourse.

Preliminary analyses also indicated that the findings were not qualified by site (Atlanta, Little Rock, or Athens) or preadolescents' sex; therefore, neither site nor sex was considered further. Groups at baseline were similar on demographic variables and the dependent variables of interest (**Table 1**). No major adverse events or effects occurred in the 3 intervention groups.

All sessions were audiotaped to ensure that interventions were being delivered consistently across sites and adhered to the intervention manual. Fidelity checks conducted on a random sample of sessions (ie, 20% at each site) indicated that 95%, 93%, and 98% of the key aspects of the enhanced, single-session, and control sessions, respectively, were implemented as planned.

INTERVENTION OUTCOMES

Table 2 presents the mean differences between groups after being adjusted for baseline and the 95% confidence intervals (CIs) at postintervention, 6 months, and 12 months for participants whose parents attended all

Table 2. Difference of Mean Change From Baseline Between Arms of Intervention at Each Assessment

Variable	Group Comparisons	Difference of Mean Change (95% CI)		
		Postintervention	Assessment	
			6-Month	12-Month
Sexual communication, parental report	Enhanced (full intervention) ^a vs single session ^b	0.90 (0.36 to 1.44)	0.67 (0.10 to 1.24)	0.49 (-0.09 to 1.07)
	Enhanced (full intervention) ^a vs control ^b	1.59 (1.04 to 2.13)	1.54 (0.97 to 2.13)	1.21 (0.62 to 1.79)
	Enhanced (any intervention) ^c vs single session ^d	0.84 (0.42 to 1.25)	0.70 (0.26 to 1.15)	0.78 (0.31 to 1.24)
	Enhanced (any intervention) ^c vs control ^d	1.34 (0.93 to 1.76)	1.36 (0.92 to 1.81)	1.32 (0.85 to 1.79)
	Single session ^d vs control ^d	0.50 (0.09 to 0.92)	0.66 (0.21 to 1.11)	0.54 (0.08 to 1.01)
Sexual communication, preadolescent report	Enhanced (full intervention) ^a vs single session ^b	1.22 (0.57 to 1.88)	-0.05 (-0.76 to 0.66)	0.47 (-0.27 to 1.22)
	Enhanced (full intervention) ^a vs control ^b	1.93 (1.27 to 2.60)	0.50 (-0.22 to 1.23)	0.52 (-0.24 to 1.28)
	Enhanced (any intervention) ^c vs single session ^d	0.78 (0.29 to 1.28)	-0.04 (-0.56 to 0.49)	0.51 (-0.05 to 1.07)
	Enhanced (any intervention) ^c vs control ^d	1.35 (0.85 to 1.84)	0.42 (-0.11 to 0.95)	0.57 (0.01 to 1.14)
	Single session ^d vs control ^d	0.56 (0.07 to 1.06)	0.46 (-0.08 to 0.99)	0.06 (-0.50 to 0.62)
Parental responsiveness to sexual communication, parental report	Enhanced (full intervention) ^a vs single session ^b	0.67 (0.35 to 0.99)	0.51 (0.18 to 0.83)	0.44 (0.10 to 0.78)
	Enhanced (full intervention) ^a vs control ^b	0.74 (0.42 to 1.07)	0.77 (0.44 to 1.10)	0.66 (0.32 to 1.00)
	Enhanced (any intervention) ^c vs single session ^d	0.58 (0.38 to 0.82)	0.44 (0.18 to 0.69)	0.45 (0.19 to 0.72)
	Enhanced (any intervention) ^c vs control ^d	0.57 (0.32 to 0.81)	0.55 (0.29 to 0.80)	0.54 (0.27 to 0.80)
	Single session ^d vs control ^d	-0.01 (-0.26 to 0.23)	0.11 (-0.14 to 0.37)	0.08 (-0.18 to 0.35)
Parental responsiveness to sexual communication, preadolescent report	Enhanced (full intervention) ^a vs single session ^b	0.42 (0.05 to 0.79)	0.32 (-0.07 to 0.72)	0.08 (-0.29 to 0.46)
	Enhanced (full intervention) ^a vs control ^b	0.48 (0.11 to 0.86)	0.66 (0.25 to 1.06)	0.28 (-0.10 to 0.67)
	Enhanced (any intervention) ^c vs single session ^d	0.35 (0.07 to 0.62)	0.19 (-0.10 to 0.49)	0.05 (-0.24 to 0.34)
	Enhanced (any intervention) ^c vs control ^d	0.43 (0.16 to 0.71)	0.48 (0.18 to 0.78)	0.26 (-0.03 to 0.55)
	Single session ^d vs control ^d	0.09 (-0.19 to 0.36)	0.29 (0.02 to 0.59)	0.21 (-0.08 to 0.50)

Abbreviation: CI, confidence interval.

^aAttended all 5 sessions of enhanced intervention.

^bAttended session.

^cAttended 0 to 5 sessions of enhanced intervention.

^dAttended session or not.

sessions of the intervention to which they were randomized (n=769; rows 1 and 2 for each variable) and for intent-to-treat participants (n=1115; rows 3-5 for each variable). The mean differences suggest that the enhanced intervention is associated with a higher mean change from baseline score for all outcome measures than the control and the single-session intervention. The difference of mean change from baseline between the enhanced and single-session interventions was smaller than between the enhanced and control interventions. In turn, the single-session intervention had a higher mean change from baseline score than the control intervention, but the difference was small.

The percentage of preadolescents at high sexual risk at the 12-month follow-up is depicted in **Figure 2A** for the intent-to-treat participants in each group. The RR for the enhanced intervention compared with the single-session (RR, 0.98; 95% CI, 0.69-1.39) and control (RR, 1.04; 95% CI, 0.73-1.46) interventions, as well as the single-session compared with the control (RR, 1.06; 95% CI, 0.77-1.45) groups was approximately 1.00 in all cases. However, the RR for the subgroup of preadolescents whose parents attended all 5 sessions in the enhanced arm compared with those whose parents attended the control (RR, 0.65; 95% CI, 0.41-1.03) and single-session (RR, 0.62; 95% CI, 0.40-0.97) interventions was less than 1.00. At baseline, 7, 4, and 4 preadolescents reported sexual intercourse in the single-session, enhanced, and control interventions, respectively. At the 12-month follow-up, 14, 11, and 11

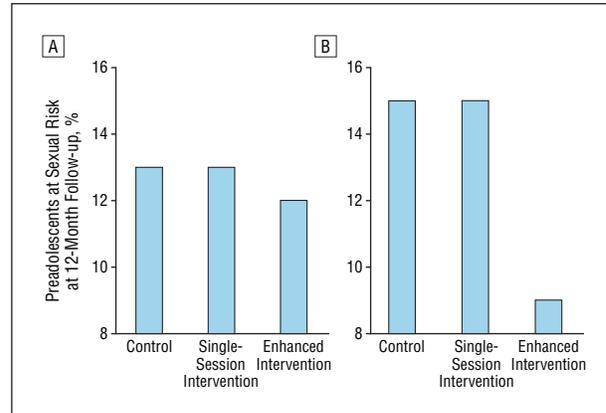


Figure 2. A, Intent-to-treat preadolescents in each intervention of the Parents Matter! Program study who were at sexual risk at the 12-month follow-up (having had or anticipating having sexual intercourse during the next year). B, Preadolescents whose parents attended all 5 enhanced sessions, the 1 single session, or the 1 control session.

new incidents of sexual intercourse were reported by preadolescents in these 3 respective groups.

COMMENT

Early prevention efforts with parents to reduce sexual intentions and risk behavior in youth have been absent in the literature. This study provides some preliminary evidence for the efficacy of a program for parents of pre-

adolescents. Specifically, after intervention, parents participating in the enhanced intervention, relative to the control, demonstrated higher levels of parent-preadolescent sexual communication and comfort with and responsiveness to sex-related questions. In addition, at the 12-month follow-up, preadolescents whose parents attended all 5 sessions of the enhanced intervention had an RR of less than 1.00 of having had sexual intercourse or anticipating engaging in such behavior during the next year, compared with controls and those receiving the single-session intervention. The beneficial effects for the single-session intervention were minimal. The enhanced intervention appears promising as an innovative method of conveying risk reduction messages. However, longer follow-up is needed to determine if group differences persist as preadolescents progress through adolescence.

The findings suggest that effective prevention efforts require repeated exposure and opportunities for practice to produce lasting behavioral effects. Participants attending all 5 sessions of the enhanced intervention were provided more exposure (12½ hours) to the key intervention targets than those in the single-session (2½ hours) and control (0 hours) interventions as well as opportunities to observe models, practice new skills, and obtain performance feedback and social support. These exposures and opportunities allow for greater skill acquisition and more lasting behavioral change.

This study had several limitations. First, the participants were a convenience sample. Second, there was a high rate of attrition; however, the intent-to-treat analyses suggest that, even when those who did not complete the intervention and/or assessments were considered, group differences still emerged. Third, sexual behavior other than intercourse and intentions to engage in such behavior were not examined. Among its strengths, this study represents the first empirically validated skills-based intervention designed for parents of preadolescent children with the goals of modifying sexual intentions and preventing early initiation of sexual behaviors. The findings suggest that, with intervention, parents can learn sexual communication skills and enhance their communication, which may prevent early adolescent high-risk sexual behavior.

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Correction

Error in About the Cover. In the About the Cover box published in the October issue of the *Archives* (2007; 161[10]:927), an error appeared in the location of the photographer. The location should have been listed as Seattle, Washington.