DIFFERENCES AMONG MALE/FEMALE ADOLESCENTS PARTICIPATING IN A SCHOOL-BASED TEENAGE EDUCATION PROGRAM (STEP) FOCUSING ON HIV PREVENTION IN INDIA

Rosy Chhabra, PsyD; Carolyn Springer, PhD; Bruce Rapkin, PhD; Yusuf Merchant, MD

Introduction: With the rising threat of HIV in India, youth are an important group to reach for prevention education. This pilot study tested the efficacy of STEP (School-based Teenage Education Program focusing on HIV Prevention) for school children.

Method: This pilot study randomized 25 schools in Mumbai to receive STEP (N=1846). We trained forty two undergraduates from local colleges to deliver the (six-session) program over a six-week period to eighth graders (age 13–15 years). Outcome measures collected at six weeks were HIV knowledge, attitudes toward abstinence/condom use, peer pressure, and confidence in dealing with risky social situations. A repeated measures analysis of variance was conducted with pretest and posttest scores with knowledge, beliefs, attitudes, and confidence as the within-group measures and gender as the between-group measure.

Results: Both boys and girls significantly improved on knowledge, attitudes, and beliefs regarding HIV/AIDS and in their confidence level in dealing with risky behavior. However girls increased more on knowledge ($P<.05$), agreement with abstinence ($P<.05$), and agreement with condom use ($P<.001$). Girls had significantly less need to follow peers ($P<.05$), better understanding of precautions against HIV ($P<.001$), and a higher confidence level in dealing with risky social situations ($P<.05$).

Conclusions: Overall, girls benefited more from the STEP intervention than boys. The literature documents strong gender disparities in HIV/AIDS knowledge, information sources, and consequences of sex for youth in India. However, more work is needed to define and document the reasons for the differences. (*Ethn Dis*. 2008;18[Suppl 2]:S2-123–S2-127)

Key Words: HIV, Prevention, Education Program, Gender Differences, Health Education

From the Department of Pediatrics, Albert Einstein College of Medicine, Yeshiva University, New York (RC); Derner Institute of Advanced Psychological Studies, Adelphi University, Garden City (CS); Department of Psychiatry and Behavioral Sciences, Memorial Sloan-Kettering Cancer Center, New York (BR), New York; Drug Abuse Information, Rehabilitation and Research Center, Mumbai, India (YM).

INTRODUCTION

India has experienced a sharp increase in the estimated number of HIV infections, growing from a few thousand in the early 1990s to >2 million adults and children living with HIV/AIDS today. With a population of >1 billion, the HIV epidemic in India threatens to increase the overall spread of HIV in Asia and the Pacific as well as worldwide. According to National AIDS Control Organization (NACO), the infection rate in individuals aged 15–49 years is 910 per 100,000.[1] Of all adults living with HIV, 38.4% are female, and 57% are from rural backgrounds. One third of reported AIDS cases are among those <30 years of age.[2] This finding raises tremendous concerns about the future health of the Indian population and the capacity of existing resources to meet long-term healthcare needs.

Out of the population of 1.1 billion, >400 million are children <18 years of age.[3] Given the prevalence of HIV in India, there is an urgent need to educate youth. High-risk social and sexual behavior is increasing among Indian adolescents.[4,5,6] The mean age of sexual intercourse is 17.5 years.[7] However, teens are not generally knowledgeable about how to protect themselves; only 17% of male youth (aged 15–24) and 21% of female youth (aged 15–24) were able to identify two protection measures against HIV and reject three misconceptions out of the interviewed population.[8] Stigma against talking about HIV and about people living with HIV/AIDS permeates not only the general public but even the healthcare sector and schools.[9] Children do not have many venues for information, as discussions about HIV/AIDS elicit negative reactions from parents for teachers.[10]

Strong gender disparities exist in HIV/AIDS knowledge, sources of information, and consequences of sex. The main HIV/AIDS information sources for girls are relatives, such as sister or mother, whereas for boys the main sources are TV, films, sex books, and male friends.[11] Some studies have reported that most Indian high school students do not have open communication regarding sex-related issues with their parents, other family members, or friends, but this finding is more prominent for girls.[12] Some also report that girls have more limited knowledge regarding HIV infection than boys in India. In a study on low-income adolescents living in the slums of Mumbai, only one in four girls and one in three boys had heard about AIDS; only 10% of both boys and girls had heard about sexually transmitted diseases; and the role of condoms in preventing HIV was rarely recognized, none of the girls were aware and only 6 out of 125 boys knew about it.[13,14] Another study found that an average young woman in college (aged 17–18) could correctly answer only 6 of 25 questions on human sexuality, reproduction, and contraception.[15] In Indian society, male sexuality is justified in positive terms; women are often expected or encouraged to suppress their sexuality and not generally allowed to discuss sex before marriage. Thus, it is not surprising that open communica-

Address correspondence and reprint requests to: Rosy Chhabra, PsyD; Albert Einstein College of Medicine; 1300 Morris Park Ave; VE Building #5, Room 6B32; Bronx, NY 10461; 718-862-1720; 718-862-1756 (fax); rchhabra@aecom.yu.edu

tion regarding sex, knowledge, and sex education is lower among girls.[16] This is more apparent in coeducational settings. As communication on sensitive topics such as sexuality is not encouraged in mixed-gender settings, more gender-differentiated programs are needed to emphasize both information and prevention education.[17,18]

We developed STEP (School-based Teenage Education Program focusing on HIV Prevention) by combining curricula from successful HIV prevention programs in the United States with curriculum-based existing drug education efforts modeled on social learning theory of a community-based organization, Drug Abuse Information, Rehabilitation and Research Center (DAIRRC), in India.[19] The aim of the current STEP evaluation study was to test whether an educational program built on specific cultural, linguistic, and community-specific characteristics was effective in improving knowledge, beliefs, and attitudes about HIV infection in general and increased confidence in youth in dealing with high-risk situations.

METHODS

STEP aimed to educate Indian youth between the ages of 13–21 years. The target group was eighth graders in 25 schools. In addition, >50 students from local undergraduate colleges (students were from five-year degree programs, which are comparable to the last two years of high school and first three years of college in the United States) aged 17–21 years were selected to present the program to children. Using the train-the-trainer model, we successfully trained 42 instructors who then taught >1800 students in 25 schools in Mumbai, Maharashtra, which has one of the highest HIV prevalence rates.

Forty schools were randomly selected from the list of schools (N=240) prepared by the State Education Department for Mumbai Municipality. A systematic procedure was used such that every sixth school was selected for inclusion. The school administrators and principals were contacted by letter and invited to participate in the program. Of the 27 schools that initially indicated interest, two dropped out because of lack of time to implement the curriculum. The administrators of all the schools enrolled in the study filled out a School Readiness Scale that assessed the need for and receptivity to the program.

After a series of individual and group interviews, 63 undergraduate college students aged 17–21 years were selected to participate in the training program. Their educational needs were assessed before training to tailor the training program to their knowledge, attitudes, and teaching skills. Potential instructors received an intensive two-day training course (16 hours) including the STEP program; the curriculum consisted of didactic lectures and hands-on exercises in which they had to teach the program components. A post training assessment measured the impact of the training. The 42 students who excelled in the training program in both the written and practical assessments were chosen as educators. The assessments were based on Centers for Disease Control and Prevention guidelines for training (The Handbook for Evaluating HIV Education).[20] The trainers conducted the manualized STEP program over a six-week period with eighth grade students in all participating schools. The program involved a single one-hour session per week held in each classroom for six consecutive weeks. Two classes in each school participated, and the school administrator randomly assigned the classes to intervention and control conditions. Students in the intervention group were exposed to the STEP curriculum, and those in the control group were not. Since youth participating in the program were asked to share information with their friends, family, and community members, some diffusion of information was expected in the control group as well. Parental consent and youth assent was obtained for each participant in both the intervention and control groups.

Study measures were self-administered during the first session and then again after the sixth session and were adapted from the existing evaluation modules for youth.[20] Questionnaires were translated into Hindi and Marathi, the two other local languages spoken in schools, by using a professional translator and back-translation. All the instructors providing the program were fluent in both local languages as well as English. The questions were drawn from the following scales: knowledge of HIV and AIDS (10 items); HIV-related beliefs and views (16 items); and self-monitored risk behavior patterns (12 items). Overall, the questionnaire tapped knowledge, attitudes, beliefs and the ability to deal with risky social situations. Questions were modified to make them culturally and socially appropriate and were approved with the assistance of the local advisory board and institutional review board in India. For example, going out alone with friends of the opposite sex was substituted for the word dating. Youth were able to complete the measures with minimal assistance.

Data were collected by the trainers, and research assistants analyzed the data by using SPSS version 12.0 (SPSS, Inc., Chicago, Ill). A repeated-measures analysis of variance was conducted with pretest and posttest scores on all the scales individually as the within-group measure and sex (boys vs girls) as the between-group measure.

RESULTS

In the 25 schools, 1846 students completed the pretest (946 intervention and 900 control), and 1733 completed

Table 1. Means and standard deviations on study measures by intervention, time and gender

	Experimental		Control	
	Pre	Post	Pre	Post
Knowledge				
Girls	3.944(1.96)	5.800(3.23)	5.713(1.87)	4.806(2.73)
Boys	4.367(1.92)	5.068(3.53)	4.440(1.91)	3.520(2.51)
Beliefs				
Girls	3.116(.728)	3.966(.855)	3.335(.848)	3.736(.797)
Boys	3.150(.786)	3.938(.748)	3.113(.858)	3.172(.791)
Confidence				
Girls	3.727(.733)	4.155(.694)	3.982(.708)	3.999(.569)
Boys	3.670(.815)	3.926(.866)	3.742(.733)	3.55(.741)
Attitude toward:				
Peer pressure				
Girls	3.422(.787)	4.050(.786)	3.768(.839)	3.999(.718)
Boys	3.424(.824)	3.906(.813)	3.489(.719)	3.535(.688)
Drug and steroid use				
Girls	2.857(.527)	2.607(.636)	2.733(.703)	2.721(.569)
Boys	2.879(.650)	2.816(.660)	2.815(.664)	2.880(.741)
Abstinence				
Girls	3.736(1.175)	4.242(1.205)	3.741(1.501)	4.366(.971)
Boys	3.680(1.252)	4.063(1.257)	3.711(1.190)	3.607(1.420)
Condom use				
Girls	3.053(.987)	2.586(1.348)	2.821(1.096)	2.852(.946)
Boys	3.371(1.127)	2.977(1.353)	3.375(1.081)	3.603(1.111)
Threat of HIV infection				
Girls	4.020(1.057)	4.339(.851)	4.358(.921)	4.285(.865)
Boys	4.157(.967)	3.971(1.047)	4.099(1.090)	3.985(1.075)

the posttest (882 intervention and 851 control). The sample was 51% male and 49% female. Most schools (88%) were English Medium (the curriculum is taught in English) and had an average of 40 students per classroom. Only two schools had an onsite counselor or social worker or an onsite nurse or clinic. There were 13 single-sex schools (8 were girls only, 5 boys only) and 12 coeducational schools. Table 1 presents the means and the standard deviations on the study measures described below.

Knowledge of HIV and AIDS Scale

Ten items measured functional knowledge about HIV/AIDS, that is, knowledge necessary to reduce the risk of HIV infection. Scores ranged from 0 to 10, with higher scores indicating greater knowledge. There was a significant difference in the knowledge level of the intervention group as compared to the control group. Students who received the curriculum evidenced greater knowledge of HIV/AIDS at the end of the six sessions ($P \leq .001$). In the intervention group, girls had lower knowledge scores at baseline but significantly higher knowledge scores than boys at the end of intervention ($P < .05$).

Beliefs

Six items measured students' acceptance of and attitudes toward people living with HIV/AIDS. Students responded to each statement on a five-point Likert-type scale. A statistically significant difference (a change in beliefs towards more tolerance) was found in both intervention and control groups. However, the change in the positive direction was more pronounced in the intervention group ($P \leq .001$). Both genders reported improved positive beliefs toward people living with HIV/AIDS ($P < .001$); however, a trend was noticed that girls were more sensitive and held more favorable attitudes than did boys as a function of the intervention.

Attitudes

The 10 items on this scale measured students' attitudes on five dimensions that may be related to future high-risk behavior: peer pressure, abstinence, condom use, drugs and steroids, and the threat of HIV infection. As the program addresses all five dimensions, it was expected that there would be significant changes across all five dimensions for the program participants. Differences in attitudes were more significant in the intervention group for four of the attitudinal measures. Students in the intervention group were more likely to agree with abstinence ($P < .01$), to agree with using condoms consistently ($P < .001$), and to have a

better understanding of precautions ($P<.05$) and were less likely to be influenced by their peers ($P<.001$). Both genders favored abstinence for teenagers at the posttest, but girls showed higher agreement with abstinence. Girls reported a significantly less need to follow peers than boys ($P<.05$), and girls also reported greater agreement with condom use and a greater understanding of precautions required to guard against HIV ($P<.001$).

Confidence

These items assess refusal skills in dealing with peer and social pressure, specifically how confident students feel in being able to refuse their friends in order to avoid an uncomfortable or risky situation. Even though there was an increase in the level of confidence in dealing with risky situations in all students, this difference was more significant and pronounced for the intervention group ($P\leq.001$). In the posttest evaluation, girls reported a higher confidence level in dealing with risky social situations than boys, though a statistically significant difference in confidence in dealing with risky situations was noticed in both genders ($P\leq.05$).

DISCUSSION

A major challenge in using internationally successful HIV/AIDS programs in India is the huge discrepancy that exists in sexual cultural norms. Reluctance to talk about sexual issues has been a major roadblock in the development of HIV education programs.

In the present study, there were significant gender differences in attaining knowledge, changing attitudes and beliefs, and gaining confidence in dealing with peers in socially risky situations. Contrary to most studies conducted in India, girls in our sample gained more from the program. At the end of six weeks, girls were more knowledgeable about HIV infection, had more confidence in dealing with risky social situations, were less inclined to buckle under peer pressure and had more positive attitudes and beliefs toward people living with HIV/AIDS. Although it was not a gender-specific program, girls appeared to benefit more. Knowledge regarding HIV/AIDS was lower for girls to begin with in this sample, which is supported by literature, as women in India are not encouraged to discuss behaviors and issues related to sex before marriage.[12] This study suggests that if given an equal environment and opportunity, girls can do equally well as, and in this case even better than, boys in education focused programs. For future research, it would be important to assess if this difference is present for HIV prevention education program only or whether it permeates other areas as well. One reason for this impact could be that most trainers in the program were female. Future studies should test whether differences in gender specific learning persist when trainers are both male and female. Other study limitations include having the experimental and control groups in the same school. The design controlled for variations that exist among schools, but it also heightened the effect of diffusion of information within this limited setting. For example, students in the control group also evidenced more positive attitudes toward individuals living with HIV/AIDS. The study sample was limited in that it drew from a metropolitan area in a country where most of the population does not reside in metropolitan areas; thus the results cannot be generalized to all girls.

Girls in the study reported significantly less need to follow peers than did boys, greater agreement with condom use, and a greater understanding of precaution required to guard against the threat of HIV. This study also supports findings that within Indian society, norms are not only generated by the social circle of peers but also through siblings and extended family members,[18] somewhat diluting the effects of peer pressure. Our study not only supports literature that belief in efficacy and education about correct use of condoms is necessary and can be learned, it also highlights the importance of skills needed to implement these beliefs. In an unequal cultural setting where communication skills regarding sex and sexual issues are discouraged for women, negotiating about condom use with a partner is difficult.

Even though STEP provided skills training in dealing with peer pressure and communicating effectively with a partner, this study indicates the need for gender-differentiated programs that emphasize different information and skills for each gender. Programs that specifically target young female adolescents for risk refusal may be effective at reducing health disparities because they can address the power dynamics and socio-cultural barriers that prevent young women from engaging in behaviors that will enhance their health and well being. Future work should focus on assessing the effectiveness of learned skills needed to apply increased knowledge and positive attitudes and beliefs regarding persons living with HIV/AIDS and enhanced confidence within the same socio-cultural setting.

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