HIV/AIDS KNOWLEDGE SOURCES OF COLLEGE STUDENT-ATHLETES IN A SOUTHERN STATE

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ABSTRACT

This study examined the HIV/AIDS-related knowledge of 93 male and female college student-athletes in a southern state. Knowledge levels are reported according to the ethnicity and gender of the respondents. Significant differences ($p<.05$) were found between ethnic groups for general knowledge about HIV/AIDS and between genders for knowledge of disease transmission methods and risk-reduction techniques. Survey participants indicated mass media, parents, and peers as the most common sources of HIV/AIDS information, and they preferred videos, small group discussions, and classroom lectures as instructional formats. Results may be useful in the development of more effective HIV/AIDS educational initiatives targeting college student-athletes.

REVIEW OF THE LITERATURE

As of March 1, 1992, the U. S. Department of Health and Human Services had reported a cumulative total of 218,301 cases of Acquired Immune Deficiency Syndrome (AIDS) in the United States (Office of Preventive and Public Health Services, 1992). Approximately 20% of AIDS cases involve people 20-29 years of age (Gans, 1990; U. S. House Select Committee, 1987). Given the latency period of the disease, these individuals are likely to have been

infected during adolescence. The proportion of adolescent AIDS cases in the United States is expected to double each year (Brookes-Gunn, Boyer, & Hein, 1988).

The spread of HIV/AIDS across the United States has not been restricted to specific demographic groups or regions of the country. While major population centers remain the most concentrated centers for HIV infection and diagnosis of AIDS, rural localities have not been spared the effects of the epidemic. The State of Louisiana reported a cumulative total of 3,493 cases of AIDS, with 2,247 deaths, through July 1, 1992 (Office of Preventive and Public Health Services, 1992). Currently, Louisiana has an AIDS rate of 17.9/100,000, which represents the ninth highest rate in the nation. Of those cases, 793 (23%) involve people aged 20-29. Further examination of transmission categories indicates that an increasing number of cases of HIV/AIDS are the result of heterosexual contact.

Low levels of knowledge about HIV/AIDS among adolescent populations may be partially responsible for the increase in heterosexual transmission of the disease. The National Adolescent Student Health Survey (NASHS) found that while knowledge of risk factors for HIV infection was generally high, knowledge of prevention techniques was lower (National Adolescent Student Health Survey, 1989). Data from the study also revealed several misconceptions, including amount of risk associated with blood donation, possible existence of an AIDS vaccine, and confusion about the preventive benefits of post-coital washing of the genitals (Anderson & Christenson, 1991). The NASHS sample was restricted to eighth and tenth grade students; however, similar studies have been completed using college students. Anonymous testing indicates that the incidence of HIV infection among college students may be as high as 3.3/100,000 (Krupka & Vener, 1988).

Dorman and Rienzo (1988) found that 55% of college students surveyed were "very worried" about contracting HIV from infected classmates. Many of these students based their feelings of fear on misinformation about casual contact as a method of transmitting the virus. Stiff, McCormack, Zook, Stein, and Henry (1990) found that knowledge of HIV/AIDS among college students was not high. Many respondents indicated uncertainty about the pathology of the disease and the efficacy of preventive techniques. Other studies examining the knowledge, attitudes, and behaviors of college students in regards to HIV/AIDS have generated similar findings (McDermott, Hawkins, Moore, & Cittandino, 1987; Fennell, 1989; Price & Kukulka, 1985).

Goodwin and Roscoe (1988) found that while more survey respondents possessed minimal amounts of knowledge about HIV/AIDS, only 2% were considered to be "highly knowledgeable" (operationally defined as falling into the top quadrant of the total possible score). Female college students were found to score significantly better than male students. These findings have been consistently corroborated in the literature (Gaines, Iglar, Michal, & Patton, 1988; Nagy, Hunt & Adcock, 1990).

A common explanation for the generally insufficient levels of HIV/AIDS knowledge among adolescents has been the perception of individual non-susceptibility. McDermott, Hawkins, Moore, and Cittandino (1987) suggest this as a reason for low operational knowledge of the disease and misunderstandings about the sexual transmission of HIV. Hirschorn (1987) found that many heterosexual college students felt that "the disease is not going to happen to me." Lack of knowledge, combined with the inability to translate possessed knowledge into effective risk-reducing behaviors places some college students at increased risk for HIV infection (Simkins & Eberhage, 1984; Fennell, 1990).

Available research has examined HIV/AIDS knowledge, attitudes, and beliefs among adolescent populations of various descriptions. One population subgroup that has been notably absent from this research has been college athletes. Student-athletes are at risk for contracting HIV/AIDS in many of the same ways as general college populations, for example through heterosexual or homosexual contact or through the administration of intravenous (IV) drugs such as injectable anabolic steroids. The relative risk of infection during athletic endeavors is a matter of some controversy. Presently, it is believed that transmission of the virus from blood-to-blood contact during sporting events presents a very minimal risk; however, governing bodies are re-examining participation policies for HIV-positive athletes and alterations in athletic training and medical care. Student-athletes should be aware of the relative risk of contracting HIV both in their daily lives and in that part of their lives dedicated to sport (Hamel, 1992; American Academy of Pediatrics, 1992).

PURPOSE OF THE STUDY

Most prior research in the area of HIV/AIDS in college populations has utilized male members of the general student body as subjects. Relatively little research has involved women or college athletes as participants. The purpose of this study was to examine the knowledge, attitudes, and behaviors regarding HIV/AIDS of male and female college athletes in a southern state. This paper reports HIV/AIDS-related knowledge data gathered in the study according to the ethnicity and gender of the respondents. Also, current sources of AIDS information are examined, along with student-athletes' preferences for HIV/AIDS instruction.

METHODS

Subjects in the study were scholarship basketball players at NCAA Division I colleges and universities in the State of Louisiana. Only those student-athletes over the age of 18 were asked to participate in the study. Confidentiality of responses and individual anonymity were assured to those student-athletes who gave their informed consent to participate.

Assistant athletic directors for compliance at each participating institution were asked to administer the survey. The instrument was a

descriptive questionnaire addressing three areas: (1) knowledge related to HIV/AIDS; (2) attitudes concerning the relative risk of becoming infected with the virus; and (3) personal behaviors related to preventing exposure to HIV.

This study reports on the HIV/AIDS knowledge portion of the survey and is divided into ethnic and gender subgroups. Sources of HIV/AIDS information and instructional preferences are reported on a percentage basis. The data are descriptive in nature, showing percentage correct responses by subgroup. The data were analyzed by analysis of variance utilizing a significance level of $p<.05$.

RESULTS

A total of 93 athletes completed the survey. Of the subjects, 26 classified themselves as Caucasian (white), while 65 classified themselves as African-American (black). The remainder of the respondents (n=2) are categorized for purposes of this study as "other." The sample was relatively evenly split according to gender, with 50 subjects being male and 43 female subjects. The mean age of the subjects was 20.27 years.

The mean correct response rate for white respondents was 89%, while the mean rate for black respondents was 82%. Results were similar to those of prior studies which utilized general college populations. Overall, knowledge scores were reasonably high; however, misconceptions were indicated in several areas.

General knowledge of AIDS broken down by ethnicity is presented in Table 1. Survey items addressing the number of reported AIDS cases in the U. S. and the number of deaths resulting from AIDS-related infections and conditions were answered poorly. A significant difference ($p<.05$) exists between blacks and whites for the percentage of correct answers concerning the number of AIDS cases reported in the United States. Also, a surprising number of respondents (37.0% of blacks, 19.3% of whites) mistakenly thought that there was a cure for AIDS. Significant variations also existed with respect to conditions under which HIV may be contracted or transmitted. A sizable number (24.7%) of black respondents did not recognize that AIDS was not restricted to homosexual/bisexual males. Furthermore, 27.7% of black respondents did not acknowledge the possibility of the asymptomatic carrier state characteristic of HIV-positive individuals in the early stages of infection.

There were also misconceptions indicated in survey items addressing knowledge of transmission risk (see Table 2). Anal sex was not recognized as a means of transmitting HIV/AIDS by 24.7% of black respondents, while 13.8% of that group did not know that using a condom during sexual activity decreases the risk of contracting HIV. In light of the considerable attention paid to these two issues in the mass media, misconceptions in these areas could be considered surprising.

By ethnic category, 46.2% of white respondents and 36.9% of black respondents did not know that genital herpes can increase the risk of contracting HIV. Less than half of white (46.2%) and black (47.7%) respondents recognized the risk-reduction properties of spermicides containing non-oxynol 9.

Examination of AIDS knowledge from the perspective of gender demonstrated knowledge levels and misconceptions similar to those indicated in the ethnic comparisons (see Table 3). In general, female participants were more knowledgeable than males concerning general AIDS knowledge. The mean correct response for male participants was 82.5%, and for females the mean was 87.6%.

Transmission knowledge categorized by gender is presented in Table 4. Misconceptions were once again indicated on the relationship between genital herpes and risk of contracting HIV, with 38.0% of males and 39.5% of females not knowing that a case of HSV-II (genital herpes) increases the risk of HIV infection. Females (55.8%) were more likely than males (48.0%) to be unaware of the preventive benefits of spermicides containing non-oxynol 9. More significant, however, is the lack of knowledge by either gender concerning this risk-reducing behavior. Significant differences were found between genders for responses to questions concerning transmission of the virus in semen and through anal sex. In addition, there was a significant difference for gender concerning asymptomatic transmission of HIV (as noted in Table 3).

Table 5 presents data concerning student-athletes' sources of AIDS information. The most common sources of information were the media (95.7%), parents (68.8%), and teammates and friends (59.1%). Less than half of the student-athletes listed coaches (23.9%), athletic trainers (28.0%), or team physicians (40.9%) as sources of AIDS information.

Table 6 illustrates the instructional preferences of student-athletes who participated in the study. Most (69.9%) prefer the use of videos on the subject, with a majority also listing small group discussions (58.1%) and classroom lecture (54.8%) as instructional methods of choice. Videos and small group discussions coincide with media and parental sources of information, the two most commonly cited sources.

DISCUSSION

College athletes surveyed in this study demonstrated levels of HIV/AIDS knowledge similar to those of the general college population (Stiff,McCormack, Zook, Stein, & Henry, 1990; Manning, Barenberg, Gallese, & Rice, 1989; McDermott, Hawkins, Moore, & Cittandino, 1987). While possessing a reasonable amount of basic knowledge, many student-athletes still had misconceptions about certain aspects of the disease and its transmission.

Some facts about HIV/AIDS were known by virtually all participants. These included the fact that one may be infected with HIV without knowing it,

that promiscuous sexual behavior increases the risk of contracting HIV, that women are capable of transmitting the virus, and that exchange of blood is a risk factor.

Misconceptions concerning the number of AIDS cases and AIDS-related deaths in the United States were prevalent, as was confusion about the relationship of HIV/AIDS and genital herpes. Most of the sample were unaware of the benefits of spermicides containing non-oxynol 9 as a risk-reduction technique. The benefits of other risk-reduction strategies such as the use of condoms during sexual activity was misunderstood by 12% of male respondents. Utilizing this form of preventive behavior is often viewed as the responsibility of the male partner in heterosexual relationships.

In the present study, females answered correctly more often than males. This is consistent with results from the few previous studies which included females (Gaines, Iglar, Michal, & Patton, 1988; Nagy, Hunt, & Adcock, 1990; Goodwin & Roscoe, 1988). Since most research in the area of HIV/AIDS transmission and knowledge has not involved female subjects, the present study provides useful insight into areas which administrators, teachers, counselors, and clergy should address as part of HIV/AIDS-related risk-reduction and prevention initiatives.

A determination of the causes of this study's results would simply be speculation. However, it is clear that many student-athletes are unaware of some vitally important information regarding HIV/AIDS. It may be that education opportunities have been lacking or were of insufficient quality to prepare them to deal effectively with HIV/AIDS.

Reliance on media, parents, and teammates as information sources may not be providing college student-athletes with enough accurate, scientific information to meet their needs. One possible alternative includes utilizing those individuals with whom student-athletes spend much of their time (e.g., coaches and trainers) in educational interventions. Athletic academic counselors are also a potential source of information and instruction. Given the preference for small group discussion as an instructional method, perhaps informal seminars with trained counselors are a viable method of addressing HIV/AIDS knowledge among college student-athletes.

The possibility for improvement is evident and should be considered an important part of the college experience for student-athletes. Different strategies may be required for providing HIV/AIDS education to college athletes, and possible intervention initiatives should be closely examined.

Table 1
Aids General Knowledge

Ethnicity	Black(%)	White(%)	Other(%)
Approximately 200,000 cases of AIDS have been reported in the U. S.*			
True	67.7	46.1+	100.0
False	32.3	53.9	0.0
Approximately 115,000 Americans have died from AIDS so far.*			
True	53.1	50.0	50.0
False	46.9	50.0	50.0
There is currently no effective cure for AIDS.			
True	63.0	80.7	50.0
False	37.0	19.3	50.0
Someone can be infected by AIDS without knowing it.			
True	96.9	100.0	100.0
False	3.1	0.0	0.0
AIDS is not a condition restricted to homosexual or bisexual males.			
True	75.3	92.3	100.0
False	24.7	7.7	0.0
A person does not need to have symptoms of AIDS in order to infect others.			
True	72.3	92.3+	100.0
False	27.7	7.7	0.0

Note. Correct response for each item is "true."
*Figures accurate at time of survey administration
+ Significantly different ($p<.05$) between groups

Table 2
Transmission Knowledge

Ethnicity	Black(%)	White(%)	Other(%)
Women can transmit AIDS.			
True	95.3	96.1	100.0
False	4.7	3.9	0.0
An exchange of blood is a means of transmitting AIDS.			
True	90.7	100.0	100.0
False	9.3	0.0	0.0
An exchange of semen is a means of transmitting AIDS.			
True	83.1	96.1	100.0
False	16.9	3.9	0.0
Anal sex is a means of transmitting AIDS.			
True	75.3	100.0+	100.0
False	24.7	0.0	0.0
A case of genital herpes can increase the chance of contracting AIDS.			
True	63.1	53.8	100.0
False	36.9	46.2	0.0
One way of decreasing the chance of getting AIDS is to avoid casual sex.			
True	87.7	92.3	100.0
False	12.3	7.7	0.0
A person who engages in promiscuous sexual behavior increases his/her risk of contracting AIDS.			
True	95.3	96.1	100.0
False	4.7	3.9	0.0

Ethnicity	Black(%)	White(%)	Other(%)
Using a condom during sexual activity decreases the risk of contracting HIV.			
True	86.2	100.0	100.0
False	13.8	0.0	0.0
Spermicides containing non-oxynol 9 can decrease the risk of contracting HIV.			
True	47.7	46.2	100.0
False	52.3	53.8	0.0
Birth control pills offer no protection against HIV.			
True	90.8	96.2	100.0
False	9.2	3.8	0.0

Note. Correct response for each item is "true."
+ Significantly different ($p<.05$) between groups

Table 3
AIDS General Knowledge

Gender	Female(%)	Male(%)
Approximately 200,000 cases of AIDS have been reported in the U. S.*		
True	60.4	64.0
False	39.6	36.0
Approximately 115,000 Americans have died from AIDS so far.*		
True	52.4	52.0
False	47.6	48.0
There is currently no effective cure for AIDS.		
True	67.4	68.0
False	32.6	32.0
Someone can be infected by AIDS without knowing it.		
True	97.7	98.0
False	2.3	2.0
AIDS is not a condition restricted to homosexual or bisexual males.		
True	86.0	76.0
False	14.0	24.0
A person does not need to have symptoms of AIDS in order to infect others.		
True	88.4	70.0+
False	11.6	30.0

Note. Correct response for each item is "true."
* Figures accurate at time of survey administration
+ Significantly different ($p<.05$) between gender

Table 4
Transmission Knowledge

Gender	Female(%)	Male(%)
Women can transmit AIDS.		
True	97.7	94.0
False	2.3	6.0
An exchange of blood is a means of transmitting AIDS.		
True	95.4	92.0
False	4.6	8.0
An exchange of semen is a means of transmitting AIDS.		
True	95.4	80.0+
False	4.6	20.0
Anal sex is a means of transmitting AIDS.		
True	93.0	74.0+
False	7.0	26.0
A case of genital herpes can increase the chance of contracting HIV.		
True	60.5	62.0
False	39.5	38.0
One way of decreasing the chance of getting AIDS is to avoid casual sex.		
True	95.4	84.0
False	4.6	16.0
A person who engages in promiscuous sexual behavior increases his/her risk of contracting AIDS.		
True	95.4	96.0
False	4.6	4.0
Using a condom during sexual activity decreases the risk of contracting HIV.		
True	93.0	88.0
False	7.0	12.0

Gender	Female(%)	Male(%)
Spermicides containing non-oxynol 9 can decrease the risk of contracting HIV.		
True	44.2	52.0
False	55.8	48.0
Birth control pills offer no protection against HIV.		
True	97.7	88.0
False	2.3	12.0

Note. Correct response for each item is "true."
+Significantly different ($p<.05$) between gender

Table 5
Sources of HIV/AIDS Information

Source	No(%)	Yes(%)
One of your coaches	73.9	23.9
A trainer	72.0	28.0
A team doctor or other physician	59.1	40.9
One of your college instructors	45.2	53.8
Teammates/peers	40.9	59.1
Parents	30.1	68.8
Minister/clergy member	69.9	30.1
Mass media source	4.3	95.7

Note. May not equal 100% because of individual subjects responding incorrectly or not at all

Table 6
Preferred Instructional Format

Source	Least Pref(%)	Most Pref(%)	Undec(%)
Small group discussions	16.1	58.1	25.8
Large group discussions	21.5	44.1	34.4
Individual counselor	31.2	39.8	29.9
Videos	9.7	69.9	20.4
Q & A with expert panel	21.5	43.0	35.5
Classroom lecture	21.5	54.8	23.7

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