Published in final edited form as:

Sex Transm Infect. 2019 December ; 95(8): 580–583. doi:10.1136/sextrans-2018-053674.

Increasing adolescent girls' ability to identify STI-risk characteristics of sexual partners: A pilot study within an alternative disciplinary school

Eric Richardson, Ed.S.¹, Kelli A. Komro, Ph.D.², Esaa Samarah³, Stephanie A. S. Staras, Ph.D.³

¹School of Human Development and Organizational Studies, College of Education, University of Florida, Gainesville, FL

²Department of Behavioral Sciences and Health Education, Rollins School of Public Health, Emory University

³Department of Health Outcomes and Biomedical Informatics, College of Medicine, and the Institute for Child Health Policy, University of Florida, Gainesville, FL

Abstract

Objectives: We evaluated the feasibility of conducting a nine-week long sexually transmitted infection (STI) prevention intervention, *Angels in Action*, within an alternative disciplinary school for adolescent girls.

Methods: All girls who were 16- to 18-years old, enrolled in the school, and did not have plans to transfer from the school were eligible to participate. We measured process feasibility with recruitment, retention, and participant enjoyment. Using a pretest-posttest design with a double post-test, we used Chi-square tests to estimate the intervention effect on participants' sexual partner risk knowledge, intentions to reduce partner risk, and sexual activities in the past 60 days with three behavioural surveys: prior to, immediately following, and three months after the intervention.

Results: Among the 20 girls who were eligible, 95% (19/20) of parents consented and all girls (19/19) agreed to participate. Survey participation was 100% (19/19) prior to, 76% (13/17) immediately following, and 53% (9/17) three months after the intervention. The intervention was administered twice and a total 17 girls participated. Session attendance was high (89%) and most participants (80%) reported enjoying the intervention. The intervention increased the percentage of girls who could identify partner characteristics associated with increased STI risk: 38% before, 92% immediately following, and 100% three months after the intervention (p-value = 0.01). Girls also increased their intentions to find out four of the most highly associated partner characteristics (partner's age, recent sexual activity, and STI or jail history): 32% before to 75% immediately following (p-value = 0.02) and 67% three months after the intervention (p-value = 0.09).

Conclusions: This pilot study suggests girls at alternative disciplinary schools participated in and enjoyed a nine-week STI preventive intervention. Within alternative disciplinary schools, it is potentially feasible to increase girls' consideration of partner risk characteristics as a means to enhance their STI prevention skills.

Keywords

Pilot studies; Sexually transmitted infection; Adolescent; Schools; Primary Prevention; Sexual partners

In addition to an individual's sexual activities, characteristics of sexual partners (e.g., age discordance, alcohol or drug use within two hours prior to sex, time since last sexual partner, jail history) influence the risk of acquiring a sexually transmitted infection (STI).^{1,2} For example, having a partner who is five or more years older increases the risk of acquiring an STI by almost three times.² Moreover, a female's STI risk is likely determined more by her partner's risk characteristics than her own sexual activities.^{1,3}

Among adolescents, rates of condom use are consistently higher with steady compared to casual partners suggesting that adolescents may be altering their condom use behaviours based on their perceptions of partner risk. Yet, adolescent condom use is frequently less likely with partners who have other increased risk characteristics (e.g., more than 5 years older or used alcohol in the two hours before sex).⁴ Teaching adolescents to consider partner characteristics might align their existing behaviour modification with risk-associated characteristics. Yet, it is unclear if adolescents are amenable to incorporating additional partner characteristics into their sexual choices. Furthermore, while likely, it is unclear if reducing partner risk and increasing condom use with riskier partners will reduce STI risk.¹

Girls attending alternative disciplinary schools (i.e., temporary schools for students not progressing in mainstream schools because of academic, disciplinary, or justice system concerns) are at especially high risk for STIs.⁵ African American children, especially those from low income families, are disproportionately more likely than children of other races to be placed in an alternative disciplinary school (Web Reference 1). Students attending alternative schools are much more likely than students attending mainstream schools to experience numerous health conditions (e.g., mental health issues, substance use, and violence) and health risk factors (e.g., homelessness and abuse).⁶ In particular, girls attending alternative schools are at least twice as likely to report sexual behaviours: ever had sex (48% vs. 86%), sex within the past 3 months (35% vs. 66%), had at least four sex partners (16% vs. 48%), and used alcohol or drugs immediately prior to sex (25% vs. 43%).⁵ Yet, compared with mainstream schools, few health interventions, and fewer STI prevention interventions, have been conducted within alternative schools.⁶

We developed an STI primary preventive intervention for adolescent girls attending an alternative disciplinary school (ages 16 to 18 years) that included activities designed to reduce girls' sexual partner risk measured with eight characteristics: age difference, history of jail, recency of sexually transmitted disease (STD), place where they met, drinking alcohol in the two-hours prior to sex, history of sex with men, recent sexual activity, and drug use in the two-hours prior to sex. These eight characteristics were chosen because of

their high correlation with STI risk, especially when considered together, and their potential for modification.^{1,2} This pilot study assesses two objectives: (1) attendance and reported enjoyment of the intervention and (2) changes in partner risk knowledge and risk-reduction intentions.

Methods

Study Design

Using a pretest-posttest design with a double post-test, we evaluated the feasibility of our intervention within one Florida year-round alternative school for girls. In 2015, we completed the intervention with two groups of girls attending the alternative school: one group of ten girls participated during the Spring semester and one group of seven girls participated during the Summer semester. The study was approved by the University of Florida (IRB201400609) and the Florida Department of Juvenile Justice Institutional Review Boards. Ethical challenges encountered are explained in Web Appendix I.

Study Population

School counsellors identified all girls meeting three criteria: (1) enrolled in the school, (2) aged 16- to 18-years-olds, and (3) did not have plans to transfer from the school during the 9-week intervention period. Counsellors approached parents of all 20 identified girls to discuss and obtain written consent. Upon parent consent, researchers discussed and obtained written assent from the girls.

Intervention

Angels in Action is a nine-week intervention with weekly, one-hour in-class sessions and brief out-of-class activities. All components are guided by the meta-theoretical orientation of the theory of triadic influence which hypothesises health behaviours are influenced by variables in three main streams (personal, social context, and environmental characteristics) and at three levels of causation (ultimate underlying, distal predisposing, and proximal immediate).⁷ The curriculum focuses on teaching sexual-risk reduction strategies for both male and female partners (abstinence, condom use, reduction of alcohol and drug use before sex, choosing less risky partners, and using condoms with high risk partners) with interactive activities including games and role-plays. Out-of-class activities were incorporated to help girls build support from their best friends. Licensed counsellors (2 per group) administered the intervention after competing study-specific training. For each out-of-class activity completed, girls received \$5-valued tangible incentives (e.g. lotion, nail polish, hand sanitizer).

Measures

Following the last session, participants were asked to complete a brief survey regarding their impressions of the intervention in a private room at the school via a secure website. Using a 6-point Lickert scale (ranging from “Liked it a lot” to “Don’t remember it”), participants reported their enjoyment of the intervention and its activities. For analysis, we considered “Liked it a lot” or “Liked” as enjoyed. Participants reported whether they would recommend the workshops to a friend (yes versus no).

All girls whose parent consented were invited to complete the baseline behavioural survey. Girls who participated in the intervention were invited to complete the follow-up surveys. Participants used a secure website to complete the behavioural surveys via Audio Computer-Assisted Self-Interview in a private room at the school. Girls who transferred from the school (e.g., dropped out, returned to mainstream schools) were sent electronic survey links via email (up to four times), text (up to four times), or Facebook personal message (once). We attempted contact with participants non-responsive to electronic queries by phone (up to ten times) or couriered letter (once). We obtained updated contact information from provided contacts and extensive internet searches. Survey participants received incentives valued at \$5 baseline, \$10 immediate-post, and \$20 three-month follow-up.

Survey measures were adapted or adopted from prior surveys.^{2,4,8,9} We measured girls' partner risk knowledge by asking girls to rate levels of each of the eight partner characteristics as more, same, or less risky (e.g., comparing a same age to a 5-years older partner). To focus on higher risk encounters, partner characteristics were assessed for each male vaginal sex partner reported in the past 60 days. We created the partner risk score by assigning each partner characteristic a value (0 = low, 1 = intermediate, and 2=high risk) and summing the characteristics (range= 0 to 16).

Analytical methods

Because this was a pilot study, we focused on descriptive analyses. We calculated frequencies and tested differences between survey time points with Cochran-Mantel-Haenszel Chi-square tests. Missing data were handled with listwise deletion. We used SAS software version 9.3 (SAS Institute, Inc., Cary, NC).

Results

Recruitment and retention rates to the intervention were high. Among 20 girls eligible for the study, 19 parents (95%) agreed. All girls whose parents consented agreed to participate. Two girls that consented and completed the baseline survey did not participate in the intervention: one to keep the group size at ten and the other because she left the school before the intervention started. Survey completion rates were: 100% baseline, 76% (13/17 intervention participants) immediate post, and 53% (9/17) three-month post. Most (82%) of intervention participants completed at least one follow-up survey. Loss-to-follow-up did not differ by racial or ethnic groups, age, ever had sex, or had sex in past 60 days.

Among the 19 girls who completed the pre-intervention survey, 37% were 16-years-old, 53% were 17-years-old, and 10% were 18-years-old. Girls identified themselves as non-Hispanic Black (53%), Hispanic (37%) and non-Hispanic White (10%). Among the 15 girls who answered whether they had sex, 93% reported ever having sex prior to the intervention, and half of girls reporting having sex in the past 60 days (Table 1). The vast majority (80%) did not use condoms during their most recent sex and half used substances in the two hours prior to sex.

Average session attendance was high (79% in Spring and 81% in Summer). Immediately following the intervention, most girls indicated that they would recommend *Angels in*

Action to a friend (89%) and enjoyed the intervention (80%). Twelve of 14 programme activities were liked by most (80%) girls. Nearly everyone (91%) liked the board game and scripted role-plays. Most of the girls (82%) indicated that they would use the intervention tools (e.g. puzzle or goals) to rate a potential sexual partner.

The intervention significantly increased the percentage of girls correctly identifying the riskier partner attribute for at least half of the eight characteristics (eg, partners 5 years older are likely riskier than same age partners): 38% at baseline, 91% immediate post intervention and 100% at the 3-month follow-up ($p=0.01$) (table 1). The intervention also increased the percentage of girls likely or extremely likely to find out all four (age, STI, recent sex and jail) risk characteristics before having sex: 32% baseline, 75% immediate postintervention ($p=0.02$) and 67% at the 3-month follow-up (not statistically significant). Among girls who had sex with a man in the past 60 days, from baseline to the immediate post, we found trends towards increased condom use and decreased partner risk scores.

Discussion

Among adolescent girls enrolled in an alternative disciplinary school setting, our pilot STI preventive intervention achieved high rates of enrolment, attendance, and enjoyment. Our results suggest an increased percentage of girls became aware of partner risk characteristics and potentially intended to or actually had accounted for partner risk characteristics in their sexual activities. Due to our small sample size, further investigation of the feasibility of conducting an STI preventive intervention targeting modifying sexual partner risk characteristics of adolescent girls attending alternative schools is warranted.

It was feasible to recruit and retain girls enrolled in an alternative school for a nine-week STI preventive intervention. Our consent (95%) and participation (100%) rates are among the highest within the 40% or fewer alternative schools studies that reported consent or participations rates: consent rates range from 70-86% and participation rates range from 36-97%.⁶ Our average session attendance of approximately 80% is notable given the high truancy within alternative schools.⁶

At least over the short-term, it was possible for girls to acquire knowledge about partner characteristics and incorporate this knowledge into sexual-risk decisions. The high enjoyment of the intervention, especially the interactive and game-like activities, suggest that using games may have contributed to these successes by decreasing girls' defensiveness.¹⁰ Similar to other STI preventive interventions within alternative high schools, any increases in sexual risk knowledge and preventive behaviours (e.g., condom use, sex refusal) were short-term.⁶ To potentially improve the long-term outcomes, brief booster sessions via phone, text, or Internet could be added.

This study has important limitations. First, because this was a pilot study, we had small samples sizes and thus, limited statistical power to detect differences. Second, social desirability bias is possible because measures were self-reported. To mitigate potential social desirability bias, we made efforts to separate the behavioural survey from the counsellors or the sessions, used indirect questions when possible, and used ACASI instead of face-to-face

interviews. Third, we were unable to adjust for temporal changes due to the pre-post design. Yet, we are unaware of any interventions that occurred concurrently and the likelihood of contaminating influences is small because of the short time between the pre and post surveys.

Our study makes a unique contribution to understanding possible STI prevention strategies related to partner risk and focusing on adolescents enrolled in disciplinary alternative schools who are an increased risk and understudied group.⁶ Our intervention demonstrates promise of recruiting and retaining adolescent girls enrolled in an alternative school into a preventive intervention and incorporating consideration of partner risk characteristics into adolescent sexual decision making. This pilot study suggests partner risk characteristics are a potentially modifiable risk factor to include as part of STI preventive interventions.

Supplementary Material

Refer to Web version on PubMed Central for supplementary material.

ACKNOWLEDGEMENTS

Financial support for this research was provided by the National Institute for Alcohol Abuse and Alcoholism: K01 AA018255. Points of view and conclusions expressed in this document are those of the authors and do not necessarily represent the official position or policies of the Florida Department of Juvenile Justice.

References

1. Swartzendruber A, Zenilman JM, Nicolai LM, et al. It takes 2: partner attributes associated with sexually transmitted infections among adolescents. *Sex Transm Dis*. 5 2013;40(5):372–378. [PubMed: 23588126]
2. Staras SAS, Cook RL, Clark DB. Sexual Partner Characteristics and Sexually Transmitted Diseases Among Adolescents and Young Adults. *Sexually Transmitted Diseases*. 42009 2009;36(4):232. [PubMed: 19265739]
3. Auerswald CL, Muth SQ, Brown B, Padian N, Ellen J. Does partner selection contribute to sex differences in sexually transmitted infection rates among African American adolescents in San Francisco? *Sex Transm Dis*. 8 2006;33(8):480–484. [PubMed: 16645551]
4. Staras SA, Livingston MD, Maldonado-Molina MM, Komro KA. The influence of sexual partner on condom use among urban adolescents. *J Adolesc Health*. 12 2013;53(6):742–748. [PubMed: 23932008]
5. Grunbaum JA, Lowry R, Kann L. Prevalence of health-related behaviors among alternative high school students as compared with students attending regular high schools. *Journal of Adolescent Health*. 2001;29(5):337–343. [PubMed: 11691595]
6. Johnson KE, Morris M, Rew L, Simonton AJ. A Systematic Review of Consent Procedures, Participation Rates, and Main Findings of Health-Related Research in Alternative High Schools From 2010 to 2015. *J Sch Nurs*. 2 2016;32(1):20–31. [PubMed: 26656475]
7. BR F, Snyder F, J. P. The theory of triadic influence In: DiClemente RJ, Crosby RA, Kegler MC, eds. *Emerging Theories in Health Promotion Practice and Research*. 2nd ed. New York: Jossey-Bass; 2009:451–510.
8. DiClemente RJ, Wingood GM, Harrington KF, et al. Efficacy of an HIV prevention intervention for African American adolescent girls: a randomized controlled trial. *Jama*. 7 14 2004;292(2):171–179. [PubMed: 15249566]
9. Centers for Disease Control and Prevention. 2015 Youth Risk Behavior Survey Questionnaire. Available at: www.cdc.gov/yrbs. Accessed on March 18, 2018.

10. Swank JM. The Use of Games: A Therapeutic Tool With Children and Families. *International Journal of Play Therapy*. 2017;17(2):154–167.

Author Manuscript

Author Manuscript

Author Manuscript

Author Manuscript

Table 1.

Participants increased knowledge of and intentions to reduce partner risk

	Baseline N=19	Immediate post N=13	P-value ^a	3-month follow-up N=9	P-value ^a
Knowledge					
% Accessing at least half (4 of 8) of partner risks correctly	38% (6/16) ^b	91% (10/11)	< 0.01 [*]	100% (7/7)	0.01 [*]
Intentions to reduce risk					
% likely to find out all four partner risks (age, STI, recent sex, and jail) before hooking up	32% (6/19)	75% (9/12)	0.02 [*]	67% (6/9)	0.09
% would use condoms in both partner risk situations (partner had other partners in past week, did not know partner well)	67% (12/18)	83% (10/12)	0.30	62% (5/8)	0.84
Sexual Risk Taking					
Had sex in the past 60 days	50% (8/16)	45% (5/11)	0.82	50% (4/8)	1.00
Had vaginal sex with a man in past 60 days	41% (7/17)	45% (5/11)	0.83	38% (3/8)	0.86
Used condoms every time	20% (1/5)	50% (2/4)	0.37	33% (1/3)	0.69
Mean score for partner risk characteristics (range 0-16)	3 (range 0 to 6) n=4	1 (range 0 to 2) n=2	0.38	6 (range 2 to 10) n=2	0.39

^aCochran-Mantel-Haenszel Chi-square test versus baseline*^{*}Indicates statically significant at p < 0.05* Statistically significant at P 0.05^bIndicates the number of participants who completed the assessments