

PROGRAMMING FOR HIV PREVENTION IN MEXICAN SCHOOLS

As national education programs incorporate HIV prevention into school curricula, policymakers and educators need to know what they can expect from these initiatives. Can such courses influence the behavior of students as well as improve their knowledge and attitudes? If not, what can these courses reasonably be expected to accomplish, and what part can they play in overall HIV programming for youth?

To help answer these questions, the Mexican Institute of Family and Population Research (IMIFAP), the Mexican Ministry of Public Education (SEP), and the Horizons Program examined the effects of a school-based HIV prevention program on Mexican secondary school students. All public schools in Mexico must implement sexuality education and teacher training programs, although the content is left to each state's discretion. Students must pass this class just as they would other courses in the curriculum.

With input and approval from SEP, IMIFAP, a leading Mexican NGO experienced in designing sex education courses, developed the curriculum—A Team Against AIDS (Un Equipo Contra el SIDA)—and the teacher-training program that was used in this study. The 30-session student curriculum focuses on a broad range of topics that aim to equip students with information and skills to prevent HIV infection.

Study Methods

The city of Toluca, within the state of Mexico, was selected as the research site due to local



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interest in implementing a standardized curriculum, and the similarity of its education system to that in other states, thus potentially easing transferability of the curriculum. The study was conducted in four of the eight high schools in Toluca, with two schools receiving the intervention and two schools serving as controls. To assess program effectiveness, all first-year students in the four study schools completed surveys at baseline (T1), immediately after the intervention (T2), six months after post-test (T3), and 12 months after post-test (T4).

Twenty-four counselors, teachers, and principals from the intervention schools

received a 36-hour training course to give them the necessary skills to integrate “A Team Against AIDS” into the school curriculum. A pre- and post-training questionnaire was given to the teachers to determine changes in HIV-related knowledge and attitudes as well as to examine their level of comfort and confidence in teaching sensitive material.

Horizons conducts global operations research to improve HIV/AIDS prevention, care, and support programs. Horizons is implemented by the Population Council in partnership with the International Center for Research on Women (ICRW), the Program for Appropriate Technology in Health (PATH), the International HIV/AIDS Alliance, Tulane University, Family Health International, and Johns Hopkins University.

At baseline, 2,064 students participated in the study; 946 students were identified as having participated in all four rounds of data collection. To measure changes in knowledge, attitudes, and behavior across time, some analyses were focused on this group only. The mean age of the students at baseline was 16 years. The study population was half male and half female students in the baseline and matched response groups.

To analyze the data collected from students, scales were developed for most variables such as HIV knowledge and attitudes toward people living with HIV and AIDS (PLHA). Analysis of variance was used to examine the resulting scores to determine significant effects of the intervention by round and study group. After analysis of the quantitative data, five focus group discussions (FGDs) were conducted with groups of eight to twelve students from all study schools. The aim was to clarify the students’ understanding and attitudes toward participating in the study so that adjustments could be made if needed.

Key Findings

The program did not increase sexual activity. The great majority of students were not sexually experienced and most continued to abstain from sex during and after the course. Although there was an increase in sexual activity among both male and female students, this increase was similar for both the intervention and control groups. At each measurement point, twice as many males as females reported being sexually experienced. For example, at baseline, 28 percent and 23 percent of males and 9 percent and 5 percent of females in the control and intervention groups, respectively, reported ever having had sexual relations. These proportions increased gradually and, at T4, 36 and 32 percent of male students and 18 and 12 percent of female students reported ever having had sex.

The program improved students’ knowledge, including knowing that abstinence prevents HIV, and this improvement was maintained one year after the intervention. Questions about HIV knowledge were grouped into three categories—transmission, potential consequences, and biomedical aspects—and knowledge scores were calculated for each. For all three categories the intervention and control groups scored similarly at baseline, but the intervention group demonstrated improved knowledge at T2, T3, and T4 compared to baseline figures, whereas there was little change in the control group. For example, at T1, mean knowledge scores on the

“A Team Against AIDS” Curriculum Content

| Session | Content |
|---------|---|
| 1 | Introduction |
| 2-3 | Sexuality: anatomy, physiology, and social aspects |
| 4-6 | Values: personal and diverse values, respect |
| 7-10 | HIV/AIDS: What is HIV, modes of transmission, myths and realities, PLHA |
| 11-16 | Prevention: perception of risk, safer sex, abstinence |
| 17-19 | Assertiveness, communication, and negotiation |
| 20 | Sexual orientation |
| 21-23 | Self-esteem |
| 24-25 | Gender and sexuality |
| 26-27 | Decision making |
| 28-30 | Life course planning |

biomedical aspects of HIV were 3.61 and 3.64 (out of a maximum of 5), respectively, for the control and intervention groups. At T2, the mean score for the intervention group increased to 4.38 ($p < .05$), while the control group remained stable (3.66). Again, these levels were maintained at T3. At T4, the intervention group's mean score (4.27) remained higher than the control group's (3.62) ($p < .05$).

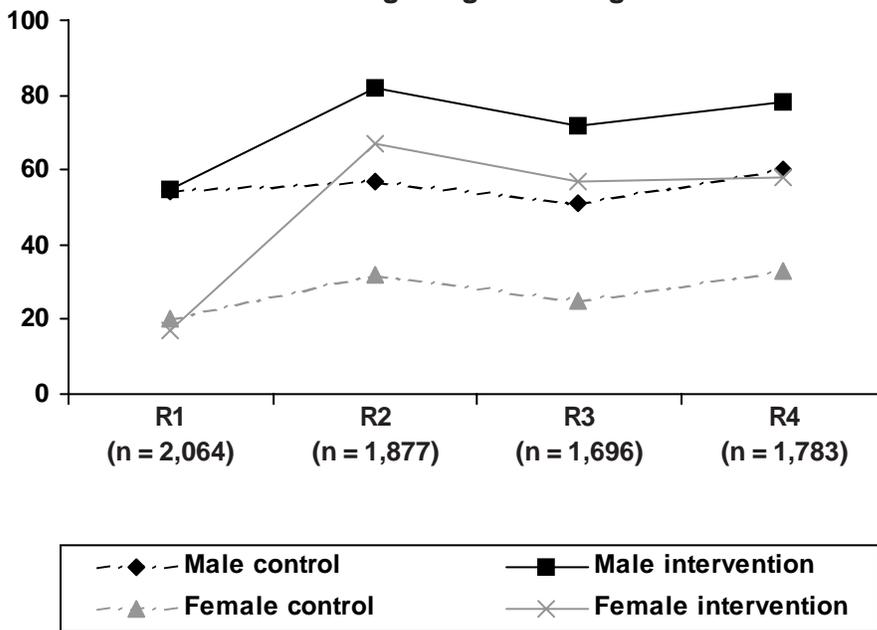
When asked specifically about abstinence at baseline, about half of students in the control (47 percent) and intervention (53 percent) groups, respectively, knew that abstinence prevents HIV. During the second round of data collection, the proportion of students in the intervention group who understood that abstinence protects from HIV increased to 59 percent while the proportion in the control group actually decreased to 41 percent ($p < .05$). Similar figures were reported at T3 and T4.

Students in the intervention group gained confidence in their ability to obtain and use condoms. Based on the questions, "I am certain I can get a condom if I want to," and "I am certain of how to use a condom effectively," a variable was developed to measure confidence in obtaining and using condoms. At T1, 54 percent and 55 percent of male students and 20 percent and 17 percent of female students in the control and intervention groups, respectively, indicated that they felt confident in both obtaining and using condoms. At T2, within the intervention group, the proportion of students reporting confidence in obtaining and using condoms increased to 82 percent for intervention males, but only to 57 percent for control males ($p < .001$). For intervention females the increase was more striking compared to control females (67 vs. 32 percent; $p < .001$). The increase in confidence among the intervention group remained consistent throughout the other follow-up rounds of data collection (Figure 1).

The program helped improve students' attitudes about PLHA. Among the 946 students who participated in all rounds of data collection, at baseline, 69 percent of those in the control group and 73 percent in the intervention group agreed that an HIV-positive student should continue to go to school. After the intervention, 72 percent of students in the control group maintained this opinion, while the proportion in the intervention group increased to 89 percent ($p < .001$). A similar difference was also found at T4 (control: 77 percent; intervention: 87 percent; $p < .001$).

"A Team Against AIDS" did not have an effect on condom use among sexually experienced students. Questions about condom use, such as "Did you use a condom at last sex?" were grouped together, and a scale was created. Mean scores were elicited for all sexually experienced students to provide a measure of condom use behavior. No statistically significant differences occurred between the intervention and control schools at any point in the study. The few female students who were sexually experienced were as likely to use condoms as their sexually experienced male classmates.

Figure 1 Percentage of male and female students who are confident in both getting and using condoms



Note: n = total number of students responding in each round of data collection

Uncertainty about the study and cultural values about sexual activity made some students hesitant to answer. During FGDs, some students reported that a more careful explanation of study objectives would have been beneficial and would have positively influenced their attitudes about participation. Some also noted that the cultural values attached to virginity and sexuality made it difficult for them to respond to questions about sexual behavior. Also, some were concerned about whether the questionnaires were anonymous. Future studies must address these student concerns.

Teacher training was personally beneficial and essential to the teachers' ability to teach the course. Teachers were extremely supportive of the curriculum and noted that the training gave them the confidence to talk about sexuality with adolescents and improved their HIV knowledge. For example, prior to training, teachers' mean score on a scale measuring their knowledge about HIV/AIDS was 1.14 (out of 2). After the training, this score increased to 1.30 ($p < .05$). Similarly, the mean score on a scale that measured self-efficacy to teach the course changed from 1.07 (out of 3) to 2.29 ($p < .05$) post-training.

Intervention design needs to take into account differences between males and females. Although far fewer female students indicated ever having been sexually active compared to males, they were more likely to have sex consistently over the recall period of six months. Among the minority of Mexican students who reported having initiated sexual activity at baseline, 69 and 62 percent of males in the control and intervention groups, respectively, and 83 percent of females in both groups reported having had sex in the recall period. This finding suggests that females may have older, regular partners.

Conclusion

"A Team Against AIDS" had a positive impact on students' knowledge of HIV/AIDS, including their understanding that abstinence protects against HIV transmission. Gains were also made in increasing tolerant attitudes about PLHA and confidence to obtain and use condoms. In addition, sexual activity did not increase as a result of the program, when intervention and control groups were compared and the majority of students remained abstinent. Among those sexually experienced, the curriculum did not have an impact on condom use.

Since concerns were expressed about the anonymity of the questionnaires, to strengthen this course, students likely need more assurance that any personal and culturally stigmatizing information they share will be kept confidential.

To improve this course, HIV prevention messages should be tailored to suit the different needs of male and female students. Throughout all rounds of data collection, for example, male students reported higher rates of sexual activity than females. Males also expressed higher levels of confidence than females in their ability to obtain and use condoms despite great improvements in the confidence scores of females in the intervention group. 

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