Effect of a Comprehensive AIDS Curriculum on Knowledge and Attitudinal Changes in Northern Canadian College Students

Rosemary J. Moskal University of Alberta

Abstract

A comprehensive AIDS curriculum was designed to help college students learn the facts about HIV transmission and prevention, discuss personal opinions, clarify values, and develop the skills necessary to practice low risk behaviours. The course was implemented over two months to 123 predominantly aboriginal college students (80%) who were attending the Fort Smith Thebacha Campus of Arctic College in the Northwest Territories.

Eight intact classes of students were divided between the control and experimental groups and a questionnaire was administered as the pre-test and post-test instrument. The experimental subjects who received the course, differed significantly from the control group in knowledge of AIDS transmission and prevention and attitude towards low risk behaviours and towards those afflicted with the AIDS virus.

The study suggests that AIDS courses designed specifically for various target groups can be successful in obtaining effective educational objectives among college students.

Résumé

Un curriculum complet sur le SIDA a été développé dans le but d'offrir l'opportunité aux étudiants de niveau collégial d'apprendre les faits concernant la transmission du virus et sa prévention, de questionner leurs opinions personnelles, de clarifier leurs valeurs, et de développer des habiletés nécessaires dans le but de pratiquer des comportements adéquats. Le cours a été présenté sur une période de deux mois à 123 étudiants, principalement aborigènes, de niveau collégial (80%) qui fréquentaient le Fort Smith Thebacha Campus of Artic College dans les Territoires du Nord-Ouest.

Huit classes d'étudiants ont été divisées pour former le groupe contrôle et le groupe expérimental et un questionnaire a été administré comme instrument pré-test et post-test. Une analyse de la variance a révélé que le groupe expérimental, ayant reçu le cours, a augmenté sa connaissance de façon significative sur la transmission et la prévention du SIDA (p.001), son attitude face aux comportements à bas risque (p.01) et à développer une attitude compatissante face aux gens atteints du virus SIDA (p.05) comparativement aux sujets formant le groupe contrôle qui n'avait reçu aucune formation sur le SIDA.

Cette étude suggère que les cours sur le SIDA développés spécifiquement pour des groupes cibles de niveau collégial peuvent atteindre leurs objectifs éducationnels avec succès.

The pandemic of AIDS is ending an unprecented interval of optimism about medicine's ability to conquer illness. Gallo and Montagnier (1988) point out that as recently as a decade ago it was widely believed that infectious disease was no longer much of a threat in the developed world. It was thought that the remaining challenges to public health stemmed from noninfectious conditions such as cancer, heart disease, and degenerative diseases. That confidence, however, was shattered in the early 1980's by the advent of AIDS.

In spite of the startling nature of the AIDS pandemic, science responded quickly. Within two years the human immunodeficiency virus (HIV) was isolated, its targets in the body were established, and a blood test was formulated to detect antibodies to the virus. Following that initial burst, progress has been steady, albeit slower. In the absence of a cure or vaccine, science has been forced to pass the torch to the field of education as the most effective means of controlling the transmission of HIV.

Responsibility of Schools

Educational programs are expected to be effective in preventing the spread of HIV simply because the AIDS virus is transmitted almost exclusively by behaviour that individuals can modify. This sentiment reverberates throughout the literature on AIDS (e.g., Haffner, 1988; Laver, 1988; Underwood, 1988; Johnson & Adler, 1987; Lenaghan & Lenaghan, 1987). Wattleton and Levy (1988) state that while teenagers are sexually active, they are also sexually illiterate and AIDS education in our schools is an opportunity to make the difference.

Weiner (1986) goes further by contending that schools should educate students, employees, and the community about how AIDS is transmitted because they are in the best position to disseminate information to adolescents reaching the age of experimentation with both sex and drugs.

The need for education is even more serious in higher education, where older students and greater sexual experimentation greatly raise the chances of AIDS crisis on campus. Many researchers (e.g., Biemiller, 1987; Caron, 1987; McNamee, 1987) stress the crucial role of colleges and universities in halting the spread of AIDS by educating all their students about the disease and how to avoid becoming infected with the virus that causes it. As Strouse & Phillips (1987) explain, because of the sometimes long incubation period of the AIDS virus, it is the older student population who will become proportionately more affected and this is the group educators should assist in dealing with fears derived from misinformation about the disease being transmitted by casual contact. Keeling (1989) agrees by adding a fourth tier to the bottom of the popular iceberg diagram to depict the need for AIDS prevention courses to be taught to older students. He says that colleges will encounter relatively fewer students living with AIDS itself, some who have milder illnesses, more who are asymptomatically infected, and many more who are worried or afraid. Thus, students who fear they have been, or might eventually be infected by HIV, comprise the vast majority of the campus population concerned about AIDS.

However, there are those who feel that the response from college administrators and staff in implementing AIDS education has been less than adequate. Norris (1987) claimed that colleges and universities have been too slow to begin AIDS education programs and said that too many colleges had the attitude that AIDS is not a problem on their campuses. He called this attitude one of "ostrich mentality" which only served to cripple AIDS advice. Biemiller (1987) also reported that many health experts assailed colleges for wasting the opportunity to lead the AIDS-education drive among students.

Lack of Evaluation of Existing Educational Efforts

Despite the fact that AIDS education may be seen as the moral and ethical obligation of high schools and colleges, the effectiveness of existing programs has been somewhat less than successful. The literature on Aids education reveals that although many students throughout North America have shown an increase in their knowledge about AIDS following educational programs, little of this knowledge has been translated into appropriate behavioural or attitudinal changes (e.g., Gilbert, 1989; Loos & Bowd, 1989; Edgar, Freimuth & Hammond, 1988; Simkins & Kushner, 1986). The reasons for this repeated phenomenon are grounds for much speculation amongst educators and health officials the world over. Some think educational programs are doomed to failure because adolescents are at an age when risk taking behaviours are an inevitable part of their growth and development. This illusion of unique invulnerability allows individuals to deny the possible consequences of their behaviours (e.g., De la Rue & Ruback, 1987). Others argue that short educational programs or workshops can never be expected to replace cultural values and question the morality of educational programs which blatantly advocate the use of condoms (e.g., Tolsma, Kreuter, Kolbe, & Jones, 1988; Mark, 1987). Still other investigators propose that there has been too much haste in instigating educational programs without an evaluation of their effectiveness. For example, teaching the concept of "risk groups" can not only lead to the belief that everyone outside of those groups is safe, but that everyone in such a group is likely to be infected. This leads to discrimination and extremes such as mandatory testing (Reinisch, Sanders, & Ziemba-Davis, 1988). Thus, without targeting the intervention to a specific group, much effort in time and money may have been expended on inappropriate programs.

The Canada Youth and AIDS Study (King, Beazley, Warren, Hankins, Robertson & Radford, 1988) concluded that "the approach taken thus far to education about AIDS and other STDs has been ineffective ..." (p. 141). It advocated the following four general components in a dynamic educational program: (1) the presentation of materials so that students would personally appreciate the possible contraction of the AIDS virus; (2) students be given the opportunity to interact with those infected with HIV in a learning situation; (3) discussion of low risk behaviours as alternate forms of sexual expression; and (4) the development of values and interpersonal skills in an open manner in order to promote responsible sexual activity. As well as following these general recommendations, the investigator added two specific components when designing and implementing the comprehensive AIDS curriculum. The fifth component taken into consideration was the two-month course time allotment. Evidence for longterm retention of significant gains in knowledge can be found when course content is extended over a number of weeks, thereby enabling students to assimilate their new information (e.g., Thomas, Long, Whitten, Hamilton, Fraser & Askins, 1985).

The sixth component was the inclusion of materials specifically targeted towards the group of predominantly aboriginal students attending the northern Canadian college. The development of an appropriate curriculum required the author to sift through a variety of Canadian and American commercially available materials (e.g., Golick & Greig, 1987). It also meant that many of the materials had to be designed as the needs of the students or specific situations arose. For example, the use of current newspaper clippings debating relevant AIDS issues were incorporated into class discussions. Feedback from the students would then be used to determine both the topic and the possible ways it could be presented in a future lesson.

This study investigated whether these course components would improve the knowledge and foster positive attitudinal change among students in the target group.

METHOD

Subjects

A total of 121 first and second year students attending the Thebacha Campus of Arctic College in Fort Smith, Northwest Territories (NWT) comprised the sample. The Fort Smith site is the oldest of the six campuses situated throughout the NWT which offer a variety of diploma programs. The 48 male and 73 female students in the sample were enrolled in one of eight of the following areas: academic studies, secretarial arts, renewable resources, public and business administration, teacher education, heavy equipment operation, social services, and community counselling.

Students in the sample represented 29 different communities throughout the Northwest Territories. The majority (82%) were of Aboriginal descent (i.e., Dene: 38%, Metis: 24%, Inuit: 20%). The student population tends to be older than that of many colleges (mean=29 years) having spent, on the average, almost 10 years out of school. Most students had completed either grade 10 or had achieved some form of upgrading to this level. Over half of the students (56%) were either married or living common law. One-third of the sample was single (32%). Approximately half of the students (46%) had children.

Procedure

This experimental study was a pre-test/post-test control-group design with eight intact classes of subjects nested within the groups. The independent variable manipulated was attendance throughout a comprehensive course on AIDS. The three dependent variables measured were the subjects' knowledge of AIDS, attitude towards AIDS risk-taking behaviours, and compassionate attitude towards those infected or perceived to be infected with HIV. The dependent variables were measured using the university/college version of the Canada Youth and AIDS Survey (King et al., 1988) questionnaire, a likert-type response option instrument. The "background" portion of the questionnaire was slightly modified in order to obtain relevant information about the sample of students attending the college (e.g., ethnic background, place of residence, enrollment in particular college program). These minor modifications were not deemed to be sufficient enough to alter the instrument's validity or reliability since this demographic data was not used in the statistical analysis.

Following the first week when all eight classes were administered the pre-test questionnaire, an eight lesson course on AIDS and sexually transmitted diseases (STDs) began for those enrolled in the experimental group. The control group received no treatment other than their regular classes. The duration of each lesson was approximately 11/2 hours long. Each weekly lesson comprised of both didactic and experiential components so that there was input from both the instructor or guest speaker as well as feedback from the subjects. The course included a variety of methods and activities such as lectures involving relevant videotapes, anonymous opinion polls, nonjudgmental discussions of controversial issues, and a classroom demonstration of the use of the condom. The development of interpersonal skills was encouraged through role playing possible risk-taking scenarios. Students also had the chance to express their preventative messages through the creation of either posters or an AIDS video tape using puppets. In an effort to enhance self-esteem, the posters were displayed throughout the college and copies of the video tape were taken home to their respective communities.

The post-test was administered to both groups the week following the course. In order to obtain mean scores for each of the hypotheses, items were hand scored. Knowledge items were scored on the basis of the correct reponse of either "yes" or "no." Items for the two remaining attitudinal hypotheses were scored in either the direction of one to five or five to one in order to accommodate the five category likert-type response option. The mean score was then calculated for the experimental and control groups on both the pre-test and post-test questionnaires.

RESULTS

An analysis of covariance (ANOVA) with classes nested within groups was computed on the data for all three hypotheses. The design was balanced so that of the eight classes who participated in the study, four each were nested within the control and experimental groups.

Because there could be other independent variables besides the AIDS course such as class size, available time allotment for each lesson, and/or the type of student which is prone to enrol in each program (e.g., gender, aptitude), it was important to remove, by regression, those certain recognized environmental effects which had not been controlled effectively by random assignment of intact classes. Thus, post-test means were adjusted to control for error and increase precision in the interpretation of the data.

An ANOVA measuring the means of the variance within the groups $(T \times Cwt)$ indicated that there was no significant difference in the variability amongst the eight classes at the time of the pre-test on any of the dependent variables. Thus, the experimental and control groups were sufficiently balanced to warrant valid comparisons. The results are evident in Table 1.

Hypothesis #1 stated that the college students who received a comprehensive AIDS prevention program would score higher on knowledge about HIV transmission than the control group of students who received no program. Table 1 shows the significant difference between the posttest means of the experimental and control groups on the knowledge items (F=51.52, p .001). The adjusted post-test means, seen in Table 2, show that it was the experimental group who made substantial gains between pre- and post-testing sessions whereas the control group's mean scores remained relatively stable.

Hypotheses #2 stated that the subjects in the treatment program who addressed the issues involved in HIV transmission would show a more positive attitude towards the practice of low risk behaviours than those subjects in the control group where such issues were not addressed. A significant difference between the post-test means of the experimental and control groups on the items measuring behaviour response (F=21.17, p.005) is evident from Table 1. The adjusted post-test means (Table 2) show that it was again the experimental subjects who made the significant gain between pre- and post-testing sessions.

Hypothesis #3 stated that students who received a comprehensive course about HIV transmission would show a more compassionate attitude towards those infected with the AIDS virus than the control group who received no such program of learning. A significant difference between the control and experimental groups' post-test means based on the compassionate attitude items (F=6.86, p. 0.05) can be seen in Table 1. Table 2 shows the experimental group made substantial gains between pre- and post-testing sessions whereas the control group's mean scores remained relatively stable.

TABLE 1

Analysis of Covariance of Knowledge, Low Risk Behaviour, and Compassionate Attitude on Post-tests

Source	df	MS (between)	MS (within)	F	Probability
Knowledge					
Groups	1	322.18	6.25	51.52	0.001*
Classes (groups)	6	5.21	7.82	.67	0.68
Low Risk Behaviour					
Groups	1	147.00	6.94	21.17	$0.005 \pm$
Classes (groups)	6	5.79	13.91	.42	0.87
Compassionate Attitude					
Groups	1	204.03	29.75	6.86	0.0471
Classes (groups)	6	24.79	14.90	1.66	0.14

* p<.05

† p<.01

‡ p<.001

TABLE 2

	Pre-test Means	Post-test Means	Adjusted Post-test Means
Knowledge Scores			
Control	13.37	12.95	12.65
Experimental	12.36	16.20	16.50
Low Risk Behaviour Scores			
Control	27.32	27.24	27.59
Experimental	29.22	30.56	30.22
Compassionate Attitude Scores			
Control	22.44	22.42	23.06
Experimental	24.46	26.76	26.11

Pre-test, Post-test, and Adjusted Post-test Means for the Experimental and Control Groups

Thus, a significant difference between the groups was found for all three hypotheses at the .05 alpha level. Adusted post-test means revealed that the experimental group had a substantially greater change than did the control group in knowledge (p .001), in an attitudinal change towards the practice of low risk behaviours (p .01), and in an increase in compassionate attitude towards those infected with the AIDS virus (p .05).

DISCUSSION

Five elements may have contributed to the success of this study. First, the topic was relevant and of prime salience to many of the Thebacha College students as indicated by the fact that more than 50% of the campus population voluntarily participated in the study as well as by the positive response on the course evaluation. This confirms the interest among young people as presented by the federally funded Canadian study (King *et al.*, 1988).

Secondly, the curriculum was designed towards a specific target group (i.e., predominantly aboriginal college students). An effort was made to incorporate materials which would be perceived as relevant in age and ethnic content. Thirdly, information was explicitly given in order to dissipate entrenched myths surrounding AIDS. A variety of interesting materials and instructional strategies were incorporated into the learning environment by a well trained instructor who was knowledgable about AIDS. Lively videos, a guest speaker, and a "hands on" approach with condoms and spermicides kept the interest high so that the message of "safer" practices was clearly portrayed to everyone: use condoms, limit your sexual partners or learn the confidence needed to say "no," do not share IV needles.

Fourthly, AIDS was not taught in isolation of other STDs. By using graphs and literature to vividly illustrate destructive behavioural patterns such as the NWT gonorrhea rate being 25 times that of the Canadian average (Bergman & Dunn, 1990), perhaps students were less apt to believe in the fallacy of their invulnerability to such diseases.

Lastly, the course length was extended beyond that of a quick workshop. This allowed the students the chance to assimilate the knowledge and experience the comprehensive scope of AIDS and other STDs. Students were provided with the opportunity to discuss issues, discover and clarify personal values, and express and understand differences in opinion in an atmosphere not stifled by a distorted sense of morality or a squeamishness about discussions in public.

Implications and Suggestions for Intervention Programs

The implications from this study to those designing and conducting educational programs about AIDS prevention is that more flexibility may be required in developing curriculum activities for specific target groups. Allowing students opportunities to empower themselves through relevant activities which foster a sense of freedom in expression, as well as the time to develop and practice the propagation of values and skills, may be key components to effective AIDS programming which have been overlooked in the rush to disseminate information. Researchers (e.g., Hanna, 1989; Tolsma *et al.*, 1988) state that while it is repeatedly said that giving knowledge is our best weapon against AIDS, it appears that giving

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information about how HIV is transmitted is not a sufficient condition to facilitate behavioural change. More studies need to be focused on what it is about a particular program that influences positive behavioural outcomes as a result of the acquired information.

Several investigators show that programs adapted for a variety of differences among populations (e.g., age, ethnicity, course length and availability, gender, competence of instructor, target group) have had some degree of success in behavioural response (e.g., Talbot, 1990; Laver, 1988; Brick, 1987; & Yarber, 1987). These particular programs are worth consideration if we are to make any progress in curtailing the AIDS epidemic.

Faculty can certainly take more initiative in augmenting AIDS awareness activities in their courses. Numerous researchers reveal a wealth of practical ideas for increasing positive behaviour skills (e.g., Flora & Thoresen, 1988; Van Newkirk, 1988; Wallace-Whittaker, 1987; Rugg, 1987; Lareau & Hendrix, 1987; Dienstbier, 1987; Chambliss, 1987; Yarber, 1987; Golick & Greig, 1987). It would seem that the strategies are endless, but the message is basic: AIDS can be prevented.

Recommendations

This study has shown that a comprehensive AIDS course can effectively increase knowledge and change attitudes of college students in the NWT. It seems paramount then that those responsible for determining policies concerning the development of the students of Arctic College, as well as other Canadian colleges and universities, must recognize the value of implementing similar courses. If a college or university provides an empathic instructor who is knowledgeable about the facts and issues surrounding AIDS and other STDS, and who is able to provide explicit information which instills a sense of caution along with a sense of selfcontrol and compassion towards others, the effect on the students may be more powerful than if an institution simply mandates its entire staff to provide information, or to the contrary, develops a laissez-faire attitude towards AIDS education.

While it is not recommended that an AIDS course be mandatory for students, course credit without fees could be offered as incentives to participate in such a program. Campuses providing continuing education courses to a majority of adult students may wish to offer an AIDS awareness course during the day rather than in the evening as many of the students have family responsibilities and day care facilities are not provided in the evening.

¹ Furthermore, more effort must be made towards educating the faculty and staff of higher institutions. Each member should recognize the need for such a curriculum and support its ongoing development and implementation. Periodically, AIDS workshops with current and accurate information could be given to all administration and staff members. It should not be assumed that all adults in the field of education are knowledgeable about correctly disseminating AIDS information. By taking the opportunity to implement accurate and unbiased information about AIDS, wherever relevant within one's own subject area, college instructors can help to control the myths, irrational beliefs and negative behaviours which lead to unfounded fears and discrimination. After all, a college's ability to deal with its first AIDS case rationally and compassionately could be very instructive for the students and the community. The rationale is clear. The best time to create these policies is now.

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About the Author

Correspondence regarding copies of the course outline may be addressed to her at 1025 Liberty Drive, RR 2, Victoria, B.C. V9B 5B4.

Rosemary Moskal received her Master of Education degree in Counselling Psychology from the University of Alberta in Edmonton. She taught school in the Northwest Territories for 12 years. Presently she works as a counsellor at the Victoria Child Sexual Abuse Society and volunteers at the AIDS Vancouver Island Centre.