

What Is the Impact of a Campus AIDS Education Course?

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Abstract. To meet a graduation requirement at a state university, 225 students took a 1-semester interdisciplinary course on AIDS. In addition to lectures, readings, and recitation sections, all the students participated in three small-group discussions of their feelings on AIDS-related issues. Students in other courses at the same university served as controls. Anonymous questionnaires were administered before and after the course to assess changes in knowledge, attitudes, and behaviors related to AIDS.

When compared with the control group, students in the course had become more knowledgeable about the disease, less fearful of AIDS, and less homophobic. They perceived the AIDS epidemic as more severe than they did before the course, but they were more likely to believe that effective preventive measures were possible. They were also more likely to believe that others in their peer group were taking action to prevent HIV infection.

There was no significant increase in either the experimental or the control group in the students' belief that they were personally vulnerable to AIDS, nor was there any statistically significant change in AIDS-related sexual or drug-abuse behaviors.

Key Words. AIDS education, sexual behavior, homophobia

This study assessed the impact of an interdisciplinary course on AIDS on college students' knowledge, behaviors, and attitudes. Previous research has found little change in AIDS-related behavior in low-risk populations¹ despite increased knowledge and awareness. A study of the sexual behavior of women at an American university concluded that there had been little change in sexual practices since 1975,² and a survey of 6,911 Canadian college students³ found that fear of AIDS was unrelated to condom use. Several studies⁴⁻⁷ have shown that fear of AIDS and intolerance of persons with AIDS are correlated with fear and in-

tolerance toward homosexuals and, more specifically, gay men. These studies have also shown that homophobic attitudes tend to be correlated with low levels of knowledge about AIDS.

METHOD

General Design

The interdisciplinary course focusing on the AIDS epidemic was offered to undergraduate students at Rutgers University in Camden, New Jersey. Students heard from healthcare professionals, scientists, social scientists, ethicists, and lawyers working in the field, as well as from individuals who themselves had been subjects of research and had AIDS or were HIV positive. Students read articles from medical, legal, and scientific journals, social science and historical collections, and autobiographical accounts of life with AIDS.

Information given in the lectures and readings was reviewed in recitation sections, and, in three special sessions, students divided into groups of 10 for discussions led by a specialist in AIDS education. In these sessions, students had a chance to talk about their personal responses to the material presented and to consider the implications it had for their own lives.

Rutgers University in Camden requires all students to take one interdisciplinary course in science, technology, and society and one interdisciplinary course in intellectual heritage. Very few students take both courses in the same semester. In the fall of 1989, the science, technology, and society course focused on the AIDS epidemic. The 225 students enrolled in this course were the experimental group; 275 students enrolled in the intellectual history course and 147 students enrolled in two introductory sociology courses, but not taking the AIDS course, served as the control group. The AIDS course was required in the sense that it met a university requirement, but students had the option of taking a different course to meet their requirement during another semester.

The students enrolled in these courses represented a

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cross section of upper division students at Rutgers in Camden. The Camden campus is a commuter school that draws from the three suburban New Jersey counties that are part of the Philadelphia metropolitan area. These counties include a depressed inner city and working- and middle-class suburban communities. The majority of students were from working-class and middle-class households, 69% lived at home with their parents, and most were the first in their families to attend college.

A comparison of the sample demographics with those of the college as a whole showed: sample students—female, 47%, male, 53%; white, 84%, other, 16%; ages 18–20, 57%, 22–24, 23%, 25–29, 10%, 30+, 10%; college—female, 52%, male, 48%; white, 83%, other, 17%; ages 18–21, 48%, 22–24, 27%, 25–27, 12%, 30+, 13%. Because we wished to protect students' anonymity, we did not attempt to get detailed statistics on participants in the study.

We followed procedures approved by the Rutgers University Committee on the Protection of Human Subjects. Students were asked to complete an anonymous questionnaire about their AIDS-related attitudes and behaviors, but we informed them that they could leave any part of the questionnaire blank if they preferred to do so. They were asked to make up a secret number and place it on their answer sheet. To protect the students' anonymity, the experimenters kept no record of the secret numbers and had no way of identifying answer sheets. Students were to write their secret numbers down somewhere so that they could put the same number on an answer sheet at the end of the semester.

Virtually all students completed the pretest questionnaire that was administered to the 193 students who were present at the first session of the AIDS course and to the 350 students at the first session of the intellectual history and sociology classes. Analysis of the pretest data showed that students in the experimental and control groups did not differ significantly in their knowledge or their attitudes concerning AIDS. Questionnaires were also administered to all students during the final examination period. As we expected, many students forgot their secret numbers and others declined to participate in the follow-up study. The nonparticipants either indicated that they did not have time to complete the questionnaire after their final examination or that they did not wish to be subjects of research. Of the 109 experimental group students and the 214 control group students who completed the posttest questionnaire, we were able to match before-and-after questionnaires for 79 students in the experimental group and 76 in the control group. The experimental dropouts limited sample size and introduced the possibility that the students who completed the study might have differed in their attitudes from those who did not. There were no statistically significant differences on the posttest between the students whose responses could be matched and those whose responses could not be.

Measures and Alpha Reliability Analysis

We used a series of scales based on previous research to measure the impact of the course material on participants' attitudes and beliefs about AIDS. The 18-item scale of homophobia included items adapted from published studies^{8,9} that achieved an alpha reliability of .92. A factor analysis confirmed Herek's¹⁰ finding of a strong "condemnation-tolerance" factor that applied to both gay men and lesbians rather than to two distinct groups. A 4-item scale of AIDS phobia¹¹ achieved an alpha reliability of .67.

We reworked a scale of knowledge of AIDS and used five separate attitude scales developed in Long Beach, California, by Rhodes and Wolitski¹² to measure variables derived from the Health Belief Model of health behavior.^{13,14} Our factor analysis with 565 Rutgers students almost perfectly replicated Rhodes and Wolitski's measures with 364 California students. The 15-item abridgement of their Knowledge of AIDS scale achieved an alpha reliability of .66. A 7-item scale of personal vulnerability had an alpha reliability of .72 (.76 in Long Beach); the 4-item scale of desire for information had an alpha reliability of .66 (.63 in Long Beach); the 4-item scale of perceived severity had an alpha reliability of .62 (.64 in Long Beach); the 4-item scale of prevention effectiveness had an alpha reliability of .58 (.54 in Long Beach); and the 6-item scale of perceived social norms had an alpha reliability of .74 (.77 in Long Beach).

Test-Retest Reliability Analysis

Test-retest reliability coefficients (Pearson's *r*) were also computed for the 79 students in the experimental group and the 76 students in the control group for whom it was possible to match questionnaires from before and after the course. The test-retest coefficients (Table 1) were very similar to the alpha reliability coefficients that we had computed for the entire pretest sample. The scale of homophobia was clearly the most reliable measure in both the alpha and test-retest reliability

TABLE 1
Test-Retest Reliability of Scale Scores
(Pearson's *r*)

Scale	Experimental group (<i>n</i> = 79)	Control group (<i>n</i> = 76)
Homophobia	.88	.85
AIDS phobia	.63	.67
Knowledge of AIDS	.56	.48
Personal vulnerability	.67	.75
Desire for information	.50	.63
Perceived severity	.63	.67
Prevention effectiveness	.41	.66
Social norms	.42	.46

analyses. This might have reflected the fact that it included 18 items, whereas the AIDS knowledge scale contained 15 items and the AIDS attitude scales varied from 7 to only 4 items. When we arbitrarily divided the homophobia scale into three equal subscales—first 6, second 6, and third 6 items—however, these subscales achieved alpha reliability scores of .81 for the first, .75 for the second, and .82 for the third 6. This suggested that students' feelings about homosexuality were stronger and more consistent than their knowledge of or attitudes about AIDS.

RESULTS

Structure of Attitudes

In Table 2, the data show the correlations between homophobia, AIDS phobia, knowledge of AIDS, and the scales measuring attitudes toward AIDS. These correlations were computed for the entire pretest population, including both experimental and control groups. Homophobia and AIDS phobia were significantly correlated. Both variables were negatively correlated with knowledge of AIDS. Homophobia and AIDS phobia were negatively correlated with the desire for information on AIDS.

In addition, knowledge of AIDS was weakly but significantly correlated with prevention effectiveness and desire for information. Knowledge of AIDS was *not* significantly correlated with personal vulnerability, perceived severity, or social norms. Correlations between the other attitude scales were generally modest, as expected, because these scales were constructed to measure distinct factors. There were no significant correlations between our attitude or knowledge measures and our measures of AIDS-related sexual or drug-use behaviors.

Change in Attitudes

Mean scores of the experimental and control groups on the eight measures of attitude before and after the course was offered are shown in Table 3. All of the attitude scales were scored on a 5-point scale, with *agree*

scored as 5 and *disagree* as 1 (items phrased in the opposite direction from the label of the scale were reversed). Scores above 3 indicated a positive attitude on the scale, and those below 3 indicated a negative attitude. Knowledge of AIDS was also scored on a 5-point scale, ranging from *very sure* the statement was false to *very sure* it was true. A score above 3 on that scale therefore indicated that the respondent was more likely to get items right than wrong or was more likely to be certain of the right answers than the wrong answers.

Lessening of homophobia. The data show that homophobia decreased significantly in the experimental group from a level we classed as mildly homophobic to neutral. No comparable change took place for the control group. This does not mean that homophobia was eliminated in the experimental group. For example, the majority of students in both groups expressed a preference not to be treated by a male physician who was homosexual. This preference was not changed by the course experience. Before the class, 54% of the experimental group and 58% of the control group agreed with a statement that homosexuality is "morally wrong." After the class, 47% of the experimental group and 58% of the control group still held this view.

Lessening of AIDS phobia. In general, students were much less AIDS phobic than homophobic. Exposure to the course gave students a more tolerant, less punitive attitude toward persons with AIDS. No comparable change took place for the control group. Before the course, 63% of the students in the experimental group and 70% in the control group disagreed with the statement that "students with AIDS should not be permitted to attend class in order to protect others from getting AIDS." After the class, 82% of the experimental group students disagreed, as did 62% of the control group.

AIDS knowledge and attitudes. The AIDS course had a statistically significant impact on the students' knowledge of and attitudes toward AIDS, except on the

TABLE 2
Correlations Between Scale Scores for Pretest Population (N = 565)

	Homophobia	AIDS phobia	Knowledge	Personal vulnerability	Desire for information	Perceived severity	Prevention effectiveness	Social norms
Homophobia	1.00	.47*	-.37*	-.14*	-.21*	.01	-.05	.10*
AIDS phobia	.47*	1.00	-.45*	-.06	-.25*	-.05	-.17*	-.02
Knowledge of AIDS	-.37*	-.45*	1.00	-.06	.11*	.01	.26*	-.05
Personal vulnerability	-.14*	-.06	-.06	1.00	.27*	.21*	-.19*	-.06
Desire for information	-.21*	-.25*	.11*	.27*	1.00	.22*	.06	.14*
Perceived severity	.01	-.05	.01	.21*	.22*	1.00	-.01	.06
Prevention effectiveness	-.05	-.17*	.26*	-.19*	.06	-.01	1.00	.23*
Social norms	.10*	-.02	-.05	-.06	.14*	.06	.23*	1.00

*p < .01.

TABLE 3
Before-and-After Measurements for Experimental and Control Groups
Mean Scores and t-Test Probabilities for Paired Comparisons

Scale	Experimental group (n = 79)			Control group (n = 76)		
	Before	After	p	Before	After	p
Homophobia	3.24	2.98	.000	3.39	3.34	.335 NS
AIDS phobia	2.60	2.17	.000	2.62	2.57	.405 NS
Knowledge of AIDS	3.52	3.86	.000	3.63	3.56	.111 NS
Personal vulnerability	3.00	2.95	.808 NS	2.85	2.80	.470 NS
Desire for information	4.32	4.17	.038	4.05	4.01	.555 NS
Perceived severity	3.31	3.65	.001	3.39	3.53	.120 NS
Prevention effectiveness	3.59	4.01	.000	3.59	3.59	1.000 NS
Social norms	3.37	3.54	.014	3.29	3.29	.956 NS

Note: NS = not significant.

TABLE 4
Sexual Behavior of Experimental and Control Groups

Behavior in preceding 3 months	Experimental group			Control group		
	Entire group (n = 193) Before %	Matchable respondents (n = 79)		Entire group (n = 350) Before %	Matchable respondents (n = 76)	
		Before %	After %		Before %	After %
Opposite sex partners						
None	23	27	31	28	36	31
One	62	63	60	55	50	51
Two or more	15	10	9	17	14	9
Genital intercourse without a condom						
Never	28	29	34	38	47	43
Occasionally	33	27	19	32	23	29
Frequently	40	44	47	31	30	28
Genital intercourse with a condom						
Never	60	58	58	54	53	54
Occasionally	25	24	38	28	23	29
Frequently	16	17	4	18	23	17
Anal intercourse without a condom						
Never	96	100	94	94	97	92
Occasionally	3	0	3	7	3	7
Frequently	1	0	3	0	0	3
Anal intercourse with a condom						
Never	99	100	97	95	97	93
Occasionally	1	0	1	3	3	6
Frequently	1	0	1	2	0	1
Oral intercourse without a condom						
Never	40	41	42	47	41	41
Occasionally	34	37	22	30	33	35
Frequently	26	22	36	23	26	24
Oral intercourse with a condom						
Never	96	100	99	91	95	94
Occasionally	3	9	0	7	5	6
Frequently	1	0	1	2	0	0

Note: Percentages may not add to 100% because of rounding.

personal vulnerability scale. Knowledge about AIDS increased significantly, although modestly, for the experimental group; knowledge of practical public health measures included in this scale had been relatively high in both groups before the study began.

The desire for AIDS information decreased slightly in the experimental group. Despite the decline, the mean scores on this scale were on the *agree* side of the neutral score of 3, which means that most students continued to feel positive about obtaining more information. There were significant increases in mean scores on the scales of perceived severity, prevention effectiveness, and social norms.

Personal vulnerability. In contrast to their scores on other attitude measures, students showed no change in their feelings of personal vulnerability from before to after the course. Mean scores were close to the neutral point on this scale, indicating that students felt only a modest level of vulnerability before and after the course.

Changes in Behavior

Data in Table 4 show the sexual behaviors reported by the entire sample from the pretest questionnaire as well as data from before and after for those for whom we were able to match pretest and posttest data. Posttest data for the entire sample are not presented because the response rate was poor in the posttest survey. Data on homosexual contacts are not presented because of the very low reported rate of these behaviors—in the pretest, only two men and three women in the experimental group reported ever having had a homosexual experience.

In both the pre- and posttest questionnaires, students were asked about sexual behaviors during the preceding 3 months. This interval was necessary to detect any changes that might have taken place as a consequence of the 1-semester course. Because the course was offered in the fall semester, however, the data compare an academic semester to a summer-vacation period, which may account for some of the differences.

Most students reported having had no more than one sexual partner during both 3-month periods. The percentage who had had multiple partners was low, and it did not diminish significantly. The percentage reporting *frequent* as opposed to *occasional* condom use actually declined during the semester for the experimental group, but this was not statistically significant. We found no statistically significant change in reported sexual behavior or condom use. We had included questions on intravenous drug use on our questionnaire, but no students in either group reported this behavior during the study period, and very few reported having injected drugs at any point in their lifetime.

Homophobia, AIDS Phobia, and Learning About AIDS

The pretest analysis showed that homophobia and AIDS phobia were negatively correlated with knowledge

of AIDS. With cross-sectional data, it was impossible to determine whether these correlations reflected causal relationships. The longitudinal data showed that homophobia and AIDS phobia did not significantly inhibit learning about AIDS in this classroom situation. We found no significant correlation between homophobia ($r = -.05$) or AIDS phobia ($r = .03$) scores at the beginning of the course and the amount of increase on the knowledge of AIDS scale. The correlations between knowledge of AIDS, homophobia ($r = -.36$), and AIDS phobia ($r = -.33$) persisted at the end of the course. An examination of the scatter plots showed that this was because both phobic and nonphobic students increased their knowledge at about the same rate. Homophobia and AIDS phobia scores declined consistently for the experimental group as a whole. Two variables were significantly, although weakly, correlated with learning about AIDS: personal vulnerability ($r = .25$) and desire for information ($r = .23$).

DISCUSSION

Despite the problems we had with sample size and experimental attrition, our study showed statistically significant changes in students' knowledge and attitudes. All categories of students learned more about AIDS: homophobic attitudes declined modestly and attitudes toward persons with AIDS became somewhat more tolerant; students also gained an enhanced appreciation of the seriousness of the AIDS epidemic, of the effectiveness of measures available to counter it, and of the fact that many people are taking action against HIV infection. These findings can be contrasted with Rhodes and Wolitski's¹⁴ use of four 20-minute videotapes that achieved a statistically significant change only in perceived effectiveness and in knowledge about AIDS.

Increased knowledge did not lead students to feel that they were personally in danger of infection or to believe that social norms in their community favored changing behaviors in ways that would minimize risk of AIDS. The course did not have a significant impact on the students' AIDS-related behaviors. Most students appeared to be satisfied that their lifestyles did not involve an unacceptable risk of contracting HIV.

Perceived vulnerability to HIV infection did not increase as a result of the course. The lack of change in personal vulnerability is perhaps the most disconcerting finding. In many models of change in health behavior, a sense of personal vulnerability is seen as necessary for producing behavioral changes. If students do not feel personally vulnerable to AIDS, it is unlikely that they will change any of their personal behaviors in ways that would minimize their risk of contracting HIV infection.

In short, although formal, graded, for credit, interdisciplinary courses on the AIDS epidemic can do much to enhance college students' knowledge and understanding and increase tolerance for persons with AIDS and their lifestyles, such courses appear to have little impact on behaviors related to the transmission of the disease.

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