

Saving Sex for Later: An Evaluation Of a Parent Education Intervention

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CONTEXT: Initiation of sexual intercourse prior to high school is prevalent among inner-city black and Hispanic youths, and has multiple negative health and social consequences. A promising strategy for addressing early adolescent sexual activity is parent education that addresses normal pubertal changes and the challenges of becoming a teenager.

METHODS: A 2003–2005 randomized trial to test the effectiveness of *Saving Sex for Later*, a parent education program presented on three audio CDs, enrolled 846 families with fifth- and sixth-grade students in seven New York City schools. Parent and youth surveys were conducted at baseline and three months postintervention. Multivariate logistic and linear regression analyses were performed to assess relationships between youth and parent outcomes and treatment condition.

RESULTS: At follow-up, parents in the intervention group were significantly more likely than controls to score high on indexes of communication with children about targeted risk behaviors, self-efficacy to discuss pubertal development and sexuality, and perceived influence over youths' behaviors (odds ratios, 1.9–2.5). Youths in the intervention condition were more likely than controls to report high family support, and reported more family rules and fewer behavioral risks. Family support and rules partially mediate the relationship between treatment condition and behavioral risks.

CONCLUSION: *Saving Sex for Later* is a promising intervention for promoting youths' sexual abstinence. The intervention may also be effective in enhancing positive parenting practices among parents who are typically difficult to reach because of economic hardship, full schedules and complicated lives.

Perspectives on Sexual and Reproductive Health, 2005, 37(4):166–173

Increasing the proportion of adolescents who remain sexually abstinent and reducing the numbers of teenage pregnancies and STDs rank high among the critical health objectives highlighted in the 2004 federal report *Improving the Health of Adolescents & Young Adults*.¹ Figures from the Youth Risk Behavior Surveillance System from 1991 to 2001 indicate a gradual decline in the proportion of high school students who reported that they had initiated sexual intercourse before age 13; however, from 2001 to 2003, this trend reversed, with rates rising from 6.6% to 7.4%.² More striking than this increase are the ongoing disparities in the timing of sexual initiation among white, Hispanic and black youths. In 2003, 4% of white students reported having had sex before age 13, and 42% of ninth through 12th graders were sexually experienced. By contrast, 19% of blacks and 8% of Hispanics reported having had sexual intercourse before age 13, and 67% of black and 42% of Hispanic high school students said they had had sex.

Early sexual initiation is associated with multiple negative health outcomes for which minority youths and young adults are at disproportionate risk, including STDs and unintended pregnancy.³ Despite some progress, the U.S. teenage pregnancy rate remains among the highest of 46 industrialized countries,⁴ and rates of curable STDs are the highest in the developed world, with minorities and teenagers being especially vulnerable.⁵ These statistics underscore the importance of promoting delayed sexual initiation among high-risk populations

and serve as a reminder that in the United States, race and ethnicity are markers for more fundamental determinants of health, including poverty, health-seeking behaviors and community-level prevalence of disease.⁶

Research highlights the primary role of parents in helping youths stay sexually abstinent, as well as in reducing other adolescent risk-taking.⁷ Parental monitoring, parent-adolescent communication and parental disapproval of risk behaviors are key protective factors.⁸ Parents who set consistent rules about dating and link teenage abstinence to their families' values are more likely than others to have adolescents who delay initiation.⁹ Despite the influence that parents can have on their sons' and daughters' behaviors, they often underestimate the risks that their children encounter; such underestimation may lead to inappropriate or ineffective parenting practices.¹⁰ In addition, even if parents are aware of risks, they may feel ill-equipped to deal with the challenges of shepherding children safely through adolescence and may appreciate support from schools, health care providers and other community organizations.¹¹

A promising strategy for addressing early sexual initiation is parent education, which can provide parents with methods of responding to the normal changes and challenges that accompany puberty and becoming a teenager. A focus on parent education is especially timely, given the difficulties many schools face trying to fit health education into students' sched-

ules and continuing controversies about the timing and content of classroom sex education.¹²

In this article, we report on an evaluation of *Saving Sex for Later*, a parent education intervention aimed at delaying early sexual initiation among at-risk urban fifth and sixth graders. The program consists of three 25-minute audio CDs that were developed with extensive community input and contain role-model stories to help parents identify “teachable moments” to talk with their sons and daughters about values and expectations, set household rules and respond appropriately to their children’s development and warning signs. Using evidence from a randomized field trial conducted in collaboration with the New York City public schools from fall 2003 to winter 2005, we demonstrate how this intervention promotes positive parenting practices and influences young adolescents’ behaviors.

INTERVENTION DESIGN

As described more fully elsewhere,¹³ the intervention is based in social development theory that underscores how parents play a major role in shaping their young adolescents’ behavior.¹⁴ Diffusion of innovation theory and the theory of planned behavior guided our decision to use role-model stories. According to Rogers, the diffusion of an innovation is dependent upon getting the members of the target audience to identify with “innovators” who model desired attitudes and behaviors in culturally appropriate ways.¹⁵ These innovators can be real people or fictive characters.¹⁶ Also, diffusion theory underscores the importance of developing interventions that are attractive, engaging and easy to fit into existing opportunity structures and schedules.

Saving Sex for Later was designed to be brief and to reach parents in their homes and at their convenience. Drawing on elements of behavior change posited by the theory of planned behavior, the intervention attempts to promote parental attitudes consistent with addressing sexual abstinence with children and increase parents’ self-efficacy to act. For example, parents may not have a positive attitude about initiating conversations with children because they do not know if they will be able to answer questions or because they feel uncomfortable talking about certain topics. Even if parents know what they want to say, translating that knowledge into face-to-face dialogue—particularly, effective dialogue—may be a challenge. *Saving Sex for Later* provides examples of how to initiate these conversations.

In addition to this theoretical grounding, the intervention was informed by input from a school-community advisory board and from 38 focus groups with youth and parents recruited from several New York City elementary and middle schools. Story lines and key messages were tested and revised in these community meetings, and scripts were developed around three families—one black, one Hispanic and one Caribbean—who grapple with issues in stories that use drama and humor to capture and maintain attention. Stories model the progression of conversations as children grow older and address themes reflected in the titles: *Changing Bodies* (e.g., pubertal changes), *Changing Relationships* (e.g., changing in-

terests in the opposite sex, peer pressures and media influences) and *Changing Influences and Pressures* (e.g., why teenagers are not ready to have sex). An influential spokesperson (the actor John Amos) provides narration that introduces families and highlights key messages. His picture is on CD covers, along with attractive photographs selected to capture the target audience’s attention (e.g., a mother and daughter talking). Print inserts present illustrations of family members, summarize key messages and provide resource information.

METHODS

Intervention Evaluation

To evaluate the intervention, we conducted a randomized experiment in which one parent and one child from families with fifth and sixth graders in seven New York City public schools completed baseline surveys and then were randomly assigned to the intervention or control group. We selected schools located in neighborhoods where most residents are black or Hispanic, and where 90% of youths were eligible for free lunch programs.¹⁷ Eight schools that met these criteria were contacted by project staff to explain the intervention and evaluation requirements, and those schools that provided letters of agreement were included in the study; only one school declined to participate.

The three *Saving Sex for Later* CDs were mailed to intervention family homes over six months—one CD about every 10 weeks. We sent the CDs individually as a way to reinforce key messages about the importance of sustaining positive parenting practices and to acknowledge that youths change physically, emotionally and socially as the year progresses. In addition, the CDs were designed to be listened to sequentially, given that few parents would have the time to listen to all three at once. This mailing schedule helped minimize the risk of CDs’ getting lost or misplaced prior to use. Parents in the control condition were offered the CDs at the end of the study.

At baseline and three months after the third CD was sent to intervention group families, parents completed brief surveys that collected information on parenting practices and whether parents in the intervention group received and listened to the CDs. Youths completed baseline and follow-up surveys that assessed parental monitoring and support, as well as behavioral risks related to early sexual initiation. We surveyed students prior to their parents to minimize biasing youths’ responses (e.g., by having parents initiate conversations about topics raised). We contacted parents in both groups after CD mailings and asked for updated contact information; in addition, intervention parents were asked if they had received the mailings. Thus, the numbers of contacts with intervention and control groups were similar.

Sample Recruitment and Survey Administration

We distributed a fact sheet explaining the study’s purpose and participation requirements to all fifth- and sixth-grade general education students at the study schools. Students were asked to bring these materials home to their parents or guardians. Students in bilingual classes were not eligible because the CDs were produced only in English. Following school policies, in-

formation and consent forms were in English and Spanish; however, parents were informed that CDs were in English, which helped to screen out parents who speak only Spanish. We asked families to indicate on the consent form whether they agreed to participate and to provide written permission for their child.

Parents received an incentive worth about \$15 for returning consent forms to the school, regardless of whether they granted permission, and additional incentives of about \$25 for participating in baseline and follow-up surveys. Students received incentives worth about \$5 for returning a consent form, also regardless of whether permission was granted, and \$5 for each survey completed. We have used a similar incentive structure in a prior evaluation effort.¹⁸

Of the 1,315 families, 88% returned consent forms; 77% of parents provided consent for their own participation and written permission for their child. Forty-one families who consented to participate were excluded because their child left the school prior to randomization or because they had another child already enrolled in the study. Of the 846 enrolled youths, 84% completed both baseline and three-month follow-up surveys. Ninety-three percent of parents completed at least one survey—80% a follow-up survey, and 68% both baseline and follow-up.

We adapted youth surveys from a pencil-and-paper instrument we have used in similar schools with seventh and eighth graders.¹⁹ Surveys were reviewed for cultural and developmental appropriateness by a school-community advisory board, administrators, teachers and students. Research staff oversaw survey administration, provided students with information and obtained youths' assent. Also, they helped students by reading items and answering questions. Completed surveys, which had been bar-coded with a family identification number, were placed in envelopes before being collected.

After a pilot test of mailed parent surveys, we decided that telephone surveys would have better response rates. Baseline surveys with parents took approximately 15 minutes. Given the successful completion of the baseline surveys and parents' willingness to participate, we expanded the follow-up surveys, which took 20–25 minutes to complete. The interviewers did not know which families were in the intervention group and which were controls.

Parent Measures

The baseline parent surveys collected information on parents' social and demographic characteristics, including age, gender, relationship to student, and race and ethnicity. To adjust for potential baseline differences between the intervention and control groups in parenting mechanisms targeted by the intervention, we assessed parent-child communication, self-efficacy and oversight.

For baseline communication, parents were asked 14 questions about whether they had ever talked with their child about pubertal changes, sexual abstinence, related risk behaviors, and peer and media influences. For example, parents of daughters were asked if they had ever talked with their daughter about how boys' bodies change as they become teenagers; how

girls' bodies change as they become teenagers; waiting to have sex until she is older; and not getting pregnant until she is ready to become a mother. Also, parents were asked whether they had ever had a conversation about sex with their daughter in response to something she saw on the Internet or heard about a friend. Parents of sons were asked a parallel set of questions. Individual items were summed into a baseline communication scale (range, 0–14; mean, 7.9; standard deviation, 3.8).

We constructed a baseline self-efficacy scale from seven items that focused on communication about sexuality topics. For example, parents of daughters were asked how prepared they felt to talk to their daughter about how girls' bodies change as they become teenagers; how girls' relationships with boys change as they become teenagers; basic facts of human reproduction; and waiting to have sex until she is older. Again, parallel items were used for parents of sons. Responses ranged from one, meaning "not at all prepared," to four, signifying "very prepared" (mean, 3.4; standard deviation, 0.7).

Finally, two items assessed parental oversight: how often parents know what their son or daughter is doing when he or she is not at home or at school and how often parents know what friends their child is hanging out with. Responses ranged from one, meaning "almost never," to four, signifying "always" (mean, 3.6; standard deviation, 0.6).

For the follow-up survey, we used expanded measures of communication, self-efficacy and oversight, and added a measure of perceived parental influence over children's behaviors. As at baseline, we assessed parent communication by 14 items; however, at follow-up, parents were asked how many times during the past three months they had talked with their daughters or sons about different topics. Responses were on a scale of 1–5, ranging from "never" to "six or more times." Self-efficacy was expanded from seven to 11 items, all focused on sexuality topics similar to items assessing communication. Instead of the two items on general parental oversight, a seven-item, dichotomous scale of parental monitoring was included: Do parents currently have clear rules or expectations about where their daughter can go after school; with whom she is allowed to hang out; letting them know where she is; letting them know whom she is with; how late she can stay out on a school night; how late she can stay out on the weekend; and being alone with a boyfriend when there are no adults around.

Parental influence was assessed by 14 items that addressed parents' perceptions of their influence over whether their child stays sexually abstinent or engages in other behaviors that may lead to risk. For example, parents of daughters were asked how much influence they think they have as a parent over whether their daughter hangs out with boys they do not approve of; hangs out with girls they do not approve of; has a boyfriend; stays out late on a school night; stays out late on the weekend; watches movies or TV shows they do not approve of; wears clothes that they think are not appropriate for a girl her age; kisses a boy; makes out with a boy; has sexual intercourse before she is 16; and gets pregnant before she is 18. Responses were on a scale of 1–4, ranging from "none" to "a lot." In addition, all parents were asked whether they received the CDs and, if so, whether they listened to them.

Items for each parenting outcome were combined into a composite scale. Cronbach's alphas ranged from 0.68 (for monitoring) to 0.96 (for self-efficacy). Means of the sets of items were computed for communication (mean, 2.9; standard deviation, 1.2), self-efficacy (mean, 3.4; standard deviation, 0.6) and parental influence (mean, 3.8; standard deviation, 0.3). Monitoring was computed as a count of the number of items endorsed (mean, 6.9; standard deviation, 0.5).

Scale distributions were skewed because few parents reported, for example, that they had no rules or that they had little or no influence over their sons and daughters. Thus, the scales were recoded and dichotomized as more positive practices versus practices representing the lower 20–30% of the sample. We chose these cut points to distinguish those whose parenting practices may place youths at greatest risk for early sexual initiation and, therefore, are primary targets for an intervention aimed at promoting positive skills.

Youth Measures

Background variables from youth surveys included school attended, gender, age at baseline, and race and ethnicity. The baseline survey was short, to accommodate adolescents' limited reading ability and attention spans; thus, brief assessments were obtained for family support, family monitoring and behavioral risks. Family support was assessed by four items (e.g., "there are adults in my family to talk to when something is important" and "adults in my family help me do my best"). Using a four-point scale, youths indicated the extent to which they agreed or disagreed with these items (mean, 3.8; standard deviation, 0.4). Family monitoring was assessed by the average of two items: how often youths' parents know what they are doing when they are not at home or at school and what friends they are hanging out with. Responses were on a scale of 1–4, ranging from "never" to "always" (mean, 2.8; standard deviation, 1.1). The baseline behavioral risk measure was constructed from yes-or-no responses to four items that assessed lifetime behavior: whether youths had a girlfriend or boyfriend, had kissed, held hands, and kissed and hugged a long time (mean, 1.5; standard deviation, 1.4).

We assessed three youth outcomes at follow-up: family support and expanded measures of family rules about youth behavior and of behavioral risks. As at baseline, we assessed family support by four items (e.g., "there are adults in my family to talk to when something is important"), with youths indicating the extent to which they agree or disagreed with these items (mean, 3.8; standard deviation, 0.4). The scale distributions at baseline and at follow-up were highly skewed, and thus we dichotomized responses using a cut point similar to that on the parenting measures (i.e., those reporting higher support versus the 21% of youths who reported a low level of support).

We constructed the family rules scale from 11 yes-or-no items that asked youths whether their parents have rules about such issues as how late they stay out, whom they can hang out with, what movies or TV shows they can watch, whether they can have a girlfriend or boyfriend, and whether they can hang out with a girlfriend or boyfriend when no adults are

around. Items were summed; the scale was rescored from one to seven, reducing small numbers of outliers at lower and upper ends (mean, 4.4; standard deviation, 2.0). An expanded behavioral risks scale assessed 10 recent behaviors, including whether in the past month youths had watched movies or TV shows disapproved by a parent, hung out with opposite-sex peers disapproved by a parent, had a girlfriend or boyfriend, and kissed and hugged for a long time. After we examined the distribution, we rescored this scale into quintiles, ranging from zero to four (mean, 2.0; standard deviation, 1.4).

Statistical Analyses

We used descriptive statistics to examine potential baseline differences between the intervention and control groups, and to assess differences at follow-up on the dichotomous parent outcomes (Fisher's exact chi-square) and youth outcomes (analysis of variance). Logistic regression procedures were performed to assess the associations between treatment conditions and parenting outcomes at follow-up, controlling for social and demographic characteristics, school and parents' baseline reports of communication, oversight and self-efficacy. We used logistic and multiple linear regression procedures to model the associations between treatment conditions and youth outcomes, controlling for youths' demographic characteristics, school and baseline reports of family support, monitoring and behavioral risks. Although baseline parent and youth measures are not identical to those used for the follow-up survey, they are included as covariates in the regression analyses to help minimize baseline differences between intervention and control groups, and variance in the test statistic for intervention effects.

We used an intent-to-treat model based on initial treatment assignment. Thus, any families in the intervention group that did not get or did not listen to the CDs were considered treated; this approach provides a conservative estimate of effectiveness appropriate to a randomized trial. An intent-to-treat analysis provides information on the likely outcomes when the intervention is implemented in a real-world situation—that is, where presumably not every family received or listened to all the CDs sent home from a school. As a final step, we examined the dose-response effect; this analysis was limited to families in the intervention group.

RESULTS

Of 846 youth respondents, 52% were female, 83% were aged 10–11 years, 64% were black and 29% were Hispanic (Table 1, page 170). Of the 674 parents who completed a baseline survey, between fall 2003 and winter 2004, 92% were female and 88% were mothers of (or like mothers to) the enrolled youths. About two-thirds of parents were 40 or younger, and two-thirds were black. The intervention and control groups at baseline did not differ significantly in regard to any baseline characteristics.

At the three-month postintervention follow-up, a significantly smaller proportion of parents in the intervention group than of those in the control group scored low in terms of communication (14% vs. 26%), self-efficacy (16% vs. 24%) or parental influence (15% vs. 22%—Table 2). Five percent of

TABLE 1. Selected baseline characteristics of participants in an evaluation of Saving Sex for Later, by intervention group, New York City, 2003–2004

Characteristic	Total	Intervention	Control
YOUTHS	(N=846)	(N=423)	(N=423)
Gender			
Female	51.5	50.0	53.2
Male	48.5	50.1	46.8
Age			
10	28.8	30.3	27.4
11	54.0	51.8	56.2
12	14.1	14.4	13.8
≥13	3.1	3.5	2.6
Race/ethnicity			
Black	63.7	63.8	63.7
Hispanic	28.7	29.8	27.6
Other	7.6	6.4	8.8
Low family support	20.8	19.4	22.1
Family monitoring (mean)†	2.84 (1.06)	2.90 (1.05)	2.77 (1.07)
Risk behaviors (mean)†	1.52 (1.42)	1.46 (1.39)	1.58 (1.45)
PARENTS	(N=674)	(N=337)	(N=337)
Gender			
Female	92.1	90.2	94.1
Male	7.9	9.8	5.9
Relationship to youth			
Mother/like a mother	87.5	85.5	89.6
Father/like a father	7.6	9.2	5.9
Other	4.9	5.3	4.5
Age			
≤30	13.8	14.6	12.2
31–40	51.4	50.1	52.5
≥41	35.4	35.3	35.3
Race/ethnicity			
Black	63.8	63.2	64.4
Hispanic	27.7	28.2	27.3
Other	8.5	8.6	8.3
Low communication	20.6	22.6	18.7
Low self-efficacy	30.0	32.9	27.0
Low oversight	25.1	25.2	24.9

†Range 1–4. Notes: Unless otherwise specified, data are percentages. There are no significant differences between the intervention and control groups. For means, numbers in parentheses are standard deviations.

intervention parents, compared with 9% of controls, scored low in terms of monitoring; this difference was only marginally significant. Among youths, a smaller proportion of those in the intervention group than of controls reported low family support (17% vs. 25%). In addition, youths in the intervention group reported more family rules (means, 4.5 vs. 4.2) and fewer behavioral risks (1.9 vs. 2.2) than did controls.

In the logistic regression analyses (Table 3), parents in the intervention group were significantly more likely than controls to score high on parental influence, communication and self-efficacy (odds ratios, 1.9–2.5). Intervention parents were marginally more likely than controls to score high on monitoring (1.8). Also, parental influence was significantly associated with youth's gender, with parents of sons being less likely than parents of daughters to score high on parental influence

(0.5). Communication was positively associated with high baseline parental communication (2.5) and negatively associated with being a parent of an older youth, being a father or being Hispanic (0.4–0.6). Self-efficacy was positively associated with high communication and self-efficacy scores at baseline (3.4 and 3.3, respectively), and negatively associated with being the parent of a male adolescent (0.5).

We conducted separate analyses by whether parents had received and listened to the CDs (not shown), as the previous analyses included all participants assigned to either intervention or control conditions. Within the intervention group, 29 parents reported they had not received any CDs. Of those who had received at least one, 85% remembered listening to one or more, and 72% had listened to two or three; 69% reported listening with their child. Only three parents in the control group reported they had received or listened to the CDs, suggesting minimal contamination.

Six percent of intervention parents who had listened to two or three CDs reported low communication at follow-up, compared with 27% of nonlisteners and those who had listened to only one CD ($p < .001$). Fourteen percent of those who had listened to two or three CDs had low efficacy scores, compared with 22% of those who had listened to none or one; this difference was marginally significant. Differences in monitoring and influence were not significant at the bivariate level. When we conducted logistic regression analyses looking at the associations between parenting outcomes and dosage of exposure to the CDs (i.e., listened to zero, one, or two or three CDs), we found a significant positive association per unit increase in dose for communication and self-efficacy (odds ratios, 1.7 for each).

In logistic and linear regression analyses, youths' intervention status was significantly related to more family rules, more family support and fewer risk behaviors (Table 4). Adolescents' gender was correlated with two outcomes: Males reported significantly fewer family rules and more family support than females. Hispanic youths reported fewer family rules than other youths. Youths' baseline parental support was associated with both greater family support and fewer behavioral risks at follow-up. Similarly, those who reported higher family monitoring at baseline were more likely to report greater family rules and support at follow-up; those who engaged in

TABLE 2. Selected measures of three-month postintervention parental and youth outcomes, by intervention group

Outcome	Intervention	Control
Parents	(N=345)	(N=335)
Low communication	13.9	25.7***
Low self-efficacy	16.4	23.6*
Low monitoring	4.5	9.1†
Low influence	14.5	22.1**
Youths	(N=362)	(N=348)
Low family support	16.6	25.3**
Family rules (mean)	4.51 (1.88)	4.18* (2.01)
Behavioral risks (mean)	1.91 (1.39)	2.15* (1.33)

* $p \leq .05$. ** $p \leq .01$. *** $p \leq .001$. † $p \leq .10$. Notes: Unless otherwise specified, data are percentages. For means, numbers in parentheses are standard deviations. Fisher's exact chi-square test was used to test for significance of percentages, and one-way analysis of variance was used to test for significance of means.

TABLE 3. Adjusted odds ratios (and 95% confidence intervals) from logistic regression analyses assessing the associations between parental characteristics and parenting practice outcomes

Characteristic	Parental influence	Communication	Self-efficacy	Monitoring
Intervention group	2.15 (1.36–3.41)***	2.45 (1.53–3.92)***	1.94 (1.21–3.11)**	1.84 (0.91–3.72)†
Male youth	0.50 (0.32–0.79)**	0.85 (0.54–1.35)	0.54 (0.33–0.86)**	0.75 (0.37–1.50)
Age of youth	0.87 (0.59–1.28)	0.61 (0.41–0.92)*	0.90 (0.60–1.33)	0.72 (0.41–1.27)
Hispanic	1.41 (0.78–2.55)	0.56 (0.32–0.98)*	0.61 (0.35–1.06)†	0.99 (0.22–2.25)
Male parent	2.11 (0.84–5.31)	0.35 (0.17–0.69)**	0.87 (0.41–1.82)	3.32 (0.43–25.41)
Age of parent	1.04 (0.85–1.27)	0.83 (0.67–1.02)†	0.91 (0.74–1.12)	1.21 (0.89–1.64)
Baseline measure				
High communication	1.27 (0.71–2.25)	2.46 (1.44–4.20)***	3.42 (2.03–5.76)***	1.37 (0.56–3.33)
High self-efficacy	1.33 (0.80–2.20)	1.31 (0.79–2.16)	3.26 (2.00–5.31)***	0.90 (0.40–2.04)
High oversight	1.40 (0.84–2.35)	1.00 (0.57–1.75)	0.88 (0.50–1.53)	1.47 (0.68–3.18)

*p≤.05. **p≤.01. ***p≤.001. †p≤.10. Note: All measures are dichotomous, except for age of youth and age of parent, which are continuous.

fewer risk behaviors at baseline also reported more family rules and fewer risks at follow-up.

In supplementary analyses, we explored whether family rules and support are mechanisms through which the intervention works. Family rules and support at follow-up were both significantly associated with fewer risk behaviors (not shown). Moreover, the coefficient for treatment condition increased slightly from –0.20 to –0.14, and the p value increased from 0.03 to 0.11 when follow-up measures of family rules and support were added to the regression. This pattern of results suggests that family rules and support partially mediate the relationship between intervention and the behavioral outcome, and may help explain how the intervention works.

DISCUSSION

Saving Sex for Later is a promising and innovative strategy for helping parents guide their sons and daughters on topics such as pubertal development, male-female relationships and reasons for delaying sex. Our findings suggest that the intervention is effective in promoting positive parenting practices in a sample of parents who are typically difficult to reach because of economic hardship, full schedules and complicated lives. Also, there is evidence that this relatively low-intensity parenting program, which requires only about 75 minutes of listening time over six months, has benefits in terms of increasing young adolescents' perceptions that their parents have rules about what they are allowed (and not allowed) to do. Furthermore, the intervention may help reduce youth risk behaviors. Strengths of the study include its randomized design, intent-to-treat analyses, inclusion of families from multiple schools, high participation rates, and consistent findings from both adults and youths.

Further research is needed to test whether the intervention delays sexual abstinence through middle school and into high school. At our three-month postintervention follow-up, youths were only sixth and seventh graders. This initial evaluation was neither designed to follow youths over a longer period nor sufficiently powered to identify intervention effects on sexual initiation by early seventh grade, given the relative infrequency of the behavior. In light of the strength and consistency of our findings, a longer-term follow-up with sexual initiation and sexual risk behaviors as outcomes is clearly indicated.

Whether the intervention is effective in helping males as well as females stay abstinent—at least until high school—is of interest, not only because the predictors of early sex are less clear for males (who are more likely to have sex before the age of 13),²⁰ but because prevention programs and research more often focus on females, given the burdens of teenage pregnancy and motherhood. Although Saving Sex for Later has benefits for both sons and daughters, our findings show that parents feel less efficacious guiding their sons' behaviors than their daughters', and that young males perceive fewer family rules, but more family support, than young females do. Further exploration of effective ways that parents can oversee, set rules and communicate with their sons as well as daughters is clearly needed.

It goes beyond the current study to determine whether supplemental CDs would result in stronger and more lasting effects. However, one advantage of this intervention is that it can be easily expanded by developing additional CDs that demonstrate how parents can apply and adapt skills as their children grow older. Multiple developmentally appropriate sets could be packaged as a multiyear parent education program that could be disseminated by schools, primary health care providers, faith-based organizations and other community groups.

Furthermore, this evaluation provides evidence of the feasibility and acceptability of the intervention. We wondered whether parents would be receptive to the CDs, would listen to them and would find them useful and appropriate. The answer to these questions has been an overwhelming yes. Most parents listened to the CDs and listened with their child. Feedback collected on mailback cards from parents has been over-

TABLE 4. Unstandardized coefficients and adjusted odds ratios (and 95% confidence intervals) from regression analyses assessing the associations between youth characteristics and outcomes

Characteristic	Family rules	Family support	Behavioral risks
Intervention group	0.27 (0.00–0.55)*	1.58 (1.07–2.32)*	–0.20 (–0.37 to –0.02)*
Male	–0.40 (–0.68 to –0.10)**	1.60 (1.06–2.40)*	0.15 (–0.04–0.34)
Hispanic	–0.62 (–0.93 to –0.30)***	0.83 (0.54–1.29)	0.07 (–0.14–0.27)
Age	–0.13 (–0.37–0.11)	0.92 (0.66–1.29)	0.11 (–0.04–0.27)
Baseline measure			
Family support	0.03 (–0.05–0.12)	3.45 (2.24–5.32)***	–0.06 (–0.12 to –0.01)*
Family monitoring	0.37 (0.23–0.50)***	1.30 (1.09–1.56)**	–0.03 (–0.12–0.06)
Risk behaviors	–0.12 (–0.23 to –0.02)*	1.03 (0.88–1.19)	0.36 (0.29–0.43)***

*p≤.05. **p≤.01. ***p≤.001.

whelmingly positive, with mothers and fathers providing numerous examples of how they have talked with their children about the issues the CDs raise.²¹ Schools, too, have been very receptive, welcoming an innovative approach to reach parents and reinforce the central role of families in sex education.

Limitations

Several study limitations should be considered. In addition to the need to follow youths (and parents) over a longer term, it would have been ideal to have identical measures of parenting and youth constructs at baseline and follow-up. We limited baseline measures because of concerns that students would not be able to complete longer surveys, especially within the class period provided by schools. Also, we were initially concerned that parents would be receptive to a 10–15-minute interview, but not one that took 20–25 minutes. However, we learned that we underestimated the number of items that students could complete and the general willingness of parents to participate in telephone surveys. We therefore refined and expanded measurement for the follow-up surveys.

Although changes in measurement prevent consideration of change scores, our primary analyses were designed to assess whether intervention and control groups that were virtually indistinguishable at baseline in regard to social and demographic characteristics and constructs of interest differed significantly in regard to postintervention outcomes. We included baseline measures in the regression analyses to help minimize differences between groups at baseline and to reduce variance in the test statistic for intervention effects. The baseline measure of each construct was positively and strongly associated with the outcome measure of that construct. Thus, although our baseline and follow-up measures of parenting and youth constructs were not identical, they are conceptually similar and clearly correlated.

Another measurement limitation was our need to dichotomize measures of parenting practices because of the high proportions of parents who reported relatively high levels of positive attitudes and skills. Similarly, most adolescents reported a high level of family support. For both parents and youths, the social desirability of responses may be a factor, although in previous studies, we have found a measure of social desirability to have minimal influence on outcomes.²² We established cut points on dichotomized scales that distinguish, for example, parents who report low levels of self-efficacy and monitoring, because they represent families for whom an effective parenting intervention may have the greatest benefits. Thus, our analyses are consistent with our intent to intervene among parents and youths who may be at greatest risk.

Another limitation relates to our reliance on volunteer participants. We did not receive permission slips from 12% of families, and 23% declined the study invitation. We do not know the characteristics of these families or whether, in the absence of research, they would have liked to receive or listen to the CDs. In some cases, nonparticipation may reflect parents' self-screening after they were informed that Saving Sex for Later was available only in English. Also, some participants in the baseline surveys did not participate in the

follow-up. Nevertheless, we obtained pretest and posttest measures on 84% of youths and 68% of parents, which is a considerable accomplishment, made possible by the extraordinary efforts of the project's field staff.

Conclusion

As early sexual initiation has become an epidemic in many urban areas, a small but growing body of literature has begun to address the question of why young teenagers become sexually active.²³ Too often, however, sex education continues to focus on older adolescents.²⁴ This evaluation suggests that Saving Sex for Later can help parents influence the choices their young adolescents make in communities where the rates of early initiation, as well as the negative consequences of sexual activity, are high.

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Acknowledgments

This research was funded by grant 5R01 HD39537 from the National Institute for Child Health and Human Development.

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