Published in final edited form as:

AIDS Behav. 2010 August ; 14(Suppl 1): S177–S184. doi:10.1007/s10461-010-9739-3.

Adaptation of an Alcohol and HIV School-Based Prevention Program for Teens

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Abstract

Given the current status of HIV infection in youth in India, developing and implementing HIV education and prevention interventions is critical. The goal for School-based Teenage Education Program (STEP) was to demonstrate that a HIV/AIDS and alcohol abuse educational program built with specific cultural, linguistic, and community-specific characteristics could be effective. Utilizing the Train-the-Trainer model, the instructors (17–21 years) were trained to present the 10 session manualized program to primarily rural and tribal youth aged 13–16 years in 23 schools ($N = 1,421$) in the northern state of Himachal Pradesh in India. The intervention had a greater impact on girls; girls evidenced greater communication skills and a trend towards greater self efficacy and reduced risk taking behavior. The STEP has been successfully adapted by the community organizations that were involved in coordinating the program at the local level. Their intention to continue STEP beyond extra funding shows that utilizing the local community in designing, implementing and evaluating programs promotes ownership and sustainability.

Keywords

School-based intervention; Youth; HIV infection; Prevention education

Introduction

India is one of the countries most affected by HIV/AIDS and has earned priority status on the global public health agenda [1]. In absolute numbers, India has the third largest population of PLHA (people living with HIV/AIDS) in the world and the largest in Asia. At the end of 2007, in India, an estimated 2.31 million people were currently living with HIV infection, with an estimated adult prevalence rate of 0.34% [2]. Women comprise about 39% of the infections though prevalence remains higher among males than females (0.40% vs. 0.27%). HIV infection in India is quite diverse in terms of transmission and prevalence. It is mainly concentrated in three main high-risk groups, injecting drug users (IDUs), men who have sex with men (MSM), and female sex workers (FSW). The large majority of people infected by HIV are aged 15–49 years (88.7%) [3].

According to the National AIDS Control Organization of India (NACO), people aged 15–29 are 25% of the country's population; however, they account for 31% of the AIDS burden. Those under age 15 account for another 3.8% of HIV infections, up from 3% in 2002 [2]. These data provide clear evidence that young people in India are at high risk of contracting HIV infection. Given limited resources, India is placing emphasis on HIV prevention in young people, which will reduce the effect that HIV has on families and communities as children grow to adulthood, as well as promoting a healthy future for the country. These efforts are handicapped by a dearth of knowledge regarding sexual and reproductive behavior in rural and urban adolescents in India [4–7].

Like most developed and developing countries, India's alcohol and drug use rates are rising, among adolescents [8–10] along with HIV/STD rates. Research in India has demonstrated both direct and indirect linkage between alcohol use and sexual behaviors but very few studies have focused on the nature of linkage, the effect of alcohol on high-risk behaviors and the potential to prevent medical problems including infections. Alcohol intake has been connected with risky sexual behavior, with failure to use condoms, with STDs and unplanned pregnancies [11,12]. An absence of, or a reduction in alcohol use is associated with a decrease in high-risk sexual behaviors and sexually transmitted diseases [13–15]. The observed association between alcohol use and sexual risk-taking during specific encounters suggests a direct influence of alcohol on such behavior. Given that the majority of HIV infections in India are attributed to heterosexual sex, and a growing literature illustrates the relationship between alcohol and sexual activities, HIV prevention programs in India must place specific emphasis on alcohol, as distinct from other aspects of substance abuse.

To respond to the need to develop HIV prevention programs for adolescents that also included alcohol use as a risk factor, the researchers at Albert Einstein College of Medicine (AECOM) collaborated with three local nongovernmental organizations (NGO) in three different states in India (Maharashtra, Karnataka and Himachal Pradesh) to design, implement and analyze a School-based Teenage Education Program (STEP) focusing on synergistic effects of HIV and Alcohol for adolescents.

Previous Program Implementation

In 2001, the STEP was initially designed and implemented as a pilot initiative for use in 25 schools in Mumbai, a cosmopolitan city in the high HIV prevalence state of Maharashtra. The program was funded by the World AIDS Foundation. The researchers collaborated with a local NGO, Drug Abuse Information, Rehabilitation and Research Center (DAIRRC), who already had over 10 years of experience in conducting drug education programs utilizing peer instructors for school children in Mumbai. DAIRRC had independently surveyed the needs, capacity and concerns of the schools, educators, parents and professionals regarding the need for designing an HIV/AIDS education and prevention program for children. Based

on this formative work and a review of manualized existing HIV Education programs for youth in the United States, a culturally appropriate HIV/AIDS prevention curriculum was created with specific attention given to the topics, use of language, the length and the duration of the program sessions. A community advisory board ($n = 15$) comprised of educators, students, parents, lawyers, healthcare providers, and social workers was formed and asked to provide feedback on the curriculum. The advisory committee also approved the measures and implementation strategies of the STEP. The study was approved by the national (including DAIRRC's IRB) and international IRB's (Memorial Sloan-Kettering Cancer Center) at the time. The program was well accepted by the community as they were involved in creating it; schools were eager to participate and no parent opted out of the program for their children. Over 98% of students assented for the program and the schools held extra activities for children who did not participate in the program. The students who participated and completed the six program sessions reported an increase in knowledge; improved beliefs and attitudes towards individuals living with HIV/AIDS as well as preventive measures, increased confidence in effectively using skills related to negotiating safer behavior [16].

Current Adaptation of STEP

Given STEP's success in reaching youth in schools and its acceptability in the community, it was further expanded by adding an alcohol abuse education component and denoted as STEP II. Funded by National Institute of Alcohol Abuse and Alcoholism (NIH), it was implemented in three different states of India (Maharashtra, Karnataka and Himachal Pradesh) in over 98 schools ($n = 7,547$). This study was approved by the Indian Council of Medical Research (ICMR) and all three local NGO's Institutional Review Boards (three local IRBs) as well as Albert Einstein College of Medicine's Committee on Clinical Investigations. In addition to implementation in Mumbai, STEP II was modified by translation into regional languages (Kannada and Hindi respectively) with attention to local variations in expression and adapted for use in another high HIV prevalence urban city, Bangalore, in the state of Karnataka in the south of the country and in Himachal Pradesh (HP), a small rural state in the northern region of the country. In a similar manner as STEP I, one local NGO in both regions (Karnataka and Himachal Pradesh) conducted focus groups with key stakeholders and formed local advisory committees [17,18].

A majority of the adolescent population in India still resides in rural areas [19]. Most of the studies conducted on HIV prevention in India focus only on high risk groups and urban slum dwellers [20,21] and most research does not present a comprehensive picture of this vulnerable population of rural adolescents. Given the opportunity to expand our program and test the adaptability of our intervention with a rural community, in a low HIV prevalence state but a high priority area for HIV prevention for the National AIDS Control Organization of India (NACO), we expanded our work to Himachal Pradesh as the long term effects of an intervention could be very significant in curtailing the spread of HIV in this state both for humanitarian as well as epidemiological purposes.

The state of Himachal Pradesh (HP), inhabited by a population of 6.2 million, is nestled in western Himalayas and is unique because of its topographic diversity in terms of having a high altitude desert, forestation along with high mountain ranges as well as snow fed lakes and rivers [22]. As with HIV demographics elsewhere in India, the greatest incidence occurring annually in HP is among the younger population of 18–24 years [23]. Even with low overall numbers, the possibility of spread of HIV infection due to lack of testing awareness and basic ignorance about HIV, is increased. As not much is reported currently in terms of public awareness and education in the State regarding HIV prevention yet, assessing and documenting the extent of knowledge, attitudes and behaviors of the infected and affected population becomes essential [17]. HP has many barriers in providing health

care for most of its population due to the difficult terrain of the state, a very high rate of out-migration and a severe shortage of medically trained personnel. HP has a primarily rural population with agriculture providing direct employment to 71% of its people. The overall literacy rate is 77.13% (Male—86.02%; Female—68.08%) which is higher than the national average (65.38% overall), making school based education program a very viable venue to reach adolescents. In this paper, we present the process of this adaptation along with the program evaluation of STEP as translated and implemented in HP.

Given our formative work, certain issues were given critical attention. Addressing the communication gap with adults (whether teacher or parent) regarding HIV education was identified as an issue for adolescents; as a result, students were encouraged to utilize their newly learned communications skills to educate their parents about HIV/AIDS and to facilitate communication. The undergraduate students were given extra booster sessions (twice during the programs from their coordinator) in order to increase their confidence in teaching. Compared to urban undergraduates, trainers in HP have less English language fluency and also had the challenge of working with students who spoke different dialects. In addition, more educational props were created by the trainers and used with children to give them a visual demonstration of disease and other information. To accommodate the new alcohol component to the curriculum and to monitor program implementation, program length was expanded to 10 weeks, student attendance was documented at every session by the trainers and the delivery of the sessions by trainers was recorded by school administration after every individual session. As part of the process evaluation, school administrators and trainers were asked to keep records of each session implemented and their overall experiences in conducting and supervising the program. The records indicate that the program was fully implemented in 23 schools of HP.

Based on the results of previous program (STEP I), the primary hypothesis was that as a result of their exposure to the intervention, students would show greater gains in knowledge of HIV/AIDS transmission, detection and prevention. Secondary hypotheses were that students participating in the program would evidence higher self-efficacy, confidence in using skills and communication skills over time than students in the comparison group. In addition, students in the intervention group were expected to show decreased engagement in risk behaviors and decreased intentions to use substances.

Methods

Study Participants

The STEP was aimed at Indian youth between the ages of 13–16 years. The target group was eighth and ninth graders in 24 schools. In addition, using a train-the-trainer model, 15 students from local undergraduate colleges between the ages of 17 and 22 years were selected based on a personal and a group interview by the local NGO coordinator and trained to present the program to adolescents by the Principle Investigator. Two schools from each of the twelve districts of the state were randomly selected and invited to participate in the program. A systematic sampling procedure was used such that every fifth and tenth school on the list in each of the 12 districts was selected for inclusion. The school administrators and principals were contacted by letter and invited to participate in the program. Administrators completed a School Readiness form that assessed schools' characteristics and their readiness and capacity to undertake a risk reduction program like ours. Post intervention data could not be collected at one school because of severe weather conditions; this school was excluded from data analysis leaving a sample of 23 schools ($n = 1,421$).

Program Design and Implementation

Based on social learning theory, STEP intended to provide culturally and developmentally appropriate information about alcohol use/abuse and HIV/AIDS in multiple sessions—the first four sessions were about building trust in the classroom and sharing relevant information about HIV/AIDS and alcohol abuse; the remaining six sessions focused on reinforcing the information with skills training like learning about social influences (environmental, peer), individual values and belief systems (existing and changing), group norms, building social skills, building self-confidence and raising awareness of HIV related risk behavior. The last two sessions focused specifically on teaching teens age-appropriate social skills, assertiveness training, and coping skills for negotiating safer environments for themselves. This was accomplished by providing relevant information and teaching communication and negotiating skills through modeling, role-plays and active discussions.

Two classes in each school participated, and the school administrator randomly assigned the classes, one to the intervention and the other to the comparison condition. Assignment was made by toss of coin. Students in the intervention group were exposed to the STEP curriculum, and those in the comparison group were given another health education program focusing on cardiovascular health. Parental consent and youth assent was obtained for each participant in both the intervention and comparison group. Manuals for trainers were professionally translated into Hindi and back translated. All the trainers providing the program were fluent in at least one of the local languages. The trainers (undergraduate students) conducted the manualized STEP over a 10-week period with eighth and ninth grade students in intervention classrooms in each of the participating schools. The program involved a single 1-h session per week for 10 consecutive weeks.

Study Measures

Study measures were adapted from the existing CDC school evaluation modules for youth [24]. Questions were slightly modified in language to make them culturally and socially appropriate and were approved with the assistance of the local advisory board and institutional review board in India. Measures were professionally translated into Hindi and back-translated. The survey questions were adapted from the following scales: (1) Knowledge of HIV and AIDS [24]: The 15 items were scored as incorrect or correct; scores could range from 0 to 15 with higher scores indicating greater knowledge; (2) Self efficacy [25,26]: The 12 items were on a 5-point Likert scale where 1 = “cannot do it at all” and 5 = “all of the time”; scores could range from 12 to 60; (3) Confidence [24]: These four items were on a 5-point Likert scale where 1 = “not at all confident” and 5 = “completely confident”; scores could range from 4 to 20; (4) Risk-taking Scale [27]: the five item scale was on a 3-point scale where 1 = “not true”, 2 = “somewhat true” and 3 = “definitely true”; one item was reverse scored and scores could range from 5 to 15; (5) Communication Skills: the seven items were on a 5-point Likert scale where 1 = “almost never” and 5 = “most of the time”; scores could range from 7 to 35; two items were reversed scored and (6) Future intentions regarding substance use [24]: These four items (regarding alcohol, drug use, injecting drug/steroid and cigarette use in the next 3 months) were on a 3-point scale where 1 = “do not intend”, 2 = “intend to” and 3 = “I am not sure”.

Procedures

The self administered measures were administered by the trainers during the first and the last session of the intervention. A unique student identification number was used to link pre and post intervention responses.

Data Analysis

Linear regression was used to compare the improvement over time (from pre-intervention to post-intervention) for continuous outcomes between the intervention group and the comparison group while logistic regression was employed for the comparison on dichotomous outcomes. Continuous outcome measures include knowledge, efficacy, risk, confidence, and communication whereas the dichotomous outcomes include variables such as whether or not intending to use alcohol, drug, or cigarettes within the next 3 months. As the individual subjects were clustered within classes and classes were clustered within schools, GEE methodology was used to account for the within cluster correlation to properly estimate the standard error of regression coefficients. The variables included in each regression model were time (pre-intervention vs. post-intervention), intervention indicator (intervention vs. comparison), and the interaction of time and intervention indicator. The regression coefficient corresponding to the interaction term was used to evaluate the intervention effect and it represented the differential of mean improvement between the two groups (i.e., intervention and comparison) for a continuous outcome and the log-ratio of two odds ratios for a dichotomous outcome. Cross tabulation analyses were conducted to examine change in intentions about substance use at pre and post intervention by gender and group.

Results

Participant characteristics

Analyses were conducted on a subsample of students who had both pre and post intervention data ($n = 1,256$). We lost about 165 (12%) of the participants who were missing either pre or post evaluation from the original sample of 1,421. The sample was 52.4% female and 47.6% male. Students ranged in age from 13 to 16 years with an average age of 14.1 years ($SD = 0.92$).

Mean scores at pre and post intervention as well as mean change for knowledge, efficacy, risk, confidence and communication over time by group and gender are presented in Table 1. Overall the intervention group showed greater mean changes in efficacy, communication skills and reported decreased risk taking behavior. However the comparison group evidenced greater mean change in knowledge and confidence. The entire sample showed greater gains in knowledge over time, self-efficacy, increased confidence, better communication skills and decreased risk taking self-reported behavior style.

As can be seen in Table 2, overall results were stronger for girls in the program. Results of the repeated measures GEE analysis showed that girls in the intervention group significantly increased in communication skills over time compared to their counterparts in the comparison group ($P < 0.01$) and there was a trend such that girls in the program showed greater self efficacy over time ($P = 0.07$) and less risk taking ($P = 0.08$).

Eight-two percent of the boys in the intervention group who intended to use alcohol or were not sure they intended to use alcohol at pre-test, indicated that they did not intend to use alcohol at the post test; this was true for 97% of the girls in the intervention group. Fifty percent of the boys in the comparison group who intended to use alcohol or were not sure they intended to use alcohol at pre-test, indicated that they did not intend to use alcohol at the post test; this was true for 82% of the girls in the control group.

Eighty-one percent of the boys in the intervention group who intended to use drugs or were not sure they intended to use drugs at pre-test, indicated that they did not intend to use drugs at the post test; this was true for 100% of the girls. Eighty-eight percent of the boys in the comparison group who intended to use drugs or were not sure they intended to use drugs at

pre-test, indicated that they did not intend to use drugs at the post test; this was true for 83% of the girls.

Eighty percent of the boys in the intervention group who intended to or were not sure they intended to inject drug/steroid over next 3 months at pre-test indicated that they did not intend to inject drugs/steroids at post test as compared to 100% of the girls. A 100% of the boys in the comparison group who intended to or were not sure they intended to inject drug/steroid over next 3 months at pre-test indicated that they did not intend to inject drugs/steroids at post test as compared to 84% of the girls.

Finally, 80% of the boys in the intervention group who intended to use tobacco or were not sure they intended to use tobacco at pre-test, indicated that they did not intend to use tobacco at the post test; this was true for 100% of the girls. Eighty-three percent of the boys in the comparison group who intended to use tobacco or were not sure they intended to use tobacco at pre-test, indicated that they did not intend to use tobacco at the post test; this was true for 86% of the girls.

No significant intervention effects were found for intention to use alcohol, drugs, steroids and cigarettes in next 3 months for the overall sample and for the sub analyses by gender.

Discussion

This was a unique and one of a kind program that was implemented for the first time in this small rural state. As a result of their collaborative role in the STEP, one of the local NGOs has become a leader in education and prevention of HIV/AIDS in the area. They are currently collaborating with the State level government AIDS control organization to educate and disseminate HIV prevention programs for local professionals by convening talks and workshops. Over 30% ($n = 6$) of the undergraduate students who participated as trainers in the STEP have pursued graduate programs with health as their focus. The involvement of the undergraduate and graduate students in the program along with involvement of various faculty members as mentors in prevention research has spurred interest in creating a Global Health Center at the State University Level.

Overall, the program had a greater impact on girls. Girls who participated in the program improved their communication skills significantly and showed improvements in self efficacy and decreased risk taking behavior. The fact that girls began the program with less knowledge and lower efficacy than the boys but showed greater gains in their mean changes underscores the importance of educating girls about HIV/AIDS. For many girls this may have been their first opportunity to learn about and discuss these matters. Although the program was designed to be taught with both boys and girls in the same classroom setting, it was found that a few schools decided to run separate sessions for boys and girls in the experimental groups. Teacher differences in presenting the curriculum could account for some of the larger impact on girls but the girls may also have benefitted more from being taught as a group separate from boys.

Reluctance to talk about sexual issues has been a major roadblock in the development of HIV education programs in Himachal Pradesh along with the traditional cultural beliefs [17]. The STEP was successfully implemented and impacted students in this rural region lending credence to the fact that HIV prevention programs are tenable for students at this age level in traditional and rural communities. The establishment of community support at the onset leads to acceptance and engagement of the community in health prevention efforts even in areas which are more remote and less exposed to globalization.

There were some study limitations for this study. As part of the study design, students in the intervention group were encouraged to discuss information regarding HIV/AIDS with their peers and family between weekly sessions which could account for the diffusion of knowledge to students in the comparison group. This diffusion affected the overall results but also points to the effectiveness of the implementation of the program as well as highlights the improvement in ease among students in talking about sensitive issues. Students in the comparison group were exposed to another health related intervention (Cardiovascular health) which could have also affected the overall results. Changes in the comparison group regarding their intentions to use substances like alcohol and cigarettes could be related to their knowledge they gained about cardiovascular health. In addition, asking the comparison group questions about HIV/AIDS knowledge could have led to subject reactivity in that these students may have sought out information on their own.

Conclusion

Culturally sensitive educational interventions can be useful in increasing knowledge, efficacy, confidence, and communication skills and in decreasing risky behavior. Regional differences need to be taken into account in implementing the program; despite the fact that the program is designed to be delivered using a coed model, some schools felt more comfortable with a single sex delivery. This might be interesting to explore as an avenue for future research.

Gender seems to have emerged as an important variable in assessing program impact for STEP even though the educational program is gender neutral. Gender is a very culture-specific construct, as there are very distinct differences in what men and women can do in each culture and this is very evident in the traditional society of India. Both gender and sexuality are very important factors in sexual transmission of HIV as they not only affected transmission but the gender/power imbalance in the society also affects the treatment of HIV at medical, social, and psychological levels. The STEP was conducted in all coed schools; however some schools originally requested the program for boys only from each class. We had to have more trainers for some of these schools as we insisted on providing the same program for girls in the coed school but separate from the boys. The need for introducing gender roles as a topic to explore with youth in the future programs is undeniable. We need to further explore the differences in using a single sex or coed method of teaching the program in coed schools.

Overall, the program is a good example of technology transfer and collaboration at the international, national and local levels as various community organizations that STEP worked with, helped each other and trained each other during the program process about various administrative and research needs. This well 'blended' and 'adapted' program was a result of existing and successful international and national work in HIV/AIDS education both in the US and in India. Given the current policies and focus from the Government of India to reach youth, the strategic choice of states to conduct these programs was crucial and useful in acceptability and implementation. The lesson learned is that localized intervention strategies aimed at community mobilization are effective and sustainable when they are provided within the context of existing or emergent public health system and are linked to other programs in the community.

Acknowledgments

The current paper is part of a larger study called "A School-based Teenage Education Program (STEP II) for Alcohol Abuse and HIV Prevention" which was funded by National Institute on Alcohol Abuse and Alcoholism (R21AA014826; PI: Chhabra).

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Table 1

Mean and standard deviation on scale measures by group and gender over time

	Experimental (<i>n</i> = 630)			Comparison (<i>n</i> = 626)			Overall sample (<i>n</i> = 1,256)		
	Pre	Post	Mean change	Pre	Post	Mean change	Pre	Post	Mean change
Knowledge									
Male	8.68 (2.65)	11.37 (2.26)	2.65 (3.28)	7.94 (2.34)	11.57 (1.97)	3.66 (3.20)	8.46 (2.58)	11.43 (2.18)	2.95 (3.28)
Female	7.71 (3.10)	12.55 (1.520)	4.87 (3.28)	7.28 (2.75)	11.34 (2.41)	4.07 (3.32)	7.42 (2.88)	11.71 (2.24)	4.33 (3.33)
Overall	8.35 (2.84)	11.75 (2.13)	3.38 (3.44)	7.47 (2.65)	11.40 (2.30)	3.94 (3.29)	7.91 (2.78)	11.58 (2.22)	3.66 (3.37)
Efficacy									
Male	39.50 (7.90)	40.02 (9.91)	0.70 (9.90)	42.16 (8.49)	43.29 (8.00)	1.01 (9.69)	40.30 (8.17)	40.95 (9.51)	0.79 (9.83)
Female	38.87 (8.86)	43.32 (7.06)	4.56 (8.58)	40.52 (8.01)	42.24 (7.72)	1.90 (9.22)	39.99 (8.32)	42.57 (7.54)	2.75 (9.10)
Overall	39.28 (8.22)	41.09 (9.20)	1.97 (9.64)	40.97 (8.18)	42.52 (7.80)	1.66 (9.37)	40.11 (8.24)	41.80 (8.56)	1.82 (9.51)
Risk									
Male	9.84 (1.88)	9.69 (1.86)	-0.06 (2.22)	9.20 (1.78)	8.87 (1.66)	-0.36 (2.10)	9.65 (1.88)	9.45 (1.84)	-0.15 (2.19)
Female	9.42 (1.84)	8.39 (1.38)	-1.07 (2.37)	9.26 (1.73)	9.09 (1.64)	-0.15 (2.12)	9.31 (1.77)	8.88 (1.60)	-0.45 (2.24)
Overall	9.70 (1.88)	9.27 (1.82)	-0.39 (2.31)	9.24 (1.75)	9.03 (1.65)	-0.21 (2.12)	9.47 (1.83)	9.15 (1.74)	-0.30 (2.22)
Confidence									
Male	16.20 (4.25)	17.33 (3.69)	1.25 (4.99)	15.70 (4.49)	17.13 (3.73)	1.36 (3.92)	16.05 (4.33)	17.27 (3.70)	1.28 (4.69)
Female	17.93 (3.36)	19.63 (1.17)	1.68 (3.14)	16.52 (5.03)	18.24 (3.38)	1.74 (6.08)	16.97 (4.61)	18.67 (2.96)	1.72 (5.32)
Overall	16.77 (4.06)	18.08 (3.29)	1.39 (4.46)	16.29 (4.89)	17.94 (3.51)	1.62 (5.53)	16.54 (4.49)	18.01 (3.40)	1.50 (5.02)
Communication									
Male	24.44 (6.14)	24.36 (4.34)	-0.01 (6.62)	23.91 (5.45)	23.62 (4.39)	-0.39 (5.80)	24.28 (5.94)	24.15 (4.36)	-0.13 (6.38)
Female	20.50 (5.68)	25.07 (4.78)	4.51 (6.57)	23.39 (5.31)	23.96 (3.94)	0.56 (6.70)	22.47 (5.60)	24.31 (4.24)	1.82 (6.90)
Overall	23.14 (6.26)	24.59 (4.48)	1.48 (6.92)	23.55 (5.35)	23.88 (4.07)	0.28 (6.45)	23.34 (5.82)	24.23 (4.30)	0.88 (6.72)

Note: Higher scores mean greater levels of HIV/AIDS knowledge, self-efficacy, greater risk taking, confidence in negotiating risky social situations and communication skills

Table 2

Intervention effects for total sample

Intervention effect ^a	Estimate	95% Confidence limit	Significance
Knowledge			
Male	-0.94	-2.66 0.78	0.28
Female	0.79	-1.33 2.90	0.47
Overall	-0.54	-1.93 0.86	0.45
Efficacy			
Male	-0.54	-2.92 1.83	0.65
Female	2.73	-0.18 5.63	0.07
Overall	0.25	-1.61 2.12	0.79
Risk			
Male	0.18	-0.72 1.08	0.70
Female	-0.86	-1.84 0.11	0.08
Overall	-0.23	-0.85 0.40	0.48
Confidence			
Male	-0.30	-2.22 1.61	0.76
Female	-0.02	-2.23 2.19	0.99
Overall	-0.34	-1.38 0.70	0.52
Communication			
Male	0.20	-2.96 2.97	0.88
Female	4.00	0.94 7.06	0.01
Overall	1.12	-0.32 2.56	0.13

^aThe intervention effect is the regression coefficient corresponding to the interaction term. It represents the differential of mean improvement between the intervention and comparison group for a continuous outcome and the log-ratio of two odds ratios for a dichotomous outcome