IMPACT OF SCHOOL-BASED HIV AND AIDS EDUCATION FOR ADOLESCENTS IN BOMBAY, INDIA

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Abstract. The HIV/AIDS epidemic in India is expanding rapidly. The present study is a pre-test–post-test evaluation of a school-based HIV/AIDS educational program. The pre-test was administered to 2,919 students regarding modes of transmission and prevention of HIV/AIDS. An education program was instituted for one half school day at ten secondary schools. Principals of two schools refused to participate. One month later, the post-test was administered to 2,400 students. Before the educational intervention only 50% of the students knew that HIV/AIDS is transmitted sexually, only 34% knew that there are no midicines that cure HIV/AIDS and 24% thought that HIV is transmitted by mosquito bites. After the intervention, 95% of the students knew that HIV/AIDS is transmitted sexually, 92% knew that there is no HIV/AIDS cure and 76% knew that HIV/AIDS is not transmitted by mosquitos. There was a substantial increase in correct knowledge about HIV/AIDS among students after our single educational program. This suggests that school-based educational programs for adolescents in India can succeed in providing basic information regarding HIV/AIDS.

INTRODUCTION

India has a high incidence of sexually transmitted diseases (STD), with an estimated one in every four STD afflicted persons in the world residing in India (Chowdhury, 1992). The correspondingly high rate of spread of the human immunodeficiency virus (HIV) is likely to be in part, due to this high preexisting STD endemicity. The rise in the prevalence of HIV infection from 0.5% in 1986 to 20% in 1990 among prostitutes in Bombay has been documented (ICMR, 1990). In India, the mode of acquiring HIV infection is predominantly through the heterosexual route, though male-to-male sexual relations and drug abuse are also important (WHO Features, 1990; Gilada, 1990; Dietrich and Maniar, 1995).

Adolescence and young adulthood mark the onset of sexual activity and experimentation with substance use. This age group is important to target for health education to prevent and control spread of AIDS. Contrary to a popular Indian belief, many adolescents in India are sexually active. They are not generally knowledgeable about how to protect themselves against STDs including HIV (Sharma and Sharma, 1994). The prevalence of drug abuse in adolescents in northeastern states of India and in Bombay is found to be as high as 8 per 1,000 (Sarkar *et al*, 1991). Therefore study of knowledge and attitudes in adolescents and evaluations of pilot educational programs is a useful step in developing comprehensive educational program for HIV/AIDS. The main purpose of this study was to evaluate the effect of health education pertaining to HIV/AIDS in high school-aged adolescents.

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METHODS

The present study was conducted in the city of Bombay, India from October 1992 to March 1993. The city of Bombay is divided into different 'wards' alphabetically for administrative reasons. The larger wards are further divided into 'North and South'. The present study was conducted in 'F/North' ward. Twelve out of 45 schools were selected at random from this ward. The majority of the people living in this ward belong to middle and lower middle socio-economic strata.

Ten schools agreed to participate, while the principals of two schools refused to allow the study

to be conducted in their schools. The students from 8, 9 and 10th standards, comprising youth ages 12-15 years were included in the study. All the students attending class that day were included in the study. The school attendance on any given day is more than 85%. The total sample size for the pre-test was 2,919 students. In the post-test 2,400 students were included, virtually all of whom are represented in the pre-test sample.

The baseline knowledge regarding AIDS was tested by a structured questionnaire. The questionnaire was distributed to the students by their classteacher. Each question was read and explained to the students by their class teacher. The students were given as much time as they needed to complete the questionnaire. The questionnaire was printed in 'English' and 'Marathi' for English and Marathi medium schools respectively. On the same day, a presentation on AIDS was made by a trained speaker, followed by street play and video show. The content of presentation included basic information regarding HIV/AIDS, including cause, geographic distribution, transmission, treatment and prevention strategies. The total duration of the health education session was two and a half to three hours.

One month after intervention, knowledge regarding HIV/AIDS was re-assessed by administering the same questionnaire using the same process as in the pre-test. The data were analyzed to study the effect of a health education program on students' knowledge regarding AIDS. Statistical significance was determined using a standard test for the difference between two proportions.

RESULTS

Of the target population of 2,919 students aged 12-15 years, 82% (2,400) were included in the post-test. All of the students could not be followed for two reasons: 1) some of the students were not attending classes because of unrest in the city of Bombay during the study period; and 2) in some schools, the older students (10th standard) were having their final exams and were unavailable for the post-test (data not shown).

Before the intervention, only 53% of the students had heard about AIDS while after intervention 99% students stated that they were aware of AIDS. Prior to intervention, television was the main source of information (33%) regarding AIDS. Friends and magazines were other major sources of information. After intervention, our school educational program was reported to be the main source of information regarding HIV/AIDS by the students (Table 1).

Fewer than 50% of the pre-test students knew that HIV/AIDS is transmitted sexually while after intervention, 95% students knew that HIV/AIDS is transmitted sexually. Before the intervention fewer than 40% knew that having sex with prostitutes or having multiple sex partners is a risk factor for getting HIV/AIDS. After the intervention about 85% knew that they could get HIV/AIDS by these high risk sexual behaviors.

Before the intervention 76% of the students did not know that HIV/AIDS is not transmitted by mosquito bite while after intervention only 24% did not know this. Before the intervention 90% students did not know that HIV/AIDS could be transmitted by tattooing while after intervention only 26% did not know this (Table 2).

Only 34% of the students knew before intervention that there are no medicines available at present to cure HIV/AIDS. After the intervention 92% knew that there is no cure for HIV/AIDS. Only 32% of the students knew before intervention that a condom can prevent the spread of AIDS to a great

Table 1

Primary source of information regarding HIV/AIDS.

Primary source of information	Pre-test n = 2,919 %	Post-test n = 2,400 %
1. Local magazines	6.8	7.3
2. Foreign magazines	2.8	3.1
3. Friends	7.8	8.7
4. Television	33.4	35.1
5. Radio	0.1	0.1
6. Other source (like health education program)	0.5	39.6*
7. No response	48.6	6.1*
Total	100.0	100.0

* $p < 0.001$

Table 2

Knowledge regarding modes of transmission and prevention.

	Pre-test n = 2,919 % correct	Post-test n = 2,400 % correct
A. Knowledge of transmission:		
1. Sexual (yes)	43.9	95.6*
2. Blood (yes)	33.7	91.0*
3. Tattooing (yes)	9.7	74.3*
4. Mosquito bite (no)	24.0	76.2*
5. Food/Water (no)	25.8	79.8*
6. Shaking hands (no)	21.2	79.0*
7. Toilet seats (no)	21.5	71.8*
8. Hugging (no)	20.0	73.8*
B. Knowledge of prevention:		
1. Condom can prevent AIDS (true)	31.7	86.1*
2. Voluntary healthy blood donors are better than professional donors (true)	30.1	86.5*
3. Drugs for complete cure are available (false)	34.0	92.4*
4. Vaccine is available for prevention of AIDS (false)	24.7	86.4*

* $p < 0.001$

extent compared to 86% of students after intervention. Approximately 75% of the students thought that a vaccine to prevent AIDS is available, while after intervention only 14% thought that such a vaccine exists (Table 2).

DISCUSSION

The present study suggests that a school based health education program for adolescents in India can be effective in providing basic information regarding HIV/AIDS. The best results after health education were obtained for questions pertaining to modes of transmission of HIV/AIDS and somewhat less successful results were obtained for questions pertaining to disease causality. We do not know about long term sustainability of our results nor can we predict how many of these students will actually put to practice the knowledge gained from our health education program.

The conservative Indian social structure and unstable political situation in the country make it difficult to undertake sex education. In India, sex is considered strictly as a personal matter and is not discussed generally in public. Due to this cultural taboo, we faced great difficulty in convincing principals to grant permission to conduct the health education program, more so in vernacular medium schools than in English medium schools. Some of the class teachers did not attend our health education program because they said that they were embarrassed to attend the program along with the students. Our experiences are not dissimilar to reports from Peru, Canada and the US (Chandrarana *et al*, 1990; Ashworth *et al*, 1992; Caceres *et al*, 1994).

Ideally, all students receiving the pre-test would have received the post-test. While the absolute number of 10th standard students lost during post-intervention was the highest of any class, the proportion of students lost in each age group, was almost identical (0.2). This pre-test, post-test differential is not likely to affect significantly the validity of the results.

In this first effort, educating adolescents has been successful at providing knowledge about AIDS among students of middle and lower middle socio-economic status in Bombay schools. Priorities in public health education will include: improving and periodically reinforcing these health education messages to school children of all ages and young adults; reaching out to school leavers (drop outs) and highest risk youth living on the streets; providing optimal preventive and curative care to practicing sex workers, particularly for STD and HIV, and making STD diagnosis and treatment and barrier methods readily available to youth.

Declaring that India is entering a "disaster phase", the Director of Indian Council of Medical Research has called for a massive public education campaign and promotion for safer sex practices (Jayaraman, 1990). Recognizing the importance of the school-based health education program for HIV/AIDS, Bombay Municipal Corporation has decided to implement our school based health education program strategy to cover about 50,000 students in over 200 schools in the entire city of Bombay. Educating people about this disease is the first step for HIV prevention among youth in India (ICMR, 1988; Sabatier, 1987).

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