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Behavioral and Psychosocial Effects of Two Middle School Sexual Health Education Programs at Tenth-Grade Follow-Up

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A B S T R A C T

Purpose: An earlier randomized controlled trial found that two middle school sexual education programs—a risk avoidance (RA) program and a risk reduction (RR) program—delayed initiation of sexual intercourse (oral, vaginal, or anal sex) and reduced other sexual risk behaviors in ninth grade. We examined whether these effects extended into 10th grade.

Methods: Fifteen middle schools were randomly assigned to RA, RR, or control conditions. Follow-up surveys were conducted with participating students in 10th grade (n = 1,187; 29.2% attrition).

Results: Participants were 60% female, 50% Hispanic, and 39% black; seventh grade mean age was 12.6 years. In 10th grade, compared with the control condition, both programs significantly delayed anal sex initiation in the total sample (RA: adjusted odds ratio [AOR], .64, 95% confidence interval [CI], .42–.99; RR: AOR, .65, 95% CI, .50–.84) and among Hispanics (RA: AOR, .53, 95% CI, .31–.91; RR: AOR, .82, 95% CI, .74–.93). Risk avoidance students were less likely to report unprotected vaginal sex, either by using a condom or by abstaining from sex (AOR: .61, 95% CI, .45–.85); RR students were less likely to report recent unprotected anal sex (AOR: .34, 95% CI, .20–.56). Both programs sustained positive impact on some psychosocial outcomes.

Conclusions: Although both programs delayed anal sex initiation into 10th grade, effects on the delayed initiation of oral and vaginal sex were not sustained. Additional high school sexual education may help to further delay sexual initiation and reduce other sexual risk behaviors in later high school years.

IMPLICATIONS AND CONTRIBUTION

Findings extend our understanding of the sustained impact of sexual health education programs delivered in middle school. Although middle school programs can support healthy adolescent sexual behavior, additional education in ninth and 10th grades may help to further delay sexual initiation and reduce risky behavior in later high school years.

Many United States (U.S.) adolescents engage in sexual behaviors that may increase their risk of teen pregnancy and sexually transmitted infections (STIs). Nationally, 47% of high school students have had sex; of these, 40% did not use a condom at last intercourse and 15% had four or more partners [1]. These behaviors may lead to pregnancy and STIs, both of which disproportionately affect minority youth. For instance, Hispanics experience higher teen birth rates than other racial/ethnic

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groups [2], and African-Americans represent almost two thirds of human immunodeficiency virus (HIV) diagnoses among youth [3]. Early sexual debut, which is more common in minority students than in whites [4], increases the risk of these adverse health outcomes [5,6]. Evidence indicates that sexual health education may help reduce health disparities related to teen pregnancy and STIs.

School-based programs represent an effective strategy to reduce risky sexual behavior [7–9]. Several middle school interventions have shown effects on delayed sexual initiation and reduced risky sexual behavior into ninth grade. These interventions have used both risk avoidance (RA) (abstinence education or abstinence until marriage) [10] and risk reduction (RR) (abstinence-plus or comprehensive sex education) approaches [11,12]. However, few studies have evaluated the sustained impact of middle school sexual health education programs into 10th grade or beyond (i.e., ≥36 months' follow-up), showing only limited long-term impact. For example, evaluation of My Choice, My Future!, an RA program composed of three curricula delivered in eighth, ninth, and 10th grades, respectively, implemented among predominantly white, non-Hispanic youth, found no sustained significant behavioral impact 4–5 years post-baseline, although some positive psychosocial outcomes were sustained [13]. Evaluation of ReCapturing the Vision, an RA program targeting mostly eighth-grade African-American and Hispanic high-risk girls, found no sustained significant behavioral impact 4–5 years post-baseline, although some significant positive psychosocial outcomes were sustained [13]. Similarly, evaluation of Focus on Youth in the Caribbean, an RR program for Bahamian youth delivered in sixth to eighth grade, found no sustained significant behavioral impact but some positive sustained psychosocial outcomes in 10th grade [14]. Thus, we have a limited understanding of how students retain and apply sexual health education messages received in prepubescence as they enter adolescence. Questions remain whether the retention and application of sexual health education messages received in middle school differ by prevention approach or by sociodemographic characteristics (i.e., by race/ethnicity or gender).

In an earlier randomized, controlled trial, we evaluated the impact of two middle school sexual health education programs delivered in seventh and eighth grades—an RA program and an RR program—on behavioral and psychosocial outcomes in ninth grade [15]. Relative to controls, the RR program delayed sexual initiation (oral, vaginal, or anal sex) in the overall sample. Subgroup analyses showed significant delay in sexual initiation among females and African-Americans. The RR students also reduced unprotected sex at last intercourse, past 3 months' frequency of anal sex, and unprotected vaginal sex. The RA program delayed sexual initiation among Hispanics and reduced unprotected sex at last intercourse in the overall sample. However, RA students reported a significantly greater number of recent vaginal sex partners relative to controls. Both programs positively affected several psychosocial outcomes related to sexual behavior.

In this follow-up study, we examined whether these behavioral and psychosocial effects extended into 10th grade, to provide additional insight into the long-term impact of these programs. We hypothesized that students who received either the RA or RR intervention in middle school would significantly delay any sexual initiation into 10th grade and report less risky sexual behaviors compared with students in the control condition.

Methods

Study design and participants

Seventh graders from 15 middle schools in a large, urban, south-central U.S. school district were recruited into a randomized, controlled trial in 2006–2007. Schools were randomly assigned to one of three conditions (RA, RR, and control) before the baseline assessment. Overall, 60% of students returned a parental consent, 83% (n = 1,873) with permission to participate; of these, 93% (n = 1,742) provided assent and completed the baseline survey. There were no significant differences in recruitment across study conditions. Additional recruitment information is published elsewhere [15].

Tenth-grade surveys were completed by 1,233 students (29.2% attrition) between October 2009 and July 2010. Students who were lost to follow-up were more likely to be older ($p < .001$), male ($p < .01$), and sexually experienced at baseline ($p < .001$), with no significant differences across conditions.

Students who completed baseline and 10th-grade surveys were eligible for analysis. We excluded 46 students because of missing or inconsistent responses, which left 1,187 students for analysis (Figure 1). This study was approved by institutional review boards at the University of Texas Health Science Center and the Centers for Disease Control and Prevention, and by the school district's Office of Research.

Interventions

The RA and RR programs were based on an existing middle school sexual health education program: It's Your Game… Keep It Real (IYG) [11], which is grounded in social cognitive models [16,17]. Both programs targeted psychosocial factors related to healthy relationships and sex (e.g., self-efficacy and beliefs). Both programs were composed of 24 50-minute lessons, with 12 lessons delivered in seventh grade and 12 lessons in eighth grade [15]. Seventy-one percent of RA lessons (17 of 24) contained essentially identical activities to RR lessons but were framed to convey an abstinence-until-marriage message rather than an abstinence-until-older message (age and relationship not specified). Both programs integrated group-based classroom activities with individual computer-based activities, some of which were tailored by gender or sexual experience, journaling, and parent-child take-home assignments. Both programs were implemented by trained facilitators. Neither included booster sessions or additional resources beyond eighth grade. Additional details about both programs are provided elsewhere [15].

The two programs differed in several key aspects. Mainly, RA activities targeted beliefs about the benefits of abstinence until marriage, per federal abstinence education guidelines [18], and incorporated elements of future orientation and character development, whereas RR activities promoted abstinence until older, responsibility, and self-respect, and included computerized skill-based activities to practice steps for correct condom use.

Students in the control condition received the district's regular sexual health education in seventh or eighth grade. Four to 6 hours of instruction included information-based activities on puberty, reproduction, and HIV/STI transmission, excluding information on abstinence until marriage or condoms and contraception.