

Medical students and AIDS: knowledge, attitudes and implications for education

David R. Kopacz, Linda S. Grossman¹ and Debra L. Klamen¹

Abstract

Second year medical students at a large midwestern university were surveyed about their attitudes regarding AIDS. Results indicated: (1) students with homosexual and/or HIV-positive friends were significantly more tolerant toward AIDS patients, (2) over half the students believed that treating AIDS patients may be hazardous and that their education had not prepared them to treat these patients safely, (3) one-third believed they had the right to refuse to treat AIDS patients, and (4) AIDS-phobia was significantly associated with homophobia. These data suggest that medical educators may need to help students overcome AIDS-phobia before some students will be able to incorporate instruction about AIDS since AIDS-phobia may inhibit this learning. Didactic instruction must be coupled with modeling by educators of non-prejudicial attitudes and strict adherence to medical professionalism.

Introduction

AIDS is an illness that primarily affects stigmatized groups, such as homosexual men, intravenous drug users and prostitutes. This recently discovered infectious illness can evoke irrational emotions and fears in health care providers, including medical students.

Department of Psychiatry, University of Nebraska/Omaha VA, 4101 Woolworth Ave, Omaha, NE 68105 and
¹Department of Psychiatry, University of Illinois College of Medicine, Chicago, IL 60612, USA
Correspondence to D. L. Kamen

If unexamined, these fears may produce a barrier to successful educational efforts about AIDS and result in a variety of adverse outcomes.

AIDS has stimulated ethical debates about a physician's right to refuse treatment. While there is a risk of transmission of the virus from patient to health care worker, this risk has been estimated at 0.3% after a single percutaneous exposure to HIV-infected blood (Robert and Bell, 1994). Medical students have refused to care for AIDS patients (Whalen, 1987), which is unacceptable for future physicians and illustrates the extreme emotions that AIDS can elicit.

A more subtle manifestation is a decreased willingness for students to enter medical specialties that care for large numbers of AIDS patients, such as internal medicine or surgery, where there is increased exposure to potentially infectious bodily fluids. Research has shown that students who trained in areas with a high density of AIDS patients were less likely to choose an internal medicine or surgical residency in high AIDS density locations (Ness *et al.*, 1989).

In the current paper we addressed the following issues. (1) What attitudes do medical students express about AIDS and does their knowledge level correlate with these attitudes? (2) Do medical students' attitudes toward AIDS affect their willingness to treat AIDS patients? (3) Is there a relationship between medical students' attitudes toward AIDS and their attitudes toward homosexuals?

Method

Subjects

To provide information about medical students' attitudes and knowledge regarding AIDS we sur-

veyed 72 students at the start of their course in human sexuality which occurred during the first semester of their second year of medical education. These students, attending a large urban midwest medical school, included 43% women and 57% men. They had not yet begun their clinical rotations and the vast majority (74%) had never treated or worked closely with AIDS patients. Although almost all of the students (95%) reported themselves to be heterosexual, 50% of the group reported they had homosexual friends and 15% reported they had HIV-positive friends.

Procedure

Students filled out a questionnaire inquiring about their attitudes towards AIDS patients, and their knowledge about the disease and its means of transmission. This questionnaire, adapted from other survey questionnaires used in previous research (Wertz *et al.*, 1987; Goodwin and Roscoe, 1988; Strunin *et al.*, 1989; Currey *et al.*, 1990; Feldman *et al.*, 1990; Larsen *et al.*, 1990; Tesch *et al.*, 1990), also inquired about students' demographic information, sexual activity, attitudes toward homosexuality and prior experience with AIDS patients.

The current study focused on students' attitudes toward AIDS by analyzing the strength of their agreement or disagreement with a variety of statements about AIDS and AIDS patients. These questions demonstrated good internal consistency (Chronbach's $\alpha = 0.75$). These statements were analyzed individually and also as a composite score of AIDS-phobia reflecting the sum of the items, grouped such that higher scores indicated more negative attitudes towards AIDS patients. Individual statements analyzed are presented in Table I. Students' knowledge about AIDS was analyzed as the sum of correct answers for each of eight statements about the virus and its transmission, with higher scores representing greater knowledge. Students were also rated for homophobia on a composite scale consisting of the sum of their answers to 12 questions about attitudes toward homosexuality based on a scale used in previous research (Klaman *et al.*, 1998). These questions

were organized such that higher scores reflected more homophobia.

Results

Students' attitudes and knowledge base regarding AIDS

First we compared the degree to which students were intolerant toward AIDS patients as measured by the composite scale of AIDS-phobia. The data indicated significantly more tolerant attitudes toward AIDS patient among students with homosexual friends ($t[66]=2.34, P < 0.05$) and HIV-positive friends ($t[66] = 2.43, P < 0.05$) compared to students without such friends. There were no significant attitude differences between students with or without prior sexual partners or prior experience working with AIDS patients. There were no significant differences in the depth of their knowledge of the AIDS virus for any of the groups.

Students' attitudes regarding a number of potentially controversial aspects of the AIDS virus are presented in Table I. The data indicated that 62% of students expressed concern that working with AIDS patient may be hazardous. Sixty percent expressed doubt that their professional education has provided them with enough information to work safely with AID patients. Nearly half (46%) expressed concern that future research would reveal that AIDS can be transmitted in ways now thought safe.

The majority of students (72%) stated they would be willing to perform mouth-to-mouth resuscitation on an AIDS patient in respiratory arrest. Approximately one-third of the students (36%) stated they would inform the partner of an AIDS patient of the disease, even against the patient's wishes. Approximately half the students (46%) expressed the belief that all patients admitted to the hospital should be HIV tested.

Approximately one-fifth (21%) of the students asserted that the probability of working with AIDS patients would influence their selection of medical specialty and 11% stated it would influence their choice of geographic location for their residencies.

Table I. Medical students' opinions on various statements regarding the AIDS virus

Statement about AIDS	Strongly agree	Agree	Disagree	Strongly disagree
I am concerned that working with AIDS patients may endanger my health	3 (4)	42 (58)	21 (29)	6 (8)
My professional education has provided me with enough information to work safely with AIDS patients	2 (3)	26 (37)	36 (50)	7 (10)
I am concerned that in the future we will find that AIDS can be transmitted in ways now thought safe	8 (11)	38 (54)	22 (31)	3 (4)
I would be willing to perform mouth-to-mouth resuscitation on an AIDS patient in respiratory arrest	7 (10)	45 (62)	17 (24)	2 (3)
I would inform an AIDS patient's sexual partner against the patient's wishes	2 (3)	23 (33)	34 (49)	10 (15)
All patients admitted to the hospital should be HIV-tested	8 (11)	25 (35)	27 (37)	12 (17)
The probability of working with AIDS patients will play a role in my specialty selection	1 (1)	15 (21)	43 (60)	13 (18)
The probability of working with AIDS patients will play a role in the choice of geographic location for my residency	1 (1)	7 (10)	44 (61)	20 (28)
I believe I have the right to refuse to treat an AIDS patient	6 (8)	16 (22)	40 (56)	9 (13)
I would refuse to treat an AIDS patient	1 (1)	4 (6)	41 (58)	25 (35)

Percentages are given in parentheses.

Relationship between attitudes toward AIDS and willingness to treat AIDS patients

To analyze students' attitudes about AIDS in terms of their willingness to treat AIDS patients, we compared students expressing the belief that they have the right to refuse treatment to AIDS patients to the students expressing the belief that they do not have this right. Significant differences were found when students stating they would refuse to treat AIDS patients were compared with those stating they would not refuse such treatment, both in their attitudes towards AIDS patients ($t[67]=4.16, P < 0.001$) and in their attitudes towards homosexuals ($t[58]=2.23, P < 0.05$); those who would refuse to treat AIDS patients held significantly more negative attitudes toward AIDS patients and toward homosexuals. Significant differences indicated that students who had more negative attitudes toward AIDS patients ($t[67]=4.17, P < 0.001$) and towards homosexuals ($t[59]=2.47, P < 0.05$) more frequently believed they had the right to refuse to treat AIDS patients.

Relationship between AIDS attitudes and homophobia

To provide information regarding the relationship between students' attitudes towards AIDS and their attitudes toward homosexuality, we correlated students' scores on the AIDS-phobia scale with their attitudes on the homophobia scale. The result was a highly significant Pearson correlation of $r(59) = 0.54 (P < 0.01)$, which indicated that students with higher levels of homophobia were also more negative in their attitude toward AIDS.

Discussion

We surveyed a sample of second year medical students at a large, midwestern urban university about their attitudes and knowledge about AIDS. Results concerning AIDS-phobia indicated that students with homosexual and HIV-positive friends were significantly more tolerant toward AIDS patients than students without such friends. One interpretation of this finding is that friendships with homosexual or HIV-positive individuals may

exert a positive impact on students' attitudes. Alternatively, students with homosexual or HIV-positive friends may have harbored more positive attitudes toward AIDS prior to these friendships. No significant attitude differences were found between students with or without sexual partners. Our data also showed no relationship between students' preclinical experience working with AIDS patients and their attitudes toward AIDS, suggesting that prior experience working with AIDS patients is not enough to overcome AIDS-phobia in some students. The sample of students will be followed to provide information as to whether clinical experience working with AIDS patients affects their attitudes toward AIDS.

The finding that 62% of our sample was concerned that working with AIDS patients may endanger their health is not surprising. Other researchers have found that from 26 to 90% of students were concerned about infection from AIDS patients (Strunin *et al.*, 1989; Bernstein *et al.*, 1990; Currey *et al.*, 1990; Tesch *et al.*, 1990). Fear of contagion has been shown to be one of the principle factors in students' negative attitudes toward AIDS patient (Merrill *et al.*, 1989).

The fact that AIDS is a relatively new, and fatal, illness may contribute to students' exaggerated fears. Over half the students felt they did not have sufficient education to work safely with AIDS patients. Sixty-five percent of our sample was concerned that new modes of transmission of the virus may be found in the future, a rate of concern found previously (Currey *et al.*, 1990).

Surprisingly, almost three-quarters of students in our study stated they would be willing to perform mouth-to-mouth resuscitation, apparently expressing little doubt about transmission via saliva. This is a 3-fold higher comfort level than that found in previous research (Strunin *et al.*, 1989). These differences between the previous study (Strunin *et al.*, 1989) and the current one may reflect geographical and chronological variations, in that the previous sample was drawn from a southeastern medical school in 1988–1989.

Thirty-six percent of our sample agreed that they would inform an AIDS patient's sexual partner

of the AIDS, even if forbidden to do so by the patient. It is unlikely that this student view is informed by a comprehensive understanding of issues of confidentiality versus a duty to warn endangered parties, because these topics are generally taught later in medical school curricula. Thus, students' statements about warning patients' partners are more likely to reflect students' lay opinions. It is likely that lay opinions also formed the basis of the 46% of our sample who felt that all patients admitted to the hospital should be HIV tested, since the complex issues surrounding this topic are also not generally addressed until later in medical school.

AIDS-phobia can manifest itself in numerous ways, the most extreme of which may be an unwillingness to treat AIDS patients altogether. Approximately one-third of our sample believed they had the right to refuse treatment to AIDS patients. This percentage falls at the lower end of the range of 34–66% found previously (Goodwin and Roscoe, 1988; Strunin *et al.*, 1989; Currey *et al.*, 1990; Tesch *et al.*, 1990; Gann *et al.*, 1991). Students' beliefs about their right to refuse to treat AIDS patients occurred despite a 1988 statement by the Association of American Medical Colleges asserting that medical students are ethically responsible for providing care to all patients, regardless of diagnosis (Association of American Medical Colleges, 1988). Students' belief in the right to refuse to treat AIDS patients probably reflects the unique fears and prejudices associated with AIDS, as this does not seem to be an issue with other potentially infectious patients, such as those with Hepatitis B.

While unwillingness to treat may be the most extreme manifestation of AIDS-phobia, the graduating students' avoidance of a specialty which often encounters AIDS patients, or a geographic location in which the disease is found more often, will also have a major impact on health care delivery. We found that 21% of students reported that AIDS would play a role in their specialty choices and that 11% stated that AIDS would play a role in their choice of the geographic location of their residency. Other studies have found from 29

to 58% of students reporting that concern about AIDS patients would affect their choice of medical specialty (Imperato *et al.*, 1988; Ness *et al.*, 1989; Bernstein *et al.*, 1990; Tesch *et al.*, 1990; Thomas, 1990; Gann *et al.*, 1991; Weyant *et al.*, 1993). The importance of AIDS as a factor in residency selection may be diminishing over time, as the two studies with values greater than 40% were conducted in 1988 and 1989. Significant variations in concern about AIDS may also depend on region of the country (McGrory *et al.*, 1990).

In previous research, AIDS-phobia has been shown to be related to a number of maladaptive attitudes, including homophobia (Strunin *et al.*, 1989; Simon *et al.*, 1991; Weyant *et al.*, 1993). This is particularly interesting in light of research (Stipp and Kerr, 1989) suggesting that homophobia may interfere with the ability to learn about risk factors and modes of transmission of HIV, suggesting that attitudes about AIDS may be resistant to change through the acquisition of facts alone. We found that AIDS-phobia was significantly associated with homophobia and both attitudes were associated with students' believing they have the right to refuse to treat AIDS patients. Homophobia has been found to correlate with unwillingness to treat AIDS patients in other research (Strunin *et al.*, 1989; Simon *et al.*, 1991; Weyant *et al.*, 1993).

In our study, students' knowledge about AIDS and its transmission was not associated with decreased AIDS-phobia, a finding which is in accord with previous research (Polan *et al.*, 1990; Gann *et al.*, 1991; Simon *et al.*, 1991; Weyant *et al.*, 1993). For example, one study (Polan *et al.*, 1990) found that instruction helped students to feel better prepared to counsel AIDS patients, but did not increase their willingness to treat these patients. It appears that neither prior experience with AIDS patients nor didactic instruction is enough to overcome AIDS-phobia in some students. Together these findings imply that medical educators may need to address students' fear of infection and AIDS-phobia before some students will be able to incorporate and utilize advanced instruction about the transmission of the disease.

Teaching medical students about AIDS clearly requires more than didactic communication of facts or simple exposure to AIDS patients. Many researchers have recommended methods of teaching that go beyond a passive, one-way exchange of knowledge and include experiential, small group or affective components (Merrill *et al.*, 1989; Stipp and Kerr, 1989; Strunin *et al.*, 1989; Bernstein *et al.*, 1990; Simon *et al.*, 1991; Weyant *et al.*, 1993). Areas that particularly need to be addressed are exaggerated fear of contagion, prejudice against high-risk groups (e.g. homosexuals, intravenous drug users and prostitutes), and also closer attention to ethics and professionalism. One study (McGrory *et al.*, 1990) noted that students' experience can exert either a positive or negative effect on attitudes and suggests that experience without guidance may solidify prejudice. Students need intensive preclinical experience that is focused on identifying and encouraging exploration of their fears. This experience must continue during the clinical years, as some prejudices may increase with exposure: more than half of the students in one sample (McGrory *et al.*, 1990) reported acquiring a more negative attitude toward intravenous drug abusers since entering medical school. Modeling of non-prejudicial attitudes and strict adherence to medical professionalism by attendings and residents is also essential: research has shown (McGrory *et al.*, 1990) that over one-quarter of students viewed their teachers as AIDS-phobic and homophobic. In another study (Strunin *et al.*, 1989), more than half of nurses and physicians were reluctant to work with AIDS patients. Medical educators must be prepared to help students overcome prejudice and increase their capacity for empathy toward AIDS patients. If educators fail in these tasks, poor doctor-patient relationships resulting from ignorance or prejudice will lead to poor treatment outcomes.

References

- Association of American Medical Colleges (1988) Professional responsibility in treating AIDS patients. *Journal of Medical Education*, **63**, 573-587.

- Bernstein, C. A., Rabkin, J. G. and Wolland, H. (1990) Medical and dental students' attitudes about the AIDS epidemic. *Academic Medicine*, **65**, 458–460.
- Currey, C. J., Johnson, M. and Ogden, B. (1990) Willingness of health-professions students to treat patients with AIDS. *Academic Medicine*, **65**, 472–474.
- Feldman, T. B., Bell, R. A., Stephenson, J. J. and Purifoy, F. E. (1990) Attitudes of medical school faculty and students toward acquired immunodeficiency syndrome. *Academic Medicine*, **65**, 464–466.
- Gann, P. H., Anderson, S. and Regan, M. B. (1991) Shifts in medical student beliefs about AIDS after a comprehensive training experience. *American Journal of Preventive Medicine*, **7**, 172–177.
- Goodwin, M. P. and Roscoe, B. (1988) AIDS: students' knowledge and attitudes at a midwestern university. *Journal of College Health*, **36**, 214–222.
- Imperato, P. J., Feldman, J. G., Nayeri, K. and DeHovitz, J. A. (1988) Medical students' attitudes towards caring for patients with AIDS in a high incidence area. *New York State Journal of Medicine*, **88**, 223–227.
- Klamen, D. L., Kopacz, D. R. and Grossman, L. S. (1998) Medical student homophobia. *Journal of Homosexuality*, in press.
- Larsen, K. S., Serra, M. and Long, E. (1990) AIDS victims and heterosexual attitudes. *Journal of Homosexuality*, **19**, 103–116.
- McGrory, B. J., McDowell, D. M. and Muskin, P. R. (1990) Medical students' attitudes toward AIDS, homosexual, and intravenous drug-abusing patients: a re-evaluation in New York City. *Psychosomatics*, **31**, 426–433.
- Merrill, J. M., Laux, L. and Thornby, J. I. (1989) AIDS and student attitudes. *Southern Medical Journal*, **82**, 426–432.
- Ness, R., Killian, C. D., Ness, D. E., Frost, J. B. and McMahon, D. (1989) Likelihood of contact with AIDS patients as a factor in medical students' residency selections. *Academic Medicine*, **64**, 588–594.
- Polan, H. J., Auerbach, M. I. and Viederman, M. (1990) AIDS as a paradigm of human behavior in disease. *Academic Psychiatry*, **14**, 197–203.
- Robert, L. M. and Bell, D. M. (1994) HIV transmission in the health-care setting: risk to health-care workers and patients. *Infectious Disease Clinics of North America*, **8**, 319–329.
- Simon, M. S., Weyant, R. J., Asabigi, K. N., Zucker, L. and Koopman, J. S. (1991) Medical student attitudes toward the treatment of HIV-infected patients. *AIDS Education and Prevention*, **3**, 124–132.
- Stipp, H. and Kerr, D. (1989) Determinants of public opinion about AIDS. *Public Opinion Quarterly*, **53**, 98–106.
- Strunin, L., Culbert, A. and Crane, S. (1989) First year medical students' attitudes and knowledge about AIDS. *AIDS Care*, **1**, 105–110.
- Tesch, B. J., Simpson, D. E. and Kirby, B. D. (1990) Medical and nursing students' attitudes about AIDS issues. *Academic Medicine*, **65**, 467–469.
- Thomas, R. I. (1990) Medical students' views of how the HIV–AIDS epidemic affects their education and choice of training programs. *Academic Medicine*, **65**, 482.
- Wertz, D. C., Sorenson, J. R., Liebling, L., Kessler, L. and Heeren, T. C. (1987) Knowledge and attitudes of AIDS health care providers before and after education programs. *Public Health Reports*, **102**, 248–254.
- Weyant, R. J., Simon, M. S. and Bennett, M. E. (1993) Changes in students' attitudes toward HIV-infected patients as the students progress through medical school. *Academic Medicine*, **68**, 377–379.
- Whalen, J. P. (1987) Participation of medical students in the care of patients with AIDS. *Journal of Medical Education*, **62**, 53–54.