Preventing sexual violence among high school students through norms correction and bystander intervention: A school-based cluster trial of Your Voice Your View

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Abstract

Risk for sexual violence begins early in the lifespan; thus, interventions are needed to decrease the risk for sexual violence among high school youth. The current study evaluates the Your Voice Your View (YVYV) sexual violence prevention program using a school-based cluster trial among 26 high schools in the Northeastern United States. YVYV, includes: 1) a series of four classroom workshops designed to engage students as allies in violence prevention through bystander intervention skills training, address risks for sexual aggression, and reduce risk for victimization; 2) a Lunch and Learn teacher training workshop; and 3) a 4-week social norms poster campaign based on normative data from the school. Schools were matched based on size

and demographics and randomly assigned to the intervention group or a wait-list control group. A sample of 2685 10th grade students enrolled in the research and completed assessments at baseline, 2-month and 6-month follow-up periods. The magnitude of the difference in sexual aggression did not vary by condition at either follow-up period. The magnitude of 6-month differences in experiencing unwanted sexual intercourse varied significantly by condition (IRR = 0.33 [0.14–0.76]), demonstrating a small protective effect favoring intervention schools (Cohen's f^2 = 0.012). These findings highlight the promise of multicomponent interventions grounded in bystander intervention skills training, risk reduction, and social norms theory as a promising, comprehensive approach for sexual violence prevention among youth.

Keywords

adolescents; bystander intervention; prevention; sexual violence

1 | INTRODUCTION

Sexual violence is a serious public health problem, especially for adolescents (Basile et al., 2020, 2022). Sexual violence, according to the uniform definitions described by the Centers for Disease Control and Prevention (CDC), includes both contact and noncontact sexual acts—with or without penetration—which occur without consent, or occur when someone is disabled, incapacitated, asleep, or unconscious, or occur when someone is unable to consent or refuse due to threats of violence, violence, age or illness (Basile et al., 2014). According to data from the National Incident-Based Reporting System, adolescents have the highest rates of sexual victimization compared to any other age group (Felson & Cundiff, 2014). According to 2019 data from the Youth Risk Behavior Survey, 10.8% of US high school students reported experiencing sexual violence, with 50% of cases perpetrated by someone other than a dating partner (Basile et al., 2020).

Despite high risk for sexual victimization among high school students, there is a significant knowledge gap regarding the efficacy of existing sexual violence prevention programs for adolescents (Hilton et al., 1998; Irwin & Rickert, 2005). The most extensively developed and evaluated violence prevention program for adolescents is the 10-session high school curriculum, Safe Dates, which maintains a primary focus on dating violence prevention, and a secondary focus on the prevention of sexual violence (Foshee et al., 1998, 2000, 2004). Although Safe Dates is associated with increases in conflict management skills, knowledge of resources, and attitudes towards dating violence that are maintained at the 1-year follow-up, effects on sexual violence perpetration dissipate (Foshee et al., 1998,2004). Other interventions, including Green Dot, Bringing in the Bystander, Dating Matters, FourthR and Coaching Boys into Men, also have been evaluated in school settings. For example, among high school students, a large scale evaluation of the Green Dot bystander intervention program found that this model positively influenced rates of sexual harassment (Coker et al., 2017). An evaluation of the Bringing in the Bystander-High School Curriculum at 26 high schools also evidenced positive change, both for barriers/facilitators of bystander intervention over a short-term follow-up and in rape myth acceptance and readiness to engage in bystander intervention in a longer-term follow-up (Edwards et al., 2019). Dating

Matters, which is focused on preventing multiple forms of violence in middle schoolers, has shown effects on bullying perpetration, cyberbullying perpetration and victimization, and sexual violence perpetration and victimization (DeGue et al., 2021; Estefan et al., 2021; Niolon et al., 2019; Vivolo-Kantor et al., 2021). FourthR has also undergone evaluation among middle school students, with positive effects on adolescent relationship abuse (Temple et al., 2021). Evaluation of Coaching Boys into Men in a randomized cluster trial among 16 high schools also documented positive findings, with athletes who participated in the full program reporting greater intentions to intervene, recognition of abusive behavior, and positive bystander intervention behavior over time compared to a control group (Miller et al., 2012). Given the dearth of effective prevention programs and the scope of sexual violence among youth, additional work is needed to develop and evaluate sexual violence prevention programs for adolescents.

According to the CDC and World Health Organization, sexual violence prevention programs may be more effective if they target an array of risk and protective factors for sexual violence across multiple levels of influence, including individual, peer, family, and community-level factors (Basile et al., 2016; Dills et al., 2019). Whereas some programs seek to engage all members of a community as active bystanders in addressing risks for violence (Banyard et al., 2004), other approaches specifically seek to address individual-level risk for sexual aggression (Gidycz et al., 2011) or sexual victimization (Senn et al., 2018). Scholars in sexual violence prevention have called for the need to integrate the different theoretical approaches (i.e., bystander intervention, perpetration prevention, and risk reduction) to jointly target individual-level risk for sexual aggression, protective factors for sexual victimization, and strategies for community norms change (Orchowski et al., 2018).

1.1 | Advancing sexual violence prevention

The present research was designed to address several gaps in the science and practice of sexual violence prevention. First, whereas sexual violence prevention programs are common on college campuses (DeGue et al., 2014), additional research is needed to develop and test sexual violence prevention programs for high school youth. Second, the implementation of various types of sexual violence prevention efforts have been relatively siloed, with little integration of social norms and bystander intervention approaches for boys and men with risk reduction and resistance education programming for girls and women, as well as bystander intervention training for all members of a community (Orchowski et al., 2018). The present research, therefore, advances the science of sexual violence prevention by rigorously evaluating Your Voice Your View (YVYV), a primary prevention program for high school youth that includes bystander intervention skills training, social norms strategies to reduce risk for sexual aggression, and risk reduction to address victimization.

More specifically, the YVYV sexual violence prevention program for high school youth was developed by Day One of Rhode Island, a rape crisis center providing support to victims and educational outreach and prevention to schools and the broader community (www.dayoneri.org). The program components include: 1) four 50-min group-based workshops for students; 2) a 20-min Lunch and Learn Teacher Training; and 3) a social

norms poster campaign addressing school-specific misperceptions of attitudes relating to sexual violence.

The four sessions of the YVYV workshop address bystander intervention, risks for sexual aggression, as well as risk factors for victimization. Specifically, the program maintains a strong theoretical grounding in models of bystander intervention. Bystander approaches to sexual violence prevention seek to engage all members of a community as active bystanders in standing up to risk factors for sexual violence (Banyard, 2011; Casey et al., 2016). Drawing on Latané and Darley (1970) situational model of bystander behavior, the program seeks to mobilize members of a community to take proactive steps to intervene when witnessing risk for sexual violence. Several bystander intervention programs have sustained intervention among college students (Coker et al., 2015; Inman et al., 2018; Kleinsasser et al., 2015; Moynihan et al., 2015). However, with limited exceptions (Coker et al., 2017; Edwards et al., 2019) evaluations among high school youth are less common (for a review see Jouriles et al., 2018).

As researchers have recommended administering bystander intervention programs in conjunction with programs designed to reduce sexual aggression among boys (Orchowski et al., 2018), the YVYV program is also theoretically grounded in the Integrated Model of Sexual Assault and Acquaintance Rape (Berkowitz, 1992, 1994, 2003; Orchowski & Berkowitz, 2022). The Integrated Model of Sexual Assault and Acquaintance Rape is a multi-factor theoretical model strongly grounded in the social norms approach to prevention, which addresses risks for sexual aggression among boys and men (Berkowitz, 2010; Berkowitz et al., 2022). The Integrated Model of Sexual Assault and Acquaintance Rape has also been successfully used to guide sexual violence prevention programs for college men (see Gidycz et al., 2011; Orchowski et al., 2018; Salazar et al., 2014).

As the CDC's STOP Sexual Violence technical package highlights the importance of empowering girls to address violence (Basile et al., 2016), the YVYV program also includes content specific to empowering girls to address risk for harm. Approaches to reduce girls' and women's risk of experiencing sexual violence are commonly guided by the "Assess, Acknowledge and Act" (AAA) framework described by Rozee and Koss (2001) and in research on psychological barriers to resistance described by Norris et al. (1996). This model teaches individuals to recognize risk factors for victimization, acknowledge when situations are risky, and take quick and forceful action to resist unwanted advances (Orchowski & Gidycz, 2018). The AAA model to sexual violence risk reduction and resistance has been utilized to guide several sexual violence risk reduction and resistance education programs for college women, with promising results on reducing risk for victimization (Orchowski et al., 2018; Senn et al., 2017), but has not been rigorously evaluated with a high school population.

1.2 | The current study

The aims of the current study were to test the impact of YVYV on reducing adolescents' sexual aggression perpetration and victimization experiences. Reducing rates of perpetrating and experiencing sexual violence were targeted as the primary behavioral outcomes of the evaluation. It was hypothesized that the YVYV intervention would result in decreased

rates of sexual aggression perpetration (Hypothesis 1) and victimization (Hypothesis 2) in treatment schools in comparison to schools in the control group over a 2-month and 6-month follow-up period. Experiences of perpetrating and experiencing unwanted sexual contact and unwanted sexual intercourse were assessed.

2 | METHODS

2.1 | School enrollment

A total of 27 schools in the Northeastern United States enrolled in the research. Schools were informed that they would be matched with a school of similar size and type (i.e., charter school, public school, private school) and then randomly assigned to the program or control group. One school completed the baseline assessment and, due to scheduling difficulties, declined further participation in the study. The final study sample included 26 schools. Schools assigned to the control condition were offered the intervention after the completion of all study assessments. Three high schools did not participate at 2 months (2M); one high school did not participate at 6 months (6M).

Approval of the Department of Education, School Boards, and Superintendent of Schools/ Head of School was required to administer the survey in schools. Limitations imposed by these regulatory boards on the use of identifiers and the linking of student records over time impeded the ability to evaluate whether the respondents at each time point were unique and contributed to the decision to aggregate results to the level of school. Table SI provides information on known patterns of participation, but it is possible that individual records that appear as unique respondents in each time point are linked to records in other time points that were unable to be connected.

2.2 | Student enrollment

Tenth-grade students in each school were considered eligible if they met the following criteria: 1) English speaking, 2) adolescent assent was given; and 3) passive consent of a parent/legal guardian was given. Students with aides were included in the study if they could complete the questionnaires independently. There were 2685 respondents at baseline (BL), 2000 at 2M and 2143 at 6M. Across all schools and time points, there were 4483 respondents; student-level patterns of survey participation are presented in Table SI. Although the regulatory boards approving this study did not allow for self-report of race or ethnicity due to concern that this data could be utilized to identify a student in the study, school-reported data of race and ethnicity suggested that 48.61% of students in the sample would identify as a racial or ethnic minority. At the school level, an average of 44.76% of students reported receiving free or reduced-price lunch. Of those students providing data on gender at the baseline assessment (2651/2685 respondents; 98.7%), 50.9% self-identified as "girl," and 46.2% self-identified as "boy," 1.0% self-identified as "transgender," and 1.9% responded "prefer not to say." School-level information on gender was not available. Additional school-level demographics are reported in Table 1.

2.3 | Study procedures

All procedures were approved by school administrators and the institutional review board. A Certificate of Confidentiality was obtained. Before study enrollment, parents were mailed informational sheets about the research study as well as a form to opt their child out of the study. Before survey assessments, research staff provided information about the study procedures and garnered adolescent assent. All students were provided with information on local resources, regardless of study condition. All students at the study sites were invited to participate in a school-wide survey to develop the poster campaign, and the 10th grade students were invited to participate in the prevention program and complete the corresponding outcome assessments.

Students completed surveys at a BL, 2M, and 6M postintervention. Data were collected from October 2015 to May 2018. Participants were provided with instructions on how to create a self-generated identification (ID), so that the surveys could be matched over time while remaining anonymous. Surveys were completed during a health class, physical education class, or homeroom period, and approximately 50-min were allotted for the research procedures. Survey assessments were administered in paper and pencil format or via a computer when available in the school. Procedures were in place for alternative activities for students whose parents opted them out of study participation or who did not assent to the study. Assessments were administered by the research staff, and teachers were instructed to remain in an area of the room where they would not interfere with the survey administration. Participants were provided with $10 gift cards for completing each follow-up assessment. A total of 82 parents opted their child out of the study. Students who were not in school the day of the survey were not given the opportunity to complete the survey at another time. Given that school records estimated a total of 3108 10th grade students were enrolled in the schools at the time of the study, it is estimated that 86.4% (2685/3,108) of all Grade 10 students at the 26 schools ultimately completed the baseline assessment.

2.4 | Intervention components

2.4.1 | "Lunch and learn" teacher training workshop—To prepare the school community to support the intervention, a 20-min "Lunch and Learn" workshop was offered to all teachers in the school. The training provided an overview of the research procedures and intervention topics, and primed teachers to discuss the social norms marketing campaign with their students. Teachers were educated on common student reactions to the poster campaign, including disbelief in the normative data presented, which can be a signal that the poster is challenging a misperceived belief. Teachers were provided with instructions on how to discuss the posters with students who voiced disbelief in the normative data. Teachers were also provided with a brief overview of bystander intervention strategies for addressing risky student behavior. The Lunch and Learn workshops were manualized. Teachers were compensated with $10 for completing a survey following the Lunch and Learn ($N = 936$). Nine sessions were evaluated by a trained external rater for adherence to the manual. A total of 18 components were rated. Across the nine sessions, adherence was 96.3% (156 components delivered out of a possible 162).

2.4.2 | Your Voice Your View (YVYV)—YVYV is a four-session group-based universal sexual violence prevention program for high school students grounded in social norms theory and bystander intervention skills training. The program was expanded and manualized for the purpose of the current study. The program attempts to: 1) correct misperceived social norms regarding sexual violence and bystander intervention, and foster healthier norms regarding intimate relationships and bystander intervention; 2) increase understanding of consent for sexual activity, boundary setting skills, and sexual communication skills; 3) increase students' ability to identify and respond to risks; 4) increase confidence and skills in bystander intervention; 5) increase support for victims of sexual violence and for those who choose to intervene; and 6) decrease perpetration of sexual aggression. Throughout the program, facilitators provided students with the opportunity to engage in conversations with their peers regarding how they can take steps to address sexual violence in their community as positive role models and as allies in the efforts to end violence against girls and women. Table 2 provides an overview of the session content.

The YVYV program includes three 50-min sessions administered in mixed-gender groups focusing on social norms, consent, and bystander intervention, one 50-min session for boys addressing the intersection of masculinity and sexual aggression modeled upon The Men's Workshop (Gidycz et al., 2011), and another 50-min session for girls grounded in the "AAA" approach to reducing risk for sexual violence victimization (Rozee & Koss, 2001). Before the separate gender session, students who identify as gender nonconforming, transgender, gender queer, or nonbinary are instructed to choose the group they feel most comfortable attending or to attend an alternative discussion session specific to risk for sexual violence among gender nonconforming youth. The intervention was facilitated by one member of the research team and one member of the rape crisis center prevention education team. Facilitators were a male and female team, when possible. Facilitators of the girls' session identified as female and facilitators of the boys' session identified as male. Sessions were offered during health class, physical education class, or during another class period determined by the school administration.

2.4.2.1 | Session one: The first session utilized personal iClickers to elicit anonymous student responses regarding their acceptability of violence, while also providing the terms needed to describe the interpersonal and social dynamics that give rise to misperceptions of how peers feel about such behavior. Using the iCIicker data, students were provided with real-time feedback regarding what their peers think about sexual violence and the responsibility of bystanders, and facilitators guided students in a discussion about the misperceptions they held about violence in their community. Additionally, students examined a case of sexual violence where bystanders were present to build empathy toward survivors.

2.4.2.2 | Session two: The second session focused on recognizing sexually abusive behaviors. Activities challenged students to examine their personal boundaries, increase their awareness of their peers' boundaries, and recognize different forms of verbal and non-verbal communication. The session introduced the concept of consent, discussed problems

associated with mixing alcohol and sexual activity, and provided students with examples of sexual violence to clarify the difference between consensual sexual activity and sexually abusive behavior.

2.4.2.3 | Session three: The third session split students into gender-specific groups to discuss how sexual violence and peer pressure affect teens differently depending on whether they are socialized as boys or girls. Both sessions are intentionally more informal to foster discussion. The girls' session focuses on decreasing victimization by empowering girls' rights to autonomy and providing strategies to increase their safety. Discussions address the overestimation of sexual activity among youth, pressures to engage in sexual activity, how myths contribute to victim-blaming, and consent. Using several scenarios, girls develop skills in recognizing risky behaviors (i.e., using pressure, persistence, and entitlement), assessing situations for risk (i.e., isolation, alcohol use), acknowledging these warning signs, and acting quickly and forcefully. Barriers to acknowledging and responding to risk are examined, and girls brainstorm strategies to getting around these perceived barriers to increase their safety.

The boys' session addresses masculinity and peer influences surrounding sexual violence. Boys discuss the pressures they face as boys, including how overestimations of the number of boys who are sexually active can pressure boys to engage in sexual activity. Boys also discuss misconceptions regarding false accusations and other myths about sexual violence, and how these myths influence sexual aggression and contribute to victim-blaming. Boys also engage in a more in-depth discussion of consent where several scenarios are examined to increase their skills in garnering and gauging sexual consent.

2.4.2.4 | Session four: The fourth session provided modeling of bystander intervention behaviors and engaged students in active practice of bystander intervention skills through modeling, review of scenarios, and active practice. Students identified their own barriers and facilitators of helping behavior and generated strategies for intervention. Three strategies were shared with the class and students brainstormed examples of the strategies to get around each barrier presented. Students also practiced skills in bystander intervention through several small group practice scenarios.

2.4.2.5 I Training procedures: The YVYV program uses a structured treatment manual. Facilitators were trained through the following activities: (1) 20-h of group-based training (i.e., a series of ten 2-h meetings), (2) 20 h for self-learning of material, (3) 10 h of intervention practice, and (4) four 1-h pre-intervention meetings. Once facilitators were trained, they were expected to engage in weekly supervision with the Program Director throughout the study period to review sessions.

2.4.3 | Social norms marketing campaign—After the workshops, a series of four social norms marketing posters were placed throughout the school. A school-wide survey was used to garner normative data for each study site and to assess perceptions of school climate regarding sexual violence and bystander intervention. The survey was administered before the implementation of the YVYV program. Questions included 11 items assessing personal beliefs regarding violence and bystander intervention, and 11

parallel items assessing perceptions of other students' attitudes regarding violence and bystander intervention. Students responded to the items reflecting their own beliefs along a 4-point scale, ranging from strongly disagree to strongly agree. Students responded to items reflecting perceived norms by indicating the percent of students at their school that they believed would agree with the statement. Sample items assessing personal beliefs include: "I believe that bystanders can take steps to prevent sexual violence," and "I would believe someone who says they were sexually assaulted." Sample items assessing perceived peer norms include: "What percent of students at your school believe that bystanders can take steps to prevent sexual violence," and "What percent of students at your school would believe someone who says they were sexually assaulted."

Following procedures described by Linkenbach (2003), responses to the items on the social norms survey were utilized to generate the social norms poster campaign. For each school, an average perceived norm was calculated for each item and compared against the actual norm of students in the school. The actual norm was calculated as the percent of students responding who said they "agreed" or "strongly agreed" with an item. A sample poster message is: "92% of students at [School Name] believe bystanders can take steps to prevent sexual violence." Each poster included the number of students that completed the norms survey at the school and the number that reported responding honestly. Only data from participants who reported they responded honestly were utilized to create the poster message. Consistent with best practice, posters were generated to reflect topics where there was a significant discrepancy between the actual and perceived norm. Students completing the school-wide social norms survey were entered in a raffle to win a $50 gift card. Students entered the raffle by listing their contact information on a separate entry form. Surveys were completed during homeroom or advisory periods and took approximately 5 min to complete.

First, a set of two posters were displayed in central locations within the school campus. To avoid saturation to the message, the posters were replaced with a second set of two posters after 2 weeks. Following Berkowitz's (2013) recommendations, poster messages were positive in nature and reflected positive norms for the school. Items with the largest discrepancy between perceived peer norms and actual norms were selected for display. Over the course of the campaign, the study staff tracked the number of posters that were still hanging, as well as whether any posters were damaged (e.g., graffiti, tears, and written messages). No posters were removed or damaged during the campaign.

2.5 | Measures

2.5.1 | Experiences of sexual victimization—Drawing from prior research (Coker et al., 2015), experiences of sexual victimization at baseline and over the follow-up periods was measured using a series of three questions assessing experiences of unwanted sexual intercourse, and three questions assessing experiences of unwanted sexual contact. To assess unwanted sexual intercourse, participants were provided with the following prompt: "These questions ask about unwanted sexual intercourse. Sexual intercourse includes vaginal and anal sex. Please select the box that describes your experience in the past year." Participants indicated the number of times they experienced the following: 1) had sexual intercourse even though you didn't really want to because another high school student threatened to end

your friendship or romantic relationship if you didn't or because you felt pressured by the other person's constant arguments or begging?; 2) had sexual intercourse when you didn't want to because another high school student threatened to use or used physical force (like twisting your arm, holding you down)?; and 3) had sexual intercourse with another high school student when you didn't want to because you were drunk or using drugs?

To assess experiences of unwanted sexual contact, participants were provided with the following prompt: "These questions ask about unwanted sexual activity. Sexual activity could include kissing, touching, or oral sex (that did not include sexual intercourse). Remember that the survey is anonymous. We cannot connect your answers to your name. Please select the box that describes your experience in the past year." Participants then indicated the number of times they experienced the following: 1) been involved in sexual activity (but not sexual intercourse) even though you didn't really want to because another high school student threatened to end your friendship or romantic relationship if you didn't or because you felt pressured by the other person's constant arguments or begging? 2) Been involved in sexual activity (but not sexual intercourse) when you didn't want to because another high school student threatened to use or used physical force (like twisting your arm, holding you down)? and 3) been involved in sexual activity (but not sexual intercourse) with another high school student when you didn't want to because you were drunk or using drugs? Response categories were recoded to numerical values ("0 times" = 0; "1–2 times" = 1.5; "3–5 times" = 4; "6–9 times" = 7.5; "10 or more times" = 10). Counts of sexual victimization events were indexed as the sum of relevant responses for each type of sexual victimization.

2.5.2 | Perpetration of sexual aggression—Drawing from prior research (Coker et al., 2015), sexual aggression perpetration at baseline and over the follow-up periods was assessed using a series of three questions assessing perpetration of unwanted sexual intercourse and three questions assessing perpetration of unwanted sexual contact. Prompts operationalizing sexual intercourse and sexual activity in the context of sexual victimization were repeated before questions assessing sexual aggression. Participants indicated the number of times they perpetrated the following types of unwanted sexual intercourse: 1) had sexual intercourse with another high school student because you either threatened to end your friendship or romantic relationship if they didn't or because you pressured the other person by arguing or begging?; 2) had sexual intercourse with another high school student by threatening to use or used physical force (twisting their arm, holding them down, etc.)? and 3) had sexual intercourse with another high school student because she/he was drunk or on drugs?

Participants also indicated the number of times they perpetrated the following types of unwanted sexual contact: 1) been involved in sexual activity (but not sexual intercourse) with a high school student when they didn't really want to either because you threatened to end your friendship or romantic relationship if they didn't or because you put pressure on them by constant arguments or begging? 2) Been involved in sexual activity (but not sexual intercourse) with a high school student when they didn't want to because you threatened to use or used physical force (like twisting their arm, holding them down)?; and 3) been involved in sexual activity (but not sexual intercourse) with another high school student

when they didn't want to because they were drunk or using drugs. Response categories were recoded to numerical values ("0 times" = 0; "1–2 times" = 1.5; "3–5 times" = 4; "6–9 times" = 7.5; "10 or more times" = 10). Counts of sexual violence perpetration events were indexed as the sum of relevant responses for each type of sexual aggression.

2.5.3 | Monitoring of treatment fidelity—A select number of YVYV intervention sessions were evaluated by an external rater to determine adherence to the study manual. External raters also evaluated the facilitators across several domains relating to interpersonal style (i.e., "Displayed a warm and inviting demeanor," and "Maintained eye contact with the audience") along a 5-point scale ranging from "strongly disagree" to "strongly agree." External ratings were administered for 42% ($n = 179$) of all program sessions. Adherence to 80% of the session content was deemed acceptable. Descriptive statistics were calculated to examine the extent to which YVYV was implemented with fidelity to the program manual (see Table 3). Examination of all sessions revealed that all sessions, on average, were administered with high adherence to the script (>80% of components completed) when assessed by an external rater. Average adherence to the script was 92.41% across all sessions. High competency in the program delivery style was evidenced, with all markers of a warm and engaging delivery style being rated as "agree" or "strongly agree" at least 80% of the time, on average (see Table 4). Lunch and Learn Teacher Training Workshops were not rated for fidelity to the manual.

2.6 | Data analysis plan

To evaluate the primary hypothesis that the school-level intervention would reduce sexual violence victimization and perpetration longitudinally relative to control schools, we aggregated sum counts of reported acts of sexual violence to the school level at each time point and used these frequencies as our focal outcomes, with schools ($n = 26$) therefore being the primary unit of analysis. Measures of sexual violence were converted to annualized rates at the school level and descriptive statistics were computed across these rates to facilitate comparison across time points and allow for different numbers of reporters and exposure periods across assessment (12 months at BL; 2 and 4 months at 2M and 6M, respectively). Annualized school-level rates were indexed as the sum of student-reported events divided by the number of person-months of exposure (number of reporters multiplied by the exposure period in months) and multiplied by 12 to yield a measure of events per person-year for each school and time point.

A generalized linear mixed model (GLMM) specifying a negative binomial distribution was used to fit analytic models given the nonindependence of longitudinal repeated measures count data, significant overdispersion in counts of sexual violence, and small number of longitudinal missing data (Hardin & Hilbe, 2007; Hedeker, 2005). We regressed frequency counts onto focal predictors of time (measured discontinuously; ref: baseline), condition (ref: control), and time × condition interaction to (1) examine differences in rates of sexual violence within a condition over time; (2) examine differences in rates of sexual violence across control and intervention schools within time points; and (3) examine whether differences in rates of sexual violence over time varied in control versus intervention schools, the primary test of intervention effectiveness. We also computed simple main

effects of condition and time to elucidate whether a) significant differences in event counts across conditions existed at follow-up; and b) whether event counts changed longitudinally for either condition. Random intercepts were included to account for clustering of repeated observations within school (McNeish & Kelley, 2019). Due to differences in the number of reporters and retrospective period, we included a natural-log offset for person months (Wagner et al., 2015). As our model specified a log link function, estimates were exponentiated to compute incidence rate ratios (IRRs) which represent the relative incidence rate (i.e., count per person-months) across groups (i.e., one-unit increase in continuous predictors or group membership in dummy-coded predictors) (Cummings, 2019). Intraclass correlations and 95% confidence intervals (CIs) were also computed. Models were adjusted by including school-level covariates for proportion of students receiving free or reduced-price lunch, proportion of racial or ethnic minority students, school type, and the total size of student body. Cohen's f^2 effect sizes were computed for the simple main effect of treatment at 2M and 6M for all outcomes, where 0.02, 0.15, and 0.35 correspond to small, medium, and large effects (Nakagawa & Schielzeth, 2013; Selya et al., 2012). Analyses were conducted in R 4.1.2 (R Core Team, 2017) using the *Ime4 1.1–29* (Bates et al., 2015) and *glmmTMB 1.1.3* (Brooks et al., 2017) packages. Model misspecification was evaluated with the DHARMa 0.4.5 (Hartig, 2022) package.

3 | RESULTS

3.1 I School characteristics

Chi-square and independent-sample Welch's *t*-tests were used to compare control and intervention schools at BL (see Table 1). Significant differences between conditions were observed for proportion of students receiving free and reduced-price lunch and proportion of racial or ethnic minority students, supporting the decision to control for these school-level characteristics in evaluating the effectiveness of the intervention. Unadjusted school-level mean sexual violence victimization events per person-year and 95% CIs are presented in Figure 1 and those for sexual violence perpetration are presented in Figure 2 (aggregate sexual violence victimization and perpetration events, reporters, and the school-level mean events per person-year are also presented in Table S3). There were no differences at BL in rates of sexual violence victimization or perpetration by condition. Preliminary examination of unadjusted rates of sexual violence victimization or perpetration within each time point revealed no differences across condition at any assessment.

3.2 | Sexual violence victimization

3.2.1 | Impact on all types of victimization—The intraclass correlation (ICC) for school-level clustering in repeated observations of sexual violence victimization was 0.083. Model diagnostics were evaluated to ensure that models met analytic assumptions. Results from the GLMM and follow-up simple slopes analyses regressing counts of sexual violence victimization events onto focal predictors and covariates are presented in Table 5. There was no significant difference in incidence rates between control and intervention schools at BL (IRR = 1.15 [0.54–2.47]). Incidence rates for both control (IRR = 8.55 [4.85–15.06]) and intervention schools (IRR = 6.23 [3.70–10.49]) increased at 2M with the magnitude of these increases not varying by condition (i.e., time × condition interaction; IRR = 0.73

[0.34–1.57]; $I^2 = 0.004$). At 6 M, incidence rates remained significantly higher than BL for both control (IRR = 6.15 [3.55–10.63]) and intervention (IRR = 3.25 [1.94–5.44]) schools. The magnitude of differences in incidence rates at 6 M also did not vary significantly by condition (IRR = 0.53 [0.25–1.13]; $I^2 = 0.058$).

3.2.2 | Unwanted sexual intercourse—Rates of sexual victimization were also examined by victimization type (i.e., unwanted sexual intercourse and unwanted sexual contact). Results from the GLMM and follow-up simple slopes analyses regressing frequency of unwanted sexual intercourse events onto focal predictors and covariates are presented in Table 6. There was no significant difference in incidence rates between control and intervention schools at BL (IRR = 1.59 [0.64–3.95]). At 2-month follow-up, reported incidence rates increased at both control (IRR = 11.97 [6.33–22.64]) and intervention schools (IRR = 5.87 [3.27–10.52]), with the magnitude of these increases not varying by condition (IRR = 0.49 [0.21–1.17]; $I^2 = 0.017$). At 6-month follow-up, incidence rates remained significantly higher than baseline for both control (IRR = 8.07 [4.40–14.81]) and intervention (IRR = 2.66 [1.50–4.72]) schools. However, the magnitude of 6-month differences in incidence rates varied significantly by condition (IRR = 0.33 [0.14–0.76]; $I^2 = 0.012$), demonstrating a small protective effect favoring intervention schools.

3.2.3 | Unwanted sexual contact—Results from the GLMM and follow-up simple slopes analyses regressing frequency of unwanted sexual intercourse events onto focal predictors and covariates are presented in Table 7. There was no significant difference in incidence rates between control and intervention schools at baseline (IRR = 0.93 [0.44–1.96]). At 2-month follow-up, reported incidence rates increased at both control (IRR = 7.04 [3.92–12.64]) and intervention schools (IRR = 6.86 [3.94–11.91]), with the magnitude of these increases not varying by condition (IRR = 0.97 [0.44–2.18]; $I^2 = 0.002$). At 6-month follow-up, incidence rates remained significantly higher than baseline for both control (IRR = 5.08 [2.89–8.91]) and intervention (IRR = 3.82 [2.21–6.61]) schools. The magnitude of 6-month differences in incidence rates did not vary significantly by condition (IRR = 0.75 [0.34–1.65]; $I^2 = 0.043$).

3.3 | Sexual violence perpetration

3.3.1 | Impact on all types of sexual aggression—The ICC for school-level clustering in repeated observations of sexual violence perpetration was 0.070. Model diagnostics were evaluated to ensure that models met analytic assumptions. Results from the GLMM and follow-up simple slopes analyses regressing counts of all sexual violence perpetration events onto focal predictors and covariates are presented in Table 8. There were no significant differences in incidence rates between control and intervention schools at BL (IRR = 1.30 [0.26–6.60]). Incidence rates for both control (IRR = 27.91 [7.37–105.74]) and intervention schools (IRR = 6.99 [2.13–22.89]) increased at 2M; however, these increases did not vary by condition (IRR = 0.25 [0.04–1.50]; $I^2 = 0.116$). At 6M, incidence rates remained significantly higher than at BL for both control (IRR = 8.39 [2.43–29.01]) and intervention schools (IRR = 10.41 [3.29 – 32.97]). The magnitude of differences in incidence rates at 6M did not vary significantly by condition (IRR = 1.24 [0.23–6.64]; $I^2 = 0.018$).

3.3.2 | Perpetration of unwanted sexual intercourse—Rates of sexual aggression were next examined by type of sexual aggression (i.e., perpetration of unwanted sexual intercourse and perpetration of unwanted sexual contact). Results from the GLMM and follow-up simple slopes analyses regressing frequency of perpetrated sexual intercourse events onto focal predictors and covariates are presented in Table 9. There was no significant difference in incidence rates between control and intervention schools at baseline (IRR = 2.26 [0.43–11.97]). Incidence rates for both control (IRR = 37.79 [8.65–165.15]) and intervention schools (IRR = 6.07 [1.67–22.04]) increased at 2 M, but these increases did not vary by condition (IRR = 0.16 [0.02–1.13]; $f^2 = 0.080$). At 6 M follow-up, incidence rates remained significantly higher than at BL for both control (IRR = 10.82 [2.80–41.76]) and intervention (IRR = 7.11 [1.95–25.94]) schools. The magnitude of 6-month differences in incidence from BL also did not vary by condition (IRR = 0.66 [0.10–4.44]; $f^2 = 0.007$).

3.3.3 | Perpetration of unwanted sexual contact—Results from the GLMM and follow-up simple slopes analyses regressing frequency of perpetrated sexual contact events onto focal predictors and covariates are presented in Table 10. There was no significant difference in incidence rates between control and intervention schools at BL (IRR = 0.83 [0.17–4.12]). Incidence rates for both control (IRR = 19.61 [5.52–69.70]) and intervention schools (IRR = 8.50 [2.47–29.28]) increased at 2 months, but these increases did not vary by condition (IRR = 0.43 [0.07–2.55]; $f^2 = 0.142$). At 6-month follow-up, incidence rates remained significantly higher than BL for both control (IRR = 6.41 [1.90–21.68]) and intervention schools (IRR = 14.73 [4.55–47.68]). The magnitude of 6-month differences in incidence from BL did not vary by condition (IRR = 2.30 [0.43–12.21]; $f^2 = 0.034$).

4 | DISCUSSION

The present study evaluates the extent to which a four-session school-based sexual violence prevention program for high school students influences rates of sexual violence victimization and perpetration over a 6-month follow-up period. This study advances the science and practice of sexual violence prevention by demonstrating that a multi-component intervention, that integrates social norms, bystander behavior, and sexual violence prevention skills, can be implemented with fidelity, in a high-school population and that it can have promising effects for this age group.

Two hypotheses were evaluated. First, it was hypothesized that the YVYV intervention would result in decreased rates of sexual aggression perpetration in treatment schools in comparison to schools in the control group over a 2-month and 6-month follow-up period (Hypothesis 1). Second, it was hypothesized that YVYV would result in decreased rates of sexual victimization in treatment schools in comparison to schools in the control group over a 2-month and 6-month follow-up period (Hypothesis 2). Whereas hypothesis 1 was not supported, the data highlight some promising impacts on rates of unwanted sexual intercourse among treatment group schools at the 6-month follow-up (Hypothesis 2). These findings suggest that sexual violence prevention programming with an integrated focus on bystander intervention, social norms, and risk reduction may have promise for wider application and can exert a protective effect in relation to increases in problem behavior over time. It should be noted, however, that analyses of the schools participating were conducted

at the school level, the findings from the present study are limited by statistical power and, therefore, may not reveal the full picture regarding intervention effects. Thus, the present analysis may be underpowered to detect small effect sizes at the school level.

It was noteworthy that the change in reductions of unwanted sexual intercourse was not until the later 6-month follow-up assessment. Similar findings have been reported in other evaluations of violence programs (Coker et al., 2019). Furthermore, overall rates of sexual violence victimization and perpetration were generally going up over time, which may in part be due to increases in sexual activity among youth at this age (Ethier et al., 2018). Thus, it may be that for this age group—where rates of exposure are generally increasing with time—that the protective effects of violence prevention workshops take some time to emerge. Bolstering program impacts through the implementation of booster programs is also recommended (Banyard et al., 2018).

Whereas the current investigation only explores behavioral outcomes, the focus on norms change within the YVYV intervention is notable and may have contributed to the positive outcomes documented. First, it is widely known that peers contribute significantly to adolescents' attitudes and decision making about a variety of risk behaviors. By engaging youth to better assess the norms of their peers and evaluate their risk for sexual violence, YVYV has the potential to harness the strong influence of peers during this developmental period in a way that promotes healthy relationship behaviors. Second, evidence to support the role of perceived peer influence as a driver of sexual aggression is growing (Berkowitz et al., 2022). By combining a social norms approach with content addressing bystander intervention, as well as risk reduction education, the YVYV intervention highlights how this strategy for sexual violence prevention can be leveraged to target multiple outcomes in a synergistic fashion, consistent with research recommending that these two approaches are more effective in tandem than either is by itself (Orchowski & Berkowitz, 2022; Orchowski et al., 2018).

Further research is needed to better understand which components of the YVYV program drive intervention effects. For example, whereas norms were targeted in the workshops, the YVYV program also included a social norms poster campaign which reinforced program messages within the school. Although the poster campaign was not evaluated separately from the intervention, numerous studies point to the utility of social norms marketing as a strategy for attitude change (Reidy et al., 2022). In the current study, although staff monitored whether posters were damaged or taken down, the research procedures did not monitor the extent to which teachers or students discussed the poster campaign. Further evaluation is needed to determine to what extent the poster campaign contributed to the protective effect documented in the study.

The integrated nature of this program—which targeted social norms change as well as bystander intervention—is also notable. In the field of sexual violence prevention, program approaches are often siloed and are limited to one theoretical approach despite the need to target both risks for sexual violence victimization and the risk for sexual aggression and engage all members of a school community in taking action to shift cultural norms that promote violence. The current study shows that it is both feasible and well-received to

target multiple behavioral outcomes among youth within an integrated, multi-component, multimodal approach. Despite the positive impacts on victimization, there are several unanswered questions as to what about the program was particularly impactful. Future research is needed to unpack the mechanisms of the significant effect and explore the extent to which the format of the programming (i.e., mixed groups, with some opportunities for boys to discuss program content with other boys) impacted the effectiveness of the prevention package.

The present study should be interpreted in the context of several limitations. First, despite the implementation of a procedure to self-generate a study ID that had been piloted to match surveys over time, the ability to match participant surveys over time in this study was limited. As such, it was not possible to link initial responses with those provided in follow-up assessments. The analytic strategy was designed to compensate for this limitation by analyzing data at the school level. More robust matching between surveys over time can permit more nuanced follow-up analyses in future research and may have revealed a stronger impact of the program for some or many students. The ability to match student surveys more reliably over time would also permit subgroup analyses. Other methods for creating self-generated survey IDs can be implemented in the context of future research.

Further, findings in this analysis are limited by the enrollment of only 26 schools in the group cluster trial. Missing data at the follow-up assessments should also be noted, with some schools not participating in later assessment waves. Outcomes were modest, but remain important, in documenting small reductions in sexual violence victimization over the 6-month follow-up in intervention schools. It should also be noted that schools enrolled in the study were randomized to condition via coin toss, after sites were matched based on size and expected demographics. It is possible that baseline differences between groups could have been eliminated with more robust randomization procedures, as well as a larger number of schools. It is unclear why some schools did not continue with the research. It should also be noted that the Lunch and Learn teacher trainings were well attended, potentially because teachers were incentivized to attend through the provision of meals, coffee, and gift cards for completing surveys associated with the training. The percent of teachers within each school who attended the Lunch and Learn is unknown.

In addition, data in the 2M and 6M assessment wave may reflect 'seasonality' in the incidence of sexual violence insofar as the likelihood of such violence occurring may increase during the school year when students are in proximity of each other. As such, comparisons of these two time periods with the BL assessment, which includes a full 12-month exposure period, may exacerbate apparent differences in rates of sexual violence—if they exist—from the BL to the follow-up waves. However, given that the current analyses examined each time point discontinuously relative to one another (vs. a linear effect of time) and given the importance of providing comprehensive information on sexual violence patterns in the population, the current presentation of the findings which includes all follow-up analyses of differences between conditions at each time point facilitates evaluating the effectiveness of the intervention at a time point by time point basis. As follow-up assessment was limited to 2M and 6M follow-ups, future studies may also consider longer-term follow-up surveys.

The present study also sets the stage for future research and program development. Specifically, one of the sessions was administered only for boys, which is recommended as a best-practice approach for engaging boys and men in sexual violence prevention (Orchowski & Berkowitz, 2022). However, administering interventions *only to boys* in school environments is complex. Gender diverse and nonbinary students are not included when programs exclusively offer "sessions for girls" and "sessions for boys", rendering gender diverse students invisible in prevention efforts. This is problematic, given that upwards of 86% of transgender youth experience peer victimization (Norris & Orchowski, 2020). In its curriculum, YVYV used scenarios with gender neutral names and spoke about gender along a continuum. YVYV also offered sessions for boys, sessions for girls, and in some schools, a session for students who identified as gender diverse. The sessions offered were established by collaborating with members of the school administration. In schools that did not offer a separate session for gender-diverse students, it was noted that gender-diverse students experience high rates of victimization, material addressing how to respond to unwanted sexual advances would be addressed in the session for girls, and students were encouraged to attend the session that would be most useful for them. Creating spaces where students feel safe and can utilize an intervention and relate it back to their experience and identity is a critical task in violence prevention programming. Future research is needed to understand the extent to which gender-diverse students feel that violence prevention programs are meeting their needs.

Future research can also explore the effectiveness of this prevention approach. The training procedures, manualized protocol, and intervention, as well as established research procedures, suggest that YVYV could be readily scaled for implementation and evaluation in other settings. Social norms theory and bystander intervention theory are appropriate theories of change for sexual violence prevention across a range of audiences and geographies. The technology associated with the intervention is also relatively inexpensive and portable. Given that the power of the current school-based cluster trial was likely low, a follow-up hybrid implementation and effectiveness trial would be a useful next step.

In conclusion, high rates of sexual violence among adolescents underscore the importance of fostering healthy relationship skills early in their lifespan. The present evaluation demonstrates the feasibility of implementing a four-session sexual violence prevention program for high school students grounded in social norms theory and bystander intervention. This study provides some support to suggest that YVYV could be a promising model for prevention programming. Procedures were also established for engaging educators in prevention activities, as well as the implementation of a school-wide social norms marketing campaign. By targeting students and educators in workshops and administering a social norms marketing campaign, interventions such as YVYV represent an advancement in the science of sexual violence prevention by targeting risk and protective factors for sexual violence across the social ecology.

Supplementary Material

Refer to Web version on PubMed Central for supplementary material.

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DATA AVAILABILITY STATEMENT

The data that support the findings of this study are available from the corresponding author upon reasonable request.

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Sexual Violence Victimization
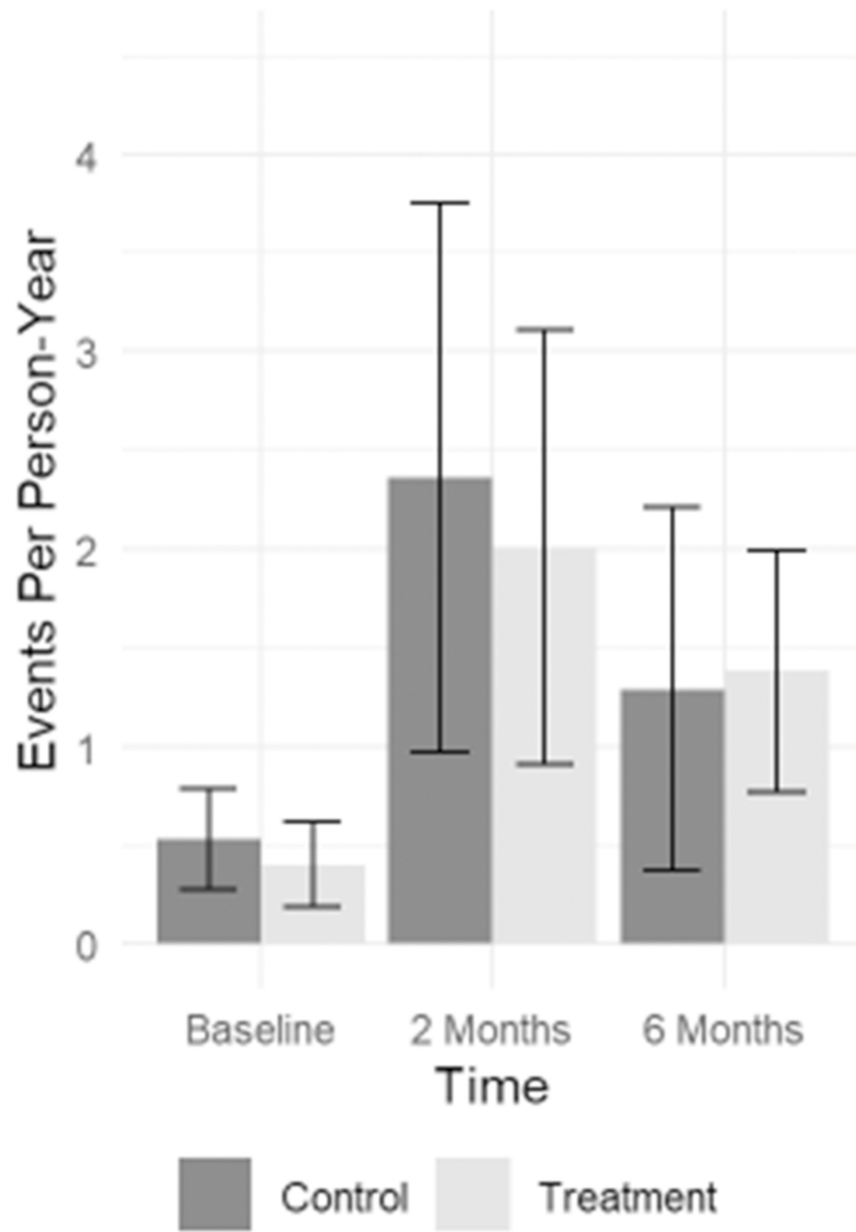
FIGURE 1.
Longitudinal sexual violence victimization events per person-year with 95% confidence interval.

Sexual Violence Perpetration
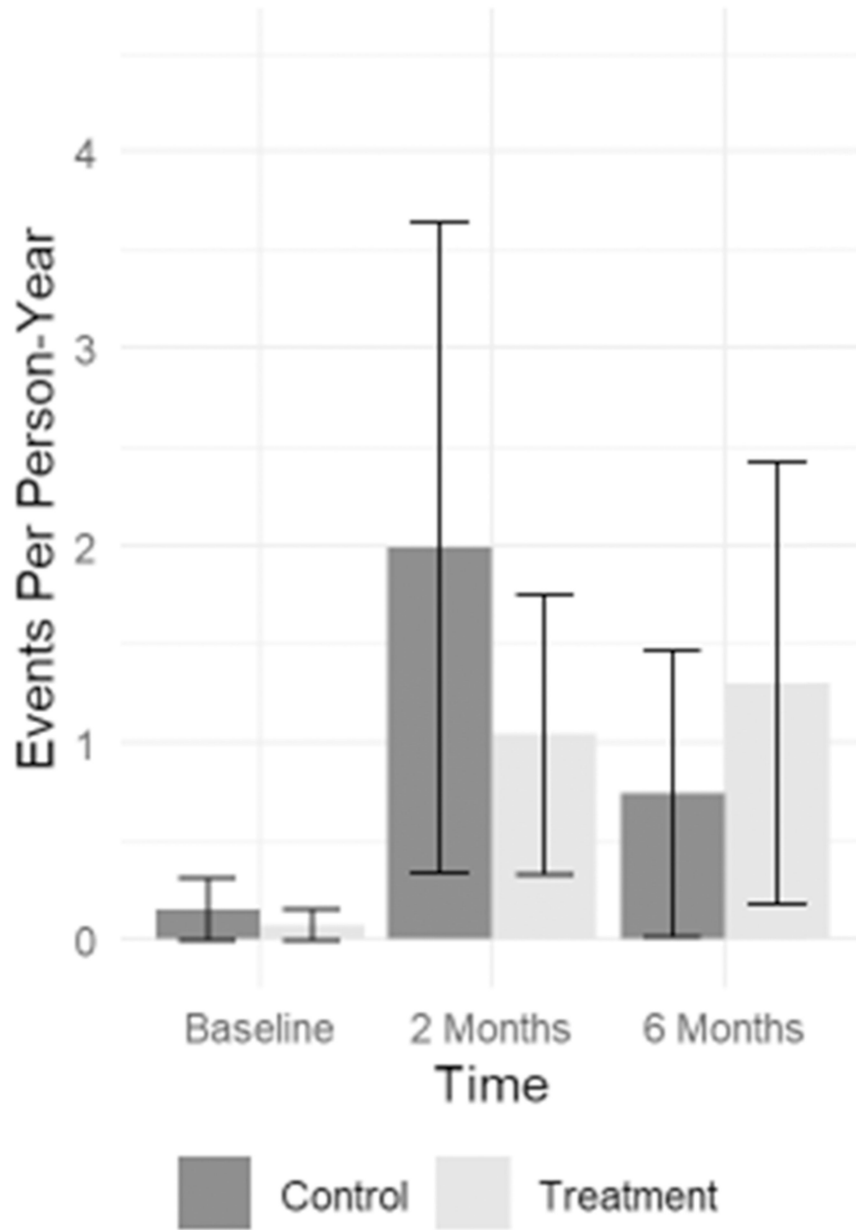
FIGURE 2.
Longitudinal sexual violence perpetration events per person-year with 95% confidence interval.

TABLE 1

School-level descriptive statistics.

Variable	All (n = 26) M (SD) or n (%)	Control (n = 12) M (SD) or n (%)	Intervention (n = 14) M (SD) or n (%)	t or χ^2	P
	M (SD) or n (%)	M (SD) or n (%)	M (SD) or n (%)		
Number of students	563.31 (521.78)	750.25 (565.16)	403.07 (439.77)	1.76	0.091
% Free or reduced-price lunch	**44.76 (30.42)**	**30.74 (24.47)**	**56.77 (30.59)**	**2.37**	**0.026**
% Racial or ethnic minority	**48.61 (32.31)**	**33.98 (28.15)**	**61.15 (31.14)**	**2.32**	**0.029**
School type	-	-	-	1.50	0.473
Public	8 (30.77)	5 (41.67)	3 (21.43)	-	-
Private	14 (53.85)	5 (41.67)	9 (64.29	-	-
Charter	4 (15.38)	2 (16.67)	2 (14.29)	-	-

TABLE 2

Sessions and goals.

Session	Goals
Session 1	- Increase awareness of power-based personal violence and its prevalence among teens - Correct students' misperceptions of peer beliefs about sexual violence and bystander responsibility - Increase empathy towards victims of sexual violence
Session 2	- Increase students' awareness of non-verbal communication skills and personal boundaries - Increase knowledge of what constitutes sexual harassment and sexual assault - Increase knowledge of consent - Increase knowledge of options for reporting sexual violence - Increase awareness of alcohol -related risk for sexual victimization and aggression - Increase students' likelihood to intervene as active bystanders to address risk - Increase identification of risk factors for sexual violence
Session 3 (Boys)	- Decrease peer pressure to engage in sexual activity - Debunk misperceptions of the commonality of false accusations of sexual violence, and increase awareness of how labeling an accusation as "false" contributes to victim blaming - Decrease ascription to rape myths - Increase knowledge and understanding of consent, and discuss strategies to give and gamer it
Session 3 (Girls)	- Increase awareness of psychological barriers to assessing, acknowledging, and responding to risk - Increase knowledge of perpetrator tactics and characteristics - Increase skills for responding to risky situations - Increase self-efficacy in responding to risk
Session 4	- Decrease barriers to engaging in bystander intervention - Increate intentions to intervene to address violence - Increase awareness of positive school norms

TABLE 3

Program adherence and competency of facilitation.

Session	# Sessions throughout the study	# of session components rated for fidelity	Average % of session components administered[a]
1	92	17	96.79%
2	92	22	93.87%
3 (boys)	72	19	97.18%
3 (girls)	76	16	90.94%
3 (merged)[b]	2	-	-
4	90	20	90.94%

[a]An external rater was present to evaluate the fidelity of 179 of the 426 sessions. Average adherence was 92.41% across all sessions.

[b]Session 3 (Merged)—version of session 3 in which included all students regardless of gender; administered twice request of school. These sessions were not rated for adherence and competency, given the variation in approach

TABLE 4

External ratings of facilitator competency.

	Session 1		Session 2		Session 3 (Boys)		Session 3 (Girls)		Session 4	
	Agree (%)	Strongly agree (%)	Agree (%)	Strongly agree (%)	Agree (%)	Strongly agree (%)	Agree (%)	Strongly agree (%)	Agree (%)	Strongly agree (%)
Displayed a warm and inviting demeanor	6.8	73.2%	3.7	96.3	8.3	100.0	0.0	100.0	2.5	97.5
Maintained eye contact with the audience	2.7	97.3	-	100.0		91.7	-	100.0	1.3	98.7
Clearly articulated the script	14.9	85.1	3.7	100.0	-	100.0	2.4	97.6	6.3	93.7
Was enthusiastic about the topic	4.1	96.0	1.2	96.3	11.8	88.2	-	100.0	-	100.0
Appeared confident in material	1.4	98.7	1.2	98.8	-	100.0	-	100.0	2.5	97.5
Was confident answering audience questions	1.4	98.6	6.1	93.9	-	100.0	2.7	97.3	-	100.0
Used language appropriate to audience	6.8	93.2	1.2	98.8	-	100.0	2.4	97.6	4.9	95.1
Demonstrated ability to insert spontaneous comments in adapting ideas to the specific audience	4.1	96.0	3.7	98.8	3.0	97.0	2.4	97.6	1.3	98.7
Used vocal variety in pitch and intensity, to heighten and maintain audience interest	16.2	93.8	3.7	96.3	9.1	90.9	2.4%	97.6	1.3	98.7
Used appropriate pronunciation, grammar, and articulation	1.4	98.7	-	100.0	-	100.0	2.4	97.6	-	100.0
Used physical behavior that supported the verbal message, and communicated engagement with audience	5.4	94.6	3.7	96.3	-	100.0	-	100.0	6.3	93.7

Note: Based on 179 rated sessions out of 426 sessions administered.

TABLE 5

Parameter estimates and incidence rate ratios of GLMM evaluating effects of time, condition, and time-by-condition interaction on sexual violence victimization (overall).

Variable	Estimate	SE	*P*	Incidence rate ratios (IRRs)		
				Low	IRR	High
Intercept	−3.67	0.69	<0.001	-	-	-
Covariates						
% free or reduced-price lunch	0.00	0.01	0.884	0.98	1.00	1.02
% minority students	0.00	0.01	0.723	0.98	1.00	1.01
School Type (ref: Public)						
Charter	−0.04	0.73	0.952	0.23	0.96	3.98
Private	−0.16	0.64	0.796	0.24	0.85	2.96
# of students	0.00	0.00	0.647	1.00	1.00	1.00
Focal predictors						
Time (ref: Baseline)						
2 Months	**2.15**	**0.29**	**<0.001**	**4.85**	**8.55**	**15.06**
6 Months	**1.82**	**0.28**	**<0.001**	**3.55**	**6.15**	**10.63**
Condition (ref: Control)	0.14	0.39	0.722	0.54	1.15	2.47
Focal interaction						
2 Months × Condition	−0.32	0.39	0.420	0.34	0.73	1.57
6 Months × Condition	−0.64	0.39	0.099	0.25	0.53	1.13
Simple slopes (Condition)						
Condition @ 2 Months	−0.18	0.42	0.673	0.37	0.84	1.91
Condition @ 6 Months	−0.50	0.39	0.205	0.28	0.61	1.31
Simple slopes (Time)						
2 Months @ Intervention	**1.83**	**0.27**	**<0.001**	**3.70**	**6.23**	**10.49**
6 Months @ Intervention	**1.18**	**0.26**	**<0.001**	**1.94**	**3.25**	**5.44**

Abbreviation: GLMM, generalized linear mixed model.

TABLE 6

Parameter estimates and prevalence rate ratios of GLMM evaluating effects of time, condition, and time-by-condition interaction on unwanted sexual intercourse.

Variable	Estimate	SE	p	Incidence rate ratios (IRRs)		
				Low	IRR	High
Intercept	−4.55	0.83	<0.001	–	–	–
Covariates						
% free or reduced-price lunch	−0.01	0.01	0.706	0.97	0.99	1.02
% minority students	0.01	0.01	0.470	0.99	1.01	1.03
School Type (ref: Public)						
Charter	−0.50	0.89	0.578	0.11	0.61	3.48
Private	−0.91	0.77	0.236	0.09	0.40	1.81
# of students	0.00	0.00	0.941	1.00	1.00	1.00
Focal predictors						
Time (ref: Baseline)						
2 Months	**2.48**	**0.33**	**<0.001**	**6.33**	**11.97**	**22.64**
6 Months	**2.09**	**0.31**	**<0.001**	**4.40**	**8.07**	**14.81**
Condition (ref: Control)	0.46	0.47	0.32	0.64	1.59	3.95
Interactions						
2 Months × Condition	−0.71	0.44	0.107	0.21	0.49	1.17
6 Months × Condition	**−1.11**	**0.43**	**0.010**	**0.14**	**0.33**	**0.76**
Simple slopes (Condition)						
Condition @ 2 Months	−0.25	0.50	0.616	0.29	0.78	2.08
Condition @ 6 Months	−0.65	0.47	0.171	0.21	0.52	1.32
Simple slopes (Time)						
2 Months @ Intervention	**1.77**	**0.30**	**<0.001**	**3.27**	**5.87**	**10.52**
6 Months @ Intervention	**0.98**	**0.29**	**<0.001**	**1.50**	**2.66**	**4.72**

Abbreviation: GLMM, generalized linear mixed model.

TABLE 7

Parameter estimates and prevalence rate ratios of GLMM evaluating effects of time, condition, and time by condition interaction on unwanted sexual contact.

Variable	Estimate	SE	*p*	Incidence rate ratios (IRRs)		
				Low	IRR	High
Intercept	**−4.20**	**0.68**	**<0.001**	–	–	–
Covariates % free or reduced-price lunch	0.00	0.01	0.693	0.98	1.00	1.03
% minority students	−0.01	0.01	0.291	0.98	0.99	1.01
School type (ref: Public)						
Charter	0.21	0.72	0.770	0.30	1.23	5.03
Private	0.21	0.61	0.725	0.38	1.24	4.09
# of students	0.00	0.00	0.526	1.00	1.00	1.00
Focal predictors						
Time (ref: Baseline)						
2 Months	**1.95**	**0.30**	**<0.001**	**3.92**	**7.04**	**12.64**
6 Months	**1.62**	**0.29**	**0.000**	**2.89**	**5.08**	**8.91**
Condition (ref: Control)	−0.08	0.38	0.843	0.44	0.93	1.96
Interactions						
2 Months × Condition	−0.03	0.41	0.949	0.44	0.97	2.18
6 Months × Condition	−0.28	0.40	0.479	0.34	0.75	1.65
Simple slopes (Condition)						
Condition @ 2 Months	−0.10	0.42	0.811	0.39	0.90	2.08
Condition @ 6 Months	−0.36	0.38	0.346	0.33	0.70	1.47
Simple slopes (Time)						
2 Months @ Intervention	**1.93**	**0.28**	**<0.001**	**3.94**	**6.86**	**11.91**
6 Months @ Intervention	**1.34**	**0.28**	**<0.001**	**2.21**	**3.82**	**6.61**

Abbreviation: GLMM, generalized linear mixed model.

TABLE 8

Parameter estimates and incidence rate ratios of GLMM evaluating effects of time, condition, and time-by-condition interaction on sexual violence perpetration (overall).

Variable	Estimate	SE	*P*	Incidence rate ratios (IRRs)		
				Low	IRR	High
Intercept	**−7.37**	**1.48**	**<0.001**	_	_	_
Covariates						
% free or reduced-price lunch	0.04	0.02	0.118	0.99	1.04	1.09
% minority students	0.01	0.02	0.550	0.98	1.01	1.04
School Type (ref: Public)						
Charter	−1.95	1.58	0.219	0.01	0.14	3.18
Private	0.31	1.23	0.803	0.12	1.36	15.31
# of students	0.00	0.00	0.299	1.00	1.00	1.00
Focal predictors						
Time (ref: Baseline)						
2 Months	**3.33**	**0.68**	**<0.001**	**7.37**	**27.91**	**105.74**
6 Months	**2.13**	**0.63**	**<0.001**	**2.43**	**8.39**	**29.01**
Condition (ref: Control)	0.27	0.83	0.748	0.26	1.30	6.60
Interactions						
2 Months × Condition	−1.38	0.91	0.130	0.04	0.25	1.50
6 Months × Condition	0.22	0.86	0.801	0.23	1.24	6.64
Simple slopes (Condition)						
Condition @ 2 Months	−1.12	0.87	0.198	0.06	0.33	1.80
Condition @ 6 Months	0.48	0.84	0.565	0.31	1.62	8.35
Simple slopes (Time)						
2 Months @ Intervention	**1.94**	**0.61**	**0.001**	**2.13**	**6.99**	**22.89**
6 Months @ Intervention	**2.34**	**0.59**	**<0.001**	**3.29**	**10.41**	**32.97**

Abbreviation: GLMM, generalized linear mixed model.

TABLE 9

Parameter estimates and prevalence rate ratios of GLMM evaluating effects of time, condition, and time-by-condition interaction on perpetrated unwanted sexual intercourse.

Variable	Estimate	SE	*P*	Incidence rate ratios (IRRs)		
				Low	IRR	High
Intercept	**−7.28**	**1.48**	**0.000**	-	-	-
Covariates						
% free or reduced-price lunch	0.02	0.02	0.404	0.97	1.02	1.07
% minority students	0.02	0.02	0.220	0.99	1.02	1.05
School type (ref: Public)						
Charter	−.22	1.57	0.156	0.01	0.11	2.34
Private	−1.48	1.27	0.245	0.02	0.23	2.76
# of students	0.00	0.00	0.711	1.00	1.00	1.00
Focal predictors						
Time (ref: Baseline)						
2 Months	**3.63**	**0.75**	**0.000**	**8.65**	**37.79**	**165.15**
6 Months	**2.38**	**0.69**	**0.001**	**2.80**	**10.82**	**41.76**
Condition (ref: Control)	0.81	0.85	0.338	0.43	2.26	11.97
Interactions						
2 Months × Condition	−1.83	1.00	0.067	0.02	0.16	1.13
6 Months × Condition	−0.42	0.97	0.667	0.10	0.66	4.44
Simple slopes (Condition)						
Condition @ 2 Months	−1.01	0.89	0.255	0.06	0.36	2.08
Condition @ 6 Months	0.39	0.88	0.652	0.27	1.48	8.26
Simple slopes (Time)						
2 Months @ Intervention	**1.80**	**0.66**	**0.006**	**1.67**	**6.07**	**22.04**
6 Months @ Intervention	**1.96**	**0.66**	**0.003**	**1.95**	**7.11**	**25.94**

Abbreviation: GLMM, generalized linear mixed model.

TABLE 10

Parameter estimates and prevalence rate ratios of GLMM evaluating effects of time, condition, and time by condition interaction on perpetrated unwanted sexual contact.

Variable	Estimate	SE	p	Incidence rate ratios (IRRs)		
				Low	IRR	High
Intercept	−7.50	1.44	0.000	–	–	–
Covariates						
% free or reduced-price lunch	0.04	0.02	0.142	0.99	1.04	1.09
% minority students	0.00	0.02	0.870	0.97	1.00	1.04
School type (ref: Public)						
Charter	−1.33	1.54	0.389	0.01	0.26	5.45
Private	0.59	1.20	0.623	0.17	1.80	18.75
# of students	0.00	0.00	0.299	1.00	1.00	1.00
Focal predictors						
Time (ref: Baseline)						
2 Months	2.98	0.65	0.000	5.52	19.61	69.70
6 Months	1.86	0.62	0.003	1.90	6.41	21.68
Condition (ref: Control)	−0.18	0.82	0.822	0.17	0.83	4.12
Interactions						
2 Months × Condition	−0.84	0.90	0.356	0.07	0.43	2.55
6 Months × Condition	0.83	0.85	0.329	0.43	2.30	12.21
Simple slopes (Condition)						
Condition @ 2 Months	−1.02	0.86	0.237	0.07	0.36	1.95
Condition @ 6 Months	0.65	0.82	0.429	0.38	1.91	9.54
Simple slopes (Time)						
2 Months @ Intervention	**2.14**	**0.63**	**<0.001**	**2.47**	**8.50**	**29.28**
6 Months @ Intervention	**2.69**	**0.60**	**<0.001**	**4.55**	**14.73**	**47.68**

Abbreviation: GLMM, generalized linear mixed model.