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EDUCATION, ATTITUDES TOWARD GAY AND LESBIAN PERSONS, ANXIETY,
AND HIV/AIDS RISK

BY

GARY J. BURKHOLDER, JR.

A THESIS SUBMITTED IN PARTIAL FULFILLMENT OF THE
REQUIREMENTS FOR THE DEGREE OF
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Abstract

A 210-item questionnaire was constructed and validated assessing AIDS-related risk among late adolescents in a college population (age 18, 19 and 20 years). Twenty seven individual subscales were used to assess self-reported risk behaviors: How One Comes to Know About AIDS (HOWAIDS) scale (composed of the following subscales: (1) School Education Influence {consisting of three separate subscales: (2) Passive Learning Influence; (3) Interactive Learning Influence; and (4) Sex Education Training}; (5) Communication About Sex; (6) Peer Influence; (7) Family Influence; (8) Proximity (knowing someone with HIV/AIDS); (9) Famous Persons Influence (influence of famous people who have HIV/AIDS); and (10) Media Influence); (11) Perceived AIDS Knowledge; (12) Anxiety About AIDS; (13) Fear of AIDS; (14) Negative Attitudes Toward Gay and Lesbian Individuals; (15) AIDS Knowledge; (16) Stereotyping About Who Has HIV/AIDS; (17) Perceived AIDS Risk; (18) Sexual Assertiveness for Communication; (19) Sexual Assertiveness for Condom Use; (20) Self-Efficacy for Condom Use; (21) Peer Influence in Condom Use; (22) Alcohol Use; (23) Drug Use; Problems from Substance Abuse (composed of three separate subscales indicating (24) Minor, (25) Moderate, and (26) Severe abuse); and (27) Behavioral HIV Risk. In a sample of 674 college students (84% of whom are sexually active), it was found that individuals who have more negative attitudes toward gay and lesbian people report a lower self-perception of risk for HIV/AIDS. A more negative attitude toward gays and lesbians was also found to be associated with higher behavioral HIV risk and lower self-

efficacy for AIDS prevention. This finding, in addition to the finding that individuals who received more education about HIV/AIDS and sex in secondary school also report less negative attitudes toward gays and lesbians, less anxiety about HIV/AIDS, and more accurate HIV/AIDS knowledge, indicates that HIV/AIDS education provides an important societal role, as well as functions as a possible means of reducing risk for contracting HIV/AIDS. The findings are consistent with the misperception that AIDS is a “gay disease” and point to the fact that this negative association might be preventing heterosexual people from taking steps to reduce their risk for AIDS. Limitations of the study, as well as implications for school HIV/AIDS and sex education programs and areas for future research, are discussed.

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Education, Attitudes Toward Gay and Lesbian Persons, Anxiety and HIV/AIDS Risk

Introduction: Current Epidemiology

In the United States, during the early 1980's, very little was known about Acquired Immune Deficiency Syndrome (AIDS) except that it was an illness affecting primarily gay men. In fact, before the mechanisms of the disease were fully understood, the media, as well as representatives of the government, was inaccurately portraying AIDS as a gay disease (Shilts, 1988). Although gay men comprise 53 percent of the total number of cases in the United States (CDC, 1994a), the number of diagnoses of AIDS acquired through heterosexual transmission is growing rapidly. In fact, the number of persons having AIDS traceable to heterosexual transmission has increased 41 percent from 1989 to 1990 (CDC, 1991). In 1993, the largest rate of increase in reported cases of AIDS was for persons infected through heterosexual contact. For the first time, cases reported among homosexual and bisexual men did not make up the majority of new AIDS cases (CDC, 1994b). This information, coupled with the large number of cases of AIDS worldwide identified as Pattern II (heterosexual transmission without intravenous (IV) drug use), provides assurance that AIDS has the potential to become a heterosexual problem in the United States as well. In fact, the number of Human Immunodeficiency Virus (HIV) infections worldwide due to heterosexual transmission is 71 percent of the total, with homosexual transmission a distant second at 15 percent (Mann, Tarantola, & Netter, 1992). The occurrence of Pattern I (homosexual transmission) versus Pattern II (heterosexual transmission)

infection in the United States has been described as a chance phenomenon (Bingham, 1989). Therefore, the pattern of AIDS infection appears to be independent of sexual orientation and is instead dependent upon participation in high risk sexual behaviors (such as unprotected sexual intercourse) and intravenous drug use (via sharing of infected needles).

The first U.S. case of AIDS was reported in the United States in 1981. As of June 1994, nearly 400,000 cases of AIDS had been diagnosed and, of this number, approximately 240,000 had died as a result of the disease (CDC, 1994a). It should be noted that the apparently large increase in the number of AIDS cases was due, in part, to the implementation in 1992 of the new Centers for Disease Control definition of AIDS which includes, among other indicators, persons having CD4+ T-lymphocyte (T-cell) counts of less than 200 cells per microliter. It is clear that the incidence of new AIDS cases is still increasing. The number of people diagnosed with AIDS is projected to **double** by 1995 and, worldwide, the upper bound estimate for the number of deaths due to AIDS is over 20,000,000 (Mann, Tarantola, & Netter, 1992).

Trends in AIDS incidence among heterosexual and homosexual transmission patterns indicate that, although the total number of AIDS cases among homosexuals has been leveling off since around 1990, the number of cases diagnosed as a result of heterosexual transmission is continuing to increase (CDC, 1992). Projections through 1994 indicate that this trend will continue. In fact, the number of cases due to heterosexual transmission reported in 1993 increased 130 percent over those in 1992,

with only a 109 percent increase in all other categories (correcting for the change in the AIDS definition) (CDC, 1994b). These statistics imply two conclusions. First, the homosexual population has been effective in changing risk behavior to the extent that the incidence of new cases of AIDS are stabilizing within this group (although there are sporadic reports in the media indicating that the epidemic might be increasing again among younger gay men). Second, the continued increase in heterosexual transmission indicates that the heterosexual population as a group is not responding to education in risk behavior change. It has been suggested that the identification of AIDS with persons and groups already stigmatized prior to the epidemic (i.e. homosexuals and IV drug users) increases the hostility towards the disease and the people with the disease (Herek & Glunt, 1988). Therefore, it is possible that heterosexual, non-IV drug-using populations are distancing themselves from the disease out of fear and social stigma and are inadvertently being caught in the epidemic without adequate knowledge and preparation.

Transmission Among Adolescents

The total number of individuals under age 20 years who are diagnosed with AIDS represents just under two percent of the total. For children under 12 years of age, the majority of these cases are hemophiliacs and children who acquired AIDS from an infected mother. AIDS diagnoses among male adolescents (13-19 years of age) represent 1 percent of the total. Of these, 33 percent are due to homosexual transmission, 11 percent are from injecting drug use, 44 percent are hemophiliac, 14 percent result from heterosexual transmission, and the remainder are from other

sources. Among females, the statistics are slightly different. Female adolescent cases represent just under one percent of the total; 20% of the cases are due to transmission through injection drug use, 1% through hemophilia disorder, 52% through heterosexual transmission and 26% other (CDC, 1994a).

However, these figures are misleading and incorrectly represent the severity of the problem of AIDS for adolescence. It is important to note that the average incubation period from initial seroconversion (going from HIV negative to HIV positive status) to diagnosis of AIDS is about eight years. This means that a person can acquire the virus and not manifest any symptoms of AIDS for an average of eight years after exposure. Since 20 percent of all diagnosed AIDS cases currently in the United States are under 29 years of age, and the average incubation period is eight years, it is probable that a large number of these individuals became HIV positive sometime during adolescence (Boyer & Kegeles, 1991). Worldwide, it is estimated that 50 percent of those infected with HIV became infected between ages 15 and 24 (AIDS Plague, 1993).

It is also likely that one who acquires the virus will never be tested until the symptoms of AIDS begin to manifest. Joseph (1991) suggests that this is because a large number of the infected adolescent population will not consider themselves at risk. There are strong negative consequences facing an individual who decides to be tested for HIV, including the possibility of discrimination, as well as the fear associated with the knowledge of carrying a virus that is ultimately lethal. These and other issues are presented in detail by Coates et al. (1988).

Adolescent transmission of HIV can no longer be ignored and, in fact, must be dealt with quickly and effectively. It might very well be that adolescents today will be responsible for continuing the spread of AIDS by remaining unaware of their status of infection. Studies in the New York City adolescent population indicate that, because the virus is increasingly being transmitted heterosexually, the standard marker groups - gay teenagers and IV drug users, for example - are becoming less useful in predicting HIV risk (Joseph, 1991).

The experience of adolescence puts younger individuals at higher risk for AIDS for a number of reasons. Cognitively, adolescents tend to perceive themselves as invulnerable to disease or harm (Elkind, 1984). This tends to result in a period of involvement in activities that will put the adolescent at a higher risk for potential problems, such as experimentation with and exploration of unprotected sex and drug use (Boyer & Kegeles, 1991).

Because adolescents as a group are at high risk for sexually transmitted diseases (STD), they are also at high risk for HIV infection. It has been hypothesized that young women are at a higher risk for STD's because of the numerous physiological changes that occur during adolescence in the reproductive tract (Hein, 1987). In fact, because risk behaviors for sexually transmitted diseases are virtually identical to those for HIV transmission, the large increase in the number of adolescents diagnosed with STDs indicates that the risk for HIV infection is probably increasing as well. The high number of teenage pregnancies - - one million every year (Boyer & Kegeles, 1991) - - indicates high rates of unprotected sexual intercourse.

Education. An important factor in AIDS prevention is the social implications for teaching adolescents about AIDS. Parents in most cases control the education of their children and, through school committees, approve the use of curriculum materials for their children. In spite of the fact that AIDS is and probably will remain a lethal disease, many parents are nervous about education that emphasizes explicit instruction and training in safer sexual behaviors. Parents respond more positively when they are allowed to participate more fully in the training process. In one study, Ponton, DiClemente, and McKenna (1991) developed an education program for hospitalized adolescents that included role play components, explicit discussions about HIV transmission, and presentations by Persons With AIDS (PWA). Parental response was reported as uniformly favorable.

Sexual Experience. The existence of a link between sex education and involvement in sexual intercourse has not thus far been supported by research. In an analysis of the data from the 1982 National Survey of Family Growth (NSFG), Dawson (1986) analyzed data from 1,888 15-19 year old females and found no relationship between the introduction of sex education and age of first intercourse. Additionally, research by Beazley, Warren, Wright, & King (1993) suggested that a 20-hour sex education program emphasizing behavioral skills training was having a positive effect on attitudes toward healthy sexuality but no effect on sexual activity. This further supports the notion that sex education and participation in sexual activity cannot be causally linked. No similar research in the U.S., however, has been conducted

concerning onset of AIDS education in schools and initiation of sexual intercourse or experimentation risk behaviors associated with high risk for HIV transmission.

There is much evidence that adolescents experiment with sex at a relatively young age. Harlow, Quina, Morokoff, Rose and Grimley (1993) found in a New England survey of almost 500 college women that 72 percent reported having sexual intercourse by age 17. Brown, DiClemente and Beausoleil (1992) found in a study with adolescents, who were an average age of 13.2 years, that 25 percent of the respondents had engaged in intercourse and that, of this number, 53 percent of the boys and 40 percent of the girls reported having intercourse more than five times. In light of these statistics, former President Reagan's educational approach toward promoting abstinence only as a form of AIDS prevention appears to have been misguided. The numbers suggest that adolescents are at risk for HIV transmission and that health programs need an AIDS education program targeted specifically to the language and understanding of adolescents.

Models for AIDS Research

Few models attempt to provide a general methodology toward AIDS prevention; there are even fewer dealing with adolescents. As a result, AIDS education for adolescents has been piecemeal and, in many cases, the schools are even promoting irrational fears (Horan & Sherman, 1988). Most AIDS education that has been attempted in schools has not been evaluated and, therefore, cannot document whether changes in knowledge and/or attitudes are leading to behavior change.

Harlow et al. (1993) investigated sexual health practices among heterosexual women and found that behavioral, interpersonal, and psycho-attitudinal variables all explain some of the variance in engagement in unprotected vaginal and anal intercourse, suggesting that studying AIDS and health education demands a multivariate approach. For example, perception of risk, sexual assertiveness, self-efficacy for AIDS prevention, peer influence in condom use, and alcohol use and abuse were found to be significant predictors of behavior risk. Several intervention models have been designed using the results of multivariate research to guide behavior change. Three examples are the Transtheoretical Model (Prochaska & Diclemente, 1984; Prochaska et al., 1994), the Health Belief Model (Kirscht & Joseph, 1990), and the AIDS Risk Reduction Model (Catania, Coates, Kegeles, et al., 1989; Boyer & Kegeles, 1991).

Transtheoretical Model. The stages of change approach within the Transtheoretical Model has been successfully applied to a variety of behaviors such as smoking cessation (DiClemente et al., 1991) and weight loss (O'Connell & Velicer, 1988). The transtheoretical model takes into account that people do not suddenly give up an unhealthy behavior but instead move through a series of stages that define the entire change process. Once a person's present stage (precontemplation, contemplation, preparation, action, or maintenance) has been identified, a stage-appropriate intervention will target the individual's behavior specific to where he or she is in the change process.

The Transtheoretical Model has also been applied to condom use (Prochaska et al., 1993). Researchers found that the sample could be classified into one of four of

the previously mentioned stages of change for 12 problem behaviors, including frequency of condom use. The behavioral markers associated with movement into the preparation phase, for example, are not so easily defined for HIV risk as for a behavior such as smoking (quitting smoking for 24 hours).

In another study, Pino (1993) investigated stages of readiness to change 12 HIV-related high risk behaviors in a sample of 52 young adolescents, ages 14-17. This study found that, although adolescents could be staged for each behavior, several other aspects of the Transtheoretical Model were not confirmed in this sample. For example, the weighing of pros and cons did not show significant differences across stages, in spite of other work suggesting that there are differences in decisional balance depending upon the stage of the person (Prochaska, et al., 1993).

Redding (1993) was able to show that the stages of change model can be applied to self-efficacy for safer sex in a late adolescent college population. Additionally, behavioral differences among stages were found to be consistent with Transtheoretical Model-based predictions. More work needs to be done, however, on how to successfully apply this model of change to HIV risk in adolescents.

Health Belief Model. The Health Belief Model postulates that behavior is a function of two factors: the value an individual places on a goal and the individual's belief that specific actions will achieve that goal. Preventive actions are influenced by: personal susceptibility to a negative health condition, the perceived severity of the condition, the value of a behavior, and barriers to the action. These factors determine the psychological readiness for change; behavior change occurs if the degree of

readiness is above a certain "threshold". Usually a specific stimulus, such as a media campaign, is necessary to trigger the decision-making process. In a critical analysis of this model, Kirscht and Joseph (1990) concluded that the Health Belief Model captures the complex nature of the process involved with AIDS prevention behavior change but that it requires synthesis with other frameworks to completely describe the change process. Additionally, perceived invulnerability would be an important mediator in the estimation of personal susceptibility necessary for health beliefs change.

AIDS Risk Reduction Model. The AIDS risk reduction model (ARRM) has shown promise for explaining the process of high risk behavior change within the gay community (Catania, Coates, Kegeles et al., 1989), and Boyer and Kegeles (1991) have suggested how this model could be extended to adolescents. The model has three stages. Stage one involves identification and labeling one's activities as risky. Factors affecting this stage are transmission knowledge, perceived personal susceptibility to AIDS, stereotypical thinking, acceptance of one's sexuality, egocentrism and perceptions of social norms regarding risk. Stage two is the commitment to engage in low-risk activities. This involves investigating attitudes about high and low risk activities and self-efficacy for change. In stage three, the person enacts the commitment to reduce risky activities. Factors affecting this stage are communication abilities, help-seeking behaviors and AIDS anxiety. This model requires an individual to "personalize" the AIDS crisis. Further, in order to achieve self-directed change, people need to access the resources that will allow them to do so (Bandura, 1990). The ARRM allows a mechanism for schools and educators to promote behavior change

among adolescents using cognitive and behavioral strategies. Additionally, this model does recognize that behavior change must be conceptualized as an evolving process involving a series of stages of change.

It should be recognized that the above three models contain a number of similarities among them. All utilize cognitive and behavioral approaches to behavior change. The ARRM and the stages of change approach both recognize that behavior change is a process as opposed to a singular event. One benefit of the ARRM is that it incorporates a behavior change approach that can be easily tailored to children and adolescents by educators. For these reasons, the present study will focus mainly on variables included in the ARRM as a conceptual basis for the investigation of how negative attitudes toward gays and lesbians, fear about AIDS, and the variety of ways an individual learns about HIV/AIDS impact perceived and behavioral HIV risk.

Behavioral and Cognitive Variables

The present study involves a survey of a broad sample of late adolescents. Responses were used to assess the importance of a number of behavioral and cognitive factors seen as important in the various behavior change models.

Knowledge. Both general AIDS knowledge and AIDS transmission knowledge have not been shown to result in behavior change by itself. Research linking knowledge and behavior change has yielded mixed results. Strunin and Hingson (1987) found that knowledge among adolescents is increasing but not leading to behavior changes (only 15 percent of the sample reported any behavior change). Goodman and Kohall (1989) found that women possess a high level of knowledge about AIDS

transmission but are not insisting on condom use. Although knowledge of AIDS is high, adolescents still tend to report high levels of risky sexual behavior (Keller et al., 1991). Among gay and bisexual adolescent males, knowledge of AIDS did not significantly relate to sexual risk behavior (Rotheram-Borus & Koopman, 1991). In another study, sexually delinquent youth were not able to discriminate low-risk behaviors from those associated with a much higher level of risk (Rotheram-Borus, Becker, Koopman, & Kaplan, 1991).

Although high AIDS knowledge does not necessarily speak for subsequent behavior change, there is some evidence that having a high level of knowledge may be of some benefit, consistent with the goals of the ARRM. It may be that knowledge is a necessary, but not sufficient, condition for behavior change related to AIDS. One study involving fraternity men suggests that sex education programs (which tend to be highly knowledge-based) might be successful in influencing more men to use condoms (Mink, Mareth, Russell & Young, 1991). In another study, Dawson (1986) found an overall increase in condom use by women who had received some type of sex education training.

The age at which knowledge based programs are initiated is an important consideration when teaching youth about health education. Koop (1987) recommended in his report on AIDS that education about AIDS should start as early as possible in elementary school. In this way, children can grow up knowing about the behaviors to avoid in order to protect themselves from exposure to HIV. And, although overall knowledge of AIDS is increasing, there have been documented gaps in information,

especially concerning AIDS transmission and HIV prevention (Petosa & Wessinger, 1990; Brown et al., 1992).

Because of the potential importance of the knowledge factor, the present study assesses the overall level of AIDS knowledge of the sample.

Personal perceived risk for AIDS. In order to reduce the risk for AIDS, adolescents need to feel personally vulnerable to the disease (Boyer & Kegeles, 1991). One aim of the present study is to assess which variables influence perceived risk for AIDS. How do adolescents come to know about AIDS, and are there any ways of learning about AIDS that make an adolescent feel more vulnerable to the epidemic? There are a number of ways that a person might come to know about AIDS. Along these lines, several researchers have recommended an interactive approach to learning about sex education that includes role play exercises and explicit discussion and enactment of safe sex practices (e.g., Ponton, DiClemente, & McKenna, 1991; Flora & Thoresen, 1988; Haffner, 1988).

Proximity. Proximity to the disease could increase perceived vulnerability. DiClemente, Zorn, and Temoshok (1987) showed that just living in an AIDS epicenter has great saliency for knowledge and attitudes toward AIDS. Knowing someone personally with AIDS has been shown to be effective in lowering social anxiety about AIDS (Zimet et al., 1991). What was not examined in that study, however, was whether changes in perceived HIV risk occur after exposure to a person with AIDS (PWA). Ponton et al. (1991) demonstrated that including a PWA within an education program with whom the students could come to know was a useful component of the

education program. They suggest that this increases the adolescent's awareness of the potential for contracting the disease and also increases the understanding of and tolerance for PWA's.

Media. The AIDS epidemic has received a tremendous amount of exposure in the media. There has been little research to help understand the extent to which the media can increase awareness and promote attitude changes about AIDS among adolescents, though there has been some research with other types of health risk. For example, Bennet, Smith, Nugent, and Panter (1991) found that a six-part TV series about alcohol abuse did improve knowledge, did not significantly change attitudes, and did result in some behavioral change. Bell, Feraios, and Bryan (1990) found, in a survey of adolescents, that television is a major source of information about AIDS, followed by newspapers/magazines, and then the classroom. Radio is also an effective media for reaching teenagers (Atkin, 1981; Bell et al., 1990).

Peer impact on how one comes to know about AIDS. Other personalization factors include the extent to which peers and family are important sources of AIDS knowledge. Litt (1987) asserts that peers are a particularly effective, if not always a factual, education source. If adolescents do indeed report that peers are an important way of knowing about AIDS, program development must incorporate peer training as well as strategies that alter peer group norms and values to reinforce individual prevention behaviors (Fisher, 1988).

Stereotypic thinking. Moore (1991a) found that among Australian adolescents, lower perceived risks were associated with stronger stereotyping of an AIDS victim.

In the U.S., AIDS was first identified as a homosexual disease. The increase in heterosexual HIV transmission might indirectly be the result of AIDS stigma. This stigma is characterized by intense, negative reactions to persons presumed to be infected by HIV. Those infected with HIV, such as gay men, represent a group previously stigmatized (Herek & Glunt, 1988).

Attitudes toward gay and lesbian people. This variable is not directly addressed in the three previously discussed behavior change models but is related to stereotypic thinking. In our society, attitudes toward gay and lesbian individuals are perceived to be relatively negative. In an unpublished survey of a northeastern university campus, a large majority of the gay, lesbian and bisexual population had been the victims of harassment because of sexual orientation (UMASS, 1987). Bell, Feraios, and Bryan (1990) found no significant results for the relationships between tolerance of homosexuality and AIDS knowledge. However, respondents with the lowest tolerance for homosexuality tended to consider AIDS to be a problem for others. Kelly et al. (1987) found that medical students stigmatized both homosexuals and those with AIDS; however, the presence of a significant interaction between the two was not fully addressed. McDevitt, Sheehan and Lennon (1990) found homophobia to be more prevalent among males than females. Mickler (1993) found that respondents tended to categorize outgroups (i.e. males, homosexuals, and people not in college) at higher risk than themselves for AIDS. In fact, they even identified homosexual women as being at higher risk, in light of the clear evidence that homosexual women are at low risk for AIDS (review of the most recent HIV/AIDS Surveillance Report (CDC, 1994a)

continues to show no known cases of female-female transmission of HIV). As with stereotypic thinking, it appears that individual attitudes toward gays and lesbians could be related to perceived, as well as actual, HIV risk behavior. The question of effect of negative attitudes toward gay and lesbian people on perceived and actual risk behavior is not represented in the research literature and, therefore, needs to be examined.

Peer group influence. The ARRM posits that the acceptance of certain behaviors as risky is a function of what the peer group considers as risky (Boyer & Kegeles, 1991). The use of key opinion leaders who represent the social norms of a given group of people has been found to be effective in promoting successful behavior change (Kelly et al., 1991). The influence of peer norms on adolescent development, particularly in self-perceptions, attitudes, and beliefs, has been documented in a variety of sources (e.g. Elkind, 1984; Boyer & Kegeles, 1991; DiClemente, 1991). It is expected that one successful method of changing adolescent behavior will be to use popular members of given subgroups to effect behavior change within those groups.

Self-efficacy. Self-efficacy for behavior change means that individuals need access to resources to change the behavior in question (Bandura, 1990). To adopt low risk activities, adolescents need to feel capable of engaging in activities that will prevent HIV infection. To feel capable means to be able to use condoms, to be free to insist on the use of condoms, to feel comfortable in discussing each partner's prior sexual and drug use history, and to feel free to abstain from unwanted sex. There is some evidence (e.g. Catania, Coates, Greenblatt et al., 1989; Demb, 1990) that adolescent females have adequate knowledge that condoms prevent HIV infection but

do not insist upon their use. There are other reasons why adolescents might not use condoms. For instance, Brooks-Gunn and Furstenberg (1990) found that a frequent reason for not using condoms is that sex was not planned and, consistent with the notion of perceived invulnerability, they believed that pregnancy would not happen to them.

Richard and Van Der Pligt (1991) showed a positive relationship between self-efficacy and taking precautionary measures to lower risk. Rotheram-Borus, Becker, Koopman, and Kaplan (1991b) found that self-efficacy and self-control were significantly related to AIDS knowledge. One aspect of the present study will be to measure the level of self-efficacy for AIDS prevention in young men and young women and relate the findings to perceived and actual risk activities. Part of the problem might be that, although adolescents may possess the behavioral skills to engage in protective behavior, they might not have the communication skills to relate what they want in the context of a partner relationship (Boyer & Kegeles, 1991).

AIDS Anxiety or Fear. Anxiety and/or fear toward AIDS is another hypothesized factor in enacting the commitment to reduce high-risk behavior. The ARRM posits that adolescents need to have some level of anxiety about AIDS in order to move through the various stages of behavior change. Livingston (1991) found that less knowledge about AIDS transmission and a perceived lack of control were related to fear of AIDS. Goodman and Kohall (1989) found that, among adolescent girls, those who reported behavior change had more worry about AIDS. Consistent with this finding, Hingson, Strunin, Berlin and Heerin (1990) found that those adolescents who

worried they would get AIDS were 1.8 times more likely to use condoms all of the time. Based on these results, it appears that fear might have a beneficial affect on AIDS prevention. However, studies conducted by Bell, Feraios and Bryan (1990) and Catania et al. (1989) found no relation between anxiety and knowledge scores. Due to the importance of the anxiety dimension on change, this study assesses the level of AIDS anxiety and its relationship to perceived and actual risk behaviors.

Substance use represents another risk factor that must be accounted for in researching risk predictors. Substance use in the form of alcohol can be sufficient to interfere with a person's willingness to use a condom (Millstein, 1990). Kraft, Rise and Traeen (1990) found that non-use of contraception was particularly associated with a low age at first experience of intercourse coupled with the use of alcohol immediately before. Clearly, if adolescents are engaging in intercourse, alcohol will minimize the chances that some form of protective measure will be used.

Overview

Emphasis must be placed on the fact that adolescents are a population at risk. A number of factors could have an impact on how young adults perceive risk and how they behave in sexual situations, such as the type of AIDS education implemented in schools, the exchange of information among peers that may or may not be accurate, and the importance of the peer group. Due to the lack of program evaluation efforts in AIDS programming, we do not know how effective education efforts have been. DiClemente, Boyer, and Mills (1987) note that several programs have been effective in increasing knowledge about health-promoting behaviors, in general. DiClemente, et al.

(1989) found that AIDS instruction classes resulted in a significant knowledge advantage as well as changes in attitudes. However, it has been difficult to assess behavior change from programs like these, and stability of attitude change with adolescents in this area has yet to be studied. Furthermore, in spite of the federal mandates for AIDS education in the schools, there has been little direct intervention in schools (Holtzman, et al., 1992). The few studies conducted to this point have mostly focused on special populations, such as hospitalized adolescents (i.e. see Hein (1990) for research with interventions for troubled youth in New York City; and Mansfield, Conroy, Emans and Woods, 1993, for interventions involving adolescents in hospital settings). It is the purpose of this study to take an initial look at the effect of education and peer influences on adolescents' perception of the AIDS crisis.

This study is exploratory in nature and therefore designed to examine how a number variables predict behavior risk and perceived risk for HIV/AIDS. One of the primary goals of the present study is to evaluate the effect of different ways people come to know about AIDS on perceived and behavioral risk. The study has the following objectives:

- (1) To investigate whether the following areas can be explained in a combined "How One Comes to Know About AIDS" (HOWAIDS) scale consisting of the following subscales: Passive School Learning; Interactive School Learning; Sex Education Training; Family Influence; Peer Influence; Proximity; Famous Persons Influence; and Media Influence.

(2) To investigate the extent to which Perceived and Behavioral HIV risk can be predicted by: HOWAIDS subscales; Negative Attitudes Toward Gays and Lesbian Individuals; AIDS Anxiety; Fear of AIDS; Sexual Assertiveness for Condom Use; Sexual Assertiveness for Communication; Self-Efficacy for Condom Use; Peer Influence in Condom Use; Alcohol Use; and Drug Use. It is hypothesized that higher AIDS anxiety, higher fear of AIDS, less negative attitudes toward gay and lesbian persons, higher self-efficacy for condom use, higher sexual assertiveness for condom use and for communication, less peer influence in condom use and lower substance use will be associated with higher perceived risk and lower behavioral HIV risk (Goodman & Kohall, 1988).

(3) To investigate the relationships among Negative Attitudes Toward Gay and Lesbian Individuals and: HOWAIDS subscales; Fear of AIDS; AIDS Anxiety; Self-Efficacy for Condom Use; Perceived AIDS Risk; and Behavioral HIV risk. It is hypothesized that those with lower perceived risk, higher behavioral HIV risk, and lower self-efficacy for condom use will report more negative attitudes toward gay and lesbian persons.

(4) To investigate whether gender differences exist on HOWAIDS subscales, Negative Attitudes Toward Gay and Lesbian Individuals, Fear of AIDS, and AIDS Anxiety. It is hypothesized that men will report more negative attitudes toward gays and lesbians than women and will also report less anxiety about and fear of AIDS.

(5) To investigate how people who know someone personally with AIDS differ from those who do not, on: Negative Attitudes Toward Gay and Lesbian Individuals; Fear of AIDS; AIDS Anxiety; Sexual Assertiveness for Condom Use; Sexual Assertiveness for Communication; Perceived AIDS Risk; Behavioral HIV risk; and Self-Efficacy for Condom Use. It is hypothesized that those who know someone with AIDS will report less negative attitudes toward gays and lesbians, be less anxious about and fearful of AIDS, be more assertive in matters of condom use and communication, and report higher perceived risk, lower behavioral risk and higher self-efficacy for condom use.

(6) To investigate whether factors in the HOWAIDS subscales relate to a set of factors consisting of: Negative Attitudes Toward Gay and Lesbian Individuals; Fear of AIDS; AIDS Anxiety; AIDS Knowledge; Perceived AIDS Knowledge; Perceived AIDS Risk; and Behavioral HIV risk.

(7) To investigate how Negative Attitudes Toward Gay and Lesbian Individuals, Fear of AIDS, and AIDS Anxiety together relate to another set of variables including: Perceived AIDS Risk; Behavioral HIV Risk; and Self-Efficacy for Condom Use.

Method

Measures

The Health and Lifestyle Survey was adapted and further developed by Michelle Lang and this author from a previous survey (Harlow, Quina, & Morokoff, 1991). The complete survey is included as Appendix A of this manuscript. Scales from

existing surveys were in all cases adapted to be gender neutral as well as more readable for adolescents. Therefore, one of the goals of this study was to analyze psychometrics on all subscales and verify their internal structure. This information is presented later in Phase 1 of the results. A brief description of each scale as initially proposed is given below.

Demographics (items 1 - 15). Gender, age, ethnicity, marital status, religion, religiosity, living situation, and mother's and father's education levels comprise the background demographics. Additional questions also assessed the age at which participants first encountered AIDS education from school, parents, friends, a person with HIV/AIDS, and media.

How One Comes to Know About AIDS (HOWAIDS). The following six subscales were designed by the researcher and are unique to this study.

Passive/Interactive School Learning (items 16 - 27). This scale is intended to measure the level to which a person feels he or she has personalized AIDS from the school environment. Included are questions about whether education was interactive or passive and also the extent to which the individual learned from sex education training.

Family Influence (items 28, 29, 32, 33, 34). This scale is designed to measure the level to which a person feels he or she has personalized AIDS from family members. This scale examines HIV/AIDS information received as well as communication about matters related to HIV/AIDS and sex.

Peer Influence (items 30, 31, 35 - 40). This scale attempts to measure the level to which a person feels he or she has personalized AIDS from his or her peers. Also

included are questions relating to communication efficacy with peers about HIV/AIDS and about sex.

Famous Persons Influence (items 43 - 48). This scale is designed to measure the level to which a person feels he or she has personalized AIDS from knowing that famous sportspersons, musicians or movie stars have the disease.

Media Influence (items 69 - 73). These questions measure the level to which a person feels media influences (television, radio, movies, newspapers, magazines, and books) have been important sources of AIDS information.

Proximity (items 41, 42, 74 - 80). These items measure the level to which a person feels he or she has personalized AIDS from personally knowing someone who has the disease.

Perceived AIDS Knowledge (items 49 - 51). This scale was developed for use with this survey and is designed to measure the knowledge a person thinks he or she has (as compared with actual performance on a knowledge test).

Negative Attitude Towards Gay and Lesbian Individuals (items 54, 55, 57, 58, 60, 61, 62, 66, 67). This scale measures the level to which a person maintains negative attitudes toward gays and lesbians. Most questions were adapted from an unpublished Attitudes Toward Gay Male and Lesbians survey (Lott, 1991) containing questions from a number of homophobia surveys developed throughout the 1970's and 1980's.

AIDS Anxiety or Fear (items 52, 53, 56, 58, 60, 63 - 65, 68). These items were designed to assess the level of anxiety or fear a person has about HIV/AIDS.

Some items were modified from a scale used by Livingston (1990) to measure fear about AIDS.

AIDS Knowledge (items 81 - 109). The cognitive component consists of a compilation of items derived from previously developed and modified scales to assess AIDS knowledge, attitudes and beliefs for ages 14-18 (DiClemente et al., 1986; DiClemente, Boyer, & Morales, 1988), and ages 11-16 (Siegel et al., 1991). A pilot study of the new scale with the 14-18 year group confirmed readability and produced a few minor changes to the original 4-point Likert scale. The original scale, composed of "definitely" and "probably" degrees of true and false, was changed to degrees of "yes" and "no" to eliminate "feelings of taking an exam," which was voiced by the pilot participants. A response of "not sure" was included as well. Items for the 5-point response scale assess both general AIDS knowledge and knowledge of AIDS transmission.

Perceived AIDS Risk (items 110-116). This is taken from the URI Health and Lifestyle Survey (Harlow, Quina, & Morokoff, 1991) to measure the extent to which a person believes him- or herself to be at risk for AIDS. Coefficient alpha, a measure of internal consistency, for the original scale is .77.

Sexual Assertiveness (items 117 - 126). Two subscales were adapted from a previous sexual assertiveness scale (developed by Quina, Harlow, Gibson & Morokoff, 1991). The first subscale focuses on initiation of condom use (items 118, 120, 122, 124, 126). The second subscale assesses sexual assertiveness for communication about a partner's past sexual history or refusal of sex (items 117, 119, 121, 123, 125). Slight

revisions, reflecting a more appropriate instrument for both male and female participants, were made. Coefficient alphas for the original sexual assertiveness for condom use and sexual assertiveness for communication subscales, as used in the Harlow, Quina, & Morokoff (1991) survey, are .80 and .85, respectively.

Self-Efficacy for Condom Use (items 145 - 151). This scale was constructed to measure self efficacy for AIDS prevention related to condom use (Harlow, Quina, & Morokoff, 1991; Prochaska, et al., 1992; Sorenson, Gibson, Heitzmann, Dumontet & Acampora, 1988). Coefficient alpha for the original scale is .88.

Peer Influence in Condom Use (items 152 - 157). This scale was adapted from the URI Health and Lifestyle survey (Harlow, Quina, & Morokoff, 1991) and is designed to assess the extent to which peers influence a person's condom use. Coefficient alpha for the original scale is .82.

Substance Use (for alcohol: items 158 - 161; for drugs: items 162 - 164). These items were selected from the Harlow, Quina, & Morokoff (1991) survey to measure substance use. The questions were chosen to focus primarily on alcohol use, as this is believed to be the main substance used by members of this population. Coefficient alpha for the original scale is .91.

Problems from Substance Abuse (items 165 - 180). Questions for this subscale were adapted from a Substance Use Problems scale used in the Harlow, Quina, & Morokoff (1991) survey. Coefficient alpha for the original scale is .85.

Sex History (items 181 - 198). These items were included to assess participant's sexual history. Included are questions regarding sexual orientation,

number of partners during the previous 6 months, use and/or non-use of condoms, as well as measures of partner risk (e.g. whether the partner was or is HIV+ and whether he or she has engaged in risky sexual behaviors). These items were also adapted from Harlow, Quina, & Morokoff (1991) survey. Extremely sensitive items dealing with childhood sexual abuse and explicit sexual acts were removed. The remaining questions were adjusted to be gender neutral.

Sexual Behavior Matrix (items 200 - 207). The behavior matrix was adapted from the Harlow, Quina, & Morokoff (1991) survey and is designed to measure the frequency of various protected and unprotected sexual behaviors, including vaginal, oral and anal sex. Participants are also asked to report the number of sex partners engaged during the previous year. This information is used to compute behavioral HIV risk.

Personal AIDS Risk (item 199). This item was adopted from the Kelly et al. (1990) study which has the participants estimate their level of AIDS risk on a Likert-type scale.

Stereotypic Thinking (items 85, 106, 108). These items assess stereotypes about people who have HIV/AIDS. They are used to assess the affect of stereotypic thinking on both perceived and behavioral HIV/AIDS risk. Questions were adapted from the knowledge scale (i.e. "All gay men have AIDS", "All gay women have AIDS", and an additional question concerning having sex with only healthy looking persons).

Behavioral HIV Risk. The measure of behavior risk used is a modification of the Kelley, et al (1990) computation used in his study of gay men. First, occasions of unprotected anal and vaginal sex were summed (from the items included in the sexual behavior matrix discussed previously). This was multiplied by number of partners during the past year.

A scaled risk factor assessing partner traits was then formed. This scale is an average of questions (items 190 - 194) assessing the number of partners who (1) are injection drug users, (2) are men who had sex with other men, (3) are HIV positive or have AIDS, (4) are hemophiliacs, or (5) had a blood transfusion between 1978 and 1985. This factor was then multiplied by the previous composite (the product of number of occasions of unprotected sex and number of partners) and forms the measure of behavioral HIV risk used in this study.

Participants.

Survey data were collected from 878 participants during a nine month period that included the Fall 1993 and Spring 1994 semesters. Any person 18 years or older expressing an interest in completing the survey was allowed to do so. Of this number, 674 were either 18, 19 or 20 years of age, and their responses were retained for analysis in this study of late adolescents. Volunteers were solicited from several introductory courses at the University of Rhode Island (URI) and at the Community College of Rhode Island (CCRI). The study was approved by the Institutional Review Board (IRB) at URI with the provision that permission be obtained from the IRB at any other school participating in the study. CCRI does not have an IRB; the department

directors at this school accepted IRB approval from URI. A letter was submitted to either course instructors or department directors requesting permission to ask for volunteers to complete the survey. Since many of the studies of late adolescents involve students in introductory psychology courses, the investigator invited participation from other departments on campus. All people notified agreed to allow their students to volunteer for participation in the study. Table 1 provides a breakdown of age, gender and location for participants in the study.

Table 1. Age, Gender and Location Distribution for Participants in this Study

Category	Number
Male	304
Female	370
Age 18 years	316
Age 19 years	244
Age 20 years	114
University of Rhode Island Psychology Club	006
University of Rhode Island English Department	028
University of Rhode Island Introductory Psychology (Fall 1993)	225
University of Rhode Island Introductory Psychology (Fall 1994)	107
University of Rhode Island Social Psychology (Spring 1994)	014
University of Rhode Island College Writing Program (Fall 1993)	042
University of Rhode Island Classics Department (Fall 1993)	003
University of Rhode Island Developmental Psychology (Fall 1993)	022
University of Rhode Island Developmental Psychology (Spring 1994)	028
University of Rhode Island Introductory Psychology (Spring 1993)	144
Community College of Rhode Island Introductory Psychology (Fall 1993)	007
Community College of Rhode Island English (Fall 1993)	048

CCRI students were solicited in order to increase the representativeness of the sample of adolescents living in Rhode Island as well as to increase the participation of students from a variety of ethnic backgrounds. Members of undergraduate student organizations were invited to participate; however, only members of the Psychology Club chose to do so.

It should also be noted that the first 500 returns yielded a ratio of approximately 2:1 females to males. To ensure that there would be an adequate number of men

participating, only male participants were requested from one introductory psychology course. The final result was a more favorable gender split in the entire sample.

Anonymity. Each survey was accompanied by an informed consent form. The informed consent stated the purpose of the research and assured anonymity of all responders. Since this study used only college students who are 18 years or older, passive consent was used. This means that, by completing and returning the questionnaire, the student agreed to participate.

Right to participate. The informed consent form stated that each individual completing the survey had the right to refuse participation at any time. Not returning the survey was therefore the means by which a participant could cease participation.

Risks involved. Minimal risk was present in the study due to the sensitivity of some questions concerning substance and alcohol abuse as well as specific sexual experience. Students completing the survey were encouraged to complete the questionnaire in the privacy of their own home if they desired. In order to prevent further risk to the individual, several phone numbers were provided for assistance if it was required. The contacts included the principal investigator, Rhode Island Project AIDS, the Samaritans, and Alcoholics Anonymous.

Procedure

Participants were asked to complete a 210-item survey assessing demographic information as well as information specific to AIDS knowledge, personal attitudes about HIV/AIDS and sexual behavior. Each survey contained a cover letter that briefly explained the purpose of the research and an informed consent form (Appendix B).

Since responses were computer read, a scan-tron sheet was also included, and the entire contents were packaged in a sealable envelope. Packets were provided to each instructor agreeing to participate. Envelopes were provided to ensure that students could maintain privacy of response. Students either returned the surveys in the envelope to their instructor or directly to the office of the investigator.

Results

All analyses were completed using Statistical Analysis Software (SAS) version 6.08 (SAS, 1988). Of all returned surveys, only two were considered unusable, as they were missing more than 50 percent of the requested information. The total sample for the purposes of this study was 674 participants (304 males and 370 females), all of whom were either 18, 19 or 20 years of age.

Phase 1: Scale Construction

All subscales of the Health and Lifestyle survey were submitted to principal components analysis (PCA). Because it was hypothesized that many of the scales would be correlated with each other, the PROMAX method of oblique rotation was used.

The complete procedure used is as follows. Initially, the sample of $n=674$ was randomly split into two groups. Sample 1 consisted of 354 participants (males = 157, females = 197); sample 2 consisted of 320 subjects (males = 140, females = 180). It should be noted that the difference in the sample sizes is due solely to the specific randomization procedure used by SAS software. The factor structure for each subscale was analyzed in sample 1 through PCA. Any items loading less than .40 on their

respective scales were removed, as well as any complex items (i.e. those loading on more than one factor). At this point, all items involved in the HOWAIDS subscales were submitted to factor analysis to confirm the overall structure of the individual subscales. Coefficient alpha was computed to determine the internal consistency of each scale and subscale used for subsequent analyses. Next, a factor analysis procedure was conducted using data from the participants in sample 2 in order to confirm the factor structure in sample 1. Coefficient alphas were computed for the scales and subscales in sample two, as well as for the combined sample. Table 2 contains factor loadings for items retained in exploratory and confirmatory samples. Additionally, coefficient alphas for exploratory, confirmatory and total samples are provided. Questions that were dropped from the analyses are not included in the table.

Table 2. Factor Structure for Subscales Used in the Health and Lifestyle Survey

Question	Factor Loadings		Coefficient Alpha		
	Sample 1	Sample 2	Sample 1	Sample 2	Total
HOW ONE COMES TO KNOW ABOUT HIV/AIDS (HOWAIDS)					
<u>School Education Influence</u>			.81	.79	.80
<u>Passive School Learning:</u>			.73	.71	.72
I learned a lot about HIV/AIDS in classes I took in junior high school	.70	.74			
I learned a lot about HIV/AIDS in classes I took.	.58	.74			
Most of what I learned about HIV/AIDS in my classes was from listening to my teacher talk about it.	.82	.70			
I learned a lot in my classes about the things people do that can cause them to get HIV/AIDS.	.69	.59			
<u>Interactive School Learning:</u>			.52	.56	.54
Most of what I learned about HIV/AIDS in my classes was from asking the teacher to answer my questions about it.	.59	.56			
Most of what I learned about HIV/AIDS in my classes was from doing assignments or projects.	.66	.75			
Most of what I learned about HIV/AIDS in my classes was from role play exercises where someone pretended to have HIV/AIDS.	.75	.75			
<u>Sex Education Training</u>			.72	.72	.72
I learned a lot in my classes about what to do if I do not want to have sex.	.76	.70			
Most of what I learned about how to practice safer sex was from my health or sex education classes.	.65	.70			
I was taught how to keep myself from getting into a situation that would put me at risk for getting HIV/AIDS.	.84	.86			

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Table 2 (continued). Factor Structure for Subscales Used in the Health and Lifestyle Survey

Question	Factor Loadings		Coefficient Alpha		
	Sample 1	Sample 2	Sample 1	Sample 2	Total
<u>Communication About Sex</u>			.64	.72	.68
It would be easy for me to talk about sex with my best friend(s).	.78	.75			
It would be easy for me to talk about sex with a boyfriend /girlfriend (or husband/wife).	.60	.76			
I could talk to my friends about practicing safer sex.	.70	.73			
Most of my friends have had sex.	.61	.58			
<u>Family Influence</u>			.57	.60	.68
It would be easy for me to talk to my mother or father (or guardian) about sex.	.76	.70			
Most of what I know about HIV/AIDS I learned from my mother or father (or guardian).	.76	.78			
Most of what I know about HIV/AIDS I learned from my brother(s) and sister(s).	.39	.57			
<u>Peer Influence</u>			.54	.53	.53
Most of what I know about HIV/AIDS I learned from my friends.	.57	.67			
When my best friends talk about HIV/AIDS I believe that what they say is true.	.76	.65			
Most of what I know about sex I learned from my friends.	.60	.65			
I believe that my most popular friends know a lot more about HIV/AIDS than most other people I know.	.59	.49			
<u>Proximity</u>			.85	.85	.85
I know a close friend who has HIV/AIDS.	.68	.73			
Someone in my family has HIV/AIDS.	.64	.57			
I know someone with HIV/AIDS who is not a close friend or a member of my family.	.77	.81			
I know a gay person who has HIV/AIDS.	.77	.70			
I know a person who is not gay who has HIV/AIDS.	.83	.83			
I know a woman who has HIV/AIDS.	.79	.76			
I know a person who shoots drugs with a needle who has HIV/AIDS.	.55	.59			

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Table 2 (continued). Factor Structure for Subscales Used in the Health and Lifestyle Survey

Question	Factor Loadings		Coefficient Alpha		
	Sample 1	Sample 2	Sample 1	Sample 2	Total
<u>Famous Persons Influence</u>			.91	.91	.91
Knowing that "Magic Johnson", a famous basketball player, has HIV/AIDS has made me want to learn more about HIV/AIDS.	.71	.76			
Knowing that "Magic Johnson has HIV/AIDS has made me be more careful with my sex life	.70	.72			
Knowing that a famous singer I really like has died of AIDS would make me want to learn more about how I can avoid getting it.	.94	.91			
Knowing that a famous movie or TV star I really like has died of AIDS would make me want to learn more about how I can avoid getting it.	.95	.94			
Knowing a famous movie or TV star I really like has HIV/AIDS would make me want to learn more about how I can avoid getting it.	.96	.94			
Knowing a famous singer I really like has HIV/AIDS would make me want to learn more about how I can avoid getting it.	.96	.93			
<u>Media Influence</u>			.78	.75	.77
For me, watching TV has been an important way to learn about HIV/AIDS.	.75	.67			
For me, listening to the radio has been an important way to learn about HIV/AIDS.	.63	.58			
For me, seeing movies in the theater, or on video has been an important way to learn about HIV/AIDS.	.74	.71			
For me, reading books or magazines has been an important way to learn about HIV/AIDS.	.79	.79			
For me, reading newspapers has been an important way to learn about HIV/AIDS	.75	.76			

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Table 2 (continued). Factor Structure for Subscales Used in the Health and Lifestyle Survey

Question	Factor Loadings		Coefficient Alpha		
	Sample 1	Sample 2	Sample 1	Sample 2	Total
OTHER SCALES					
<u>Perceived AIDS Knowledge</u>					
If someone asked me a question about how to prevent getting HIV/AIDS, I can give them the right answer.	.86	.87	.86	.85	.85
If someone asked me what things people do that can cause HIV/AIDS, I can tell them the right answer.	.90	.90			
If someone asked me how HIV/AIDS is transmitted, I can give them the right answer.	.89	.87			
<u>AIDS Anxiety</u>					
I think people with HIV/AIDS should be in a special classroom at school.	.79	.85	.79	.77	.78
I would not like it if someone in my gym class has HIV/AIDS.	.74	.82			
If my roommate told me he or she had HIV/AIDS, I would ask them to move out.	.61	.50			
It's okay for people who have HIV/AIDS to teach school.	.82	.72			
<u>Fear of AIDS</u>					
I am afraid that someone around me has HIV/AIDS and I do not know it.	.51	.64	.44	.42	.43
I am not afraid that I might get HIV/AIDS from having sex.	.70	.48			
The more I learn about HIV/AIDS, the more afraid I am that I might get it.	.79	.82			

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Table 2 (continued). Factor Structure for Subscales Used in the Health and Lifestyle Survey

Question	Factor Loadings		Coefficient Alpha		
	Sample 1	Sample 2	Sample 1	Sample 2	Total
<u>Negative Attitudes Toward Gays and Lesbians (negative wording)</u>			.77	.74	.76
Gay men and gay women are the reason that HIV/AIDS is such a big problem.	.79	.61			
I would stay away from people who are gay, because if I didn't, I would have a higher chance of getting HIV/AIDS.	.69	.73			
I really would not want to work at a place or go to school with people who I think are gay.	.57	.50			
My friends and I would probably not go out to a place where there are people who are gay.	.63	.50			
If my friends and I are at a place where there are gay people and my friends want to leave, I would go too.	.70	.47			
<u>Negative Attitudes Toward Gays and Lesbians (positive wording)</u>			.61	.57	.59
I would feel comfortable in a small room with a person who is gay.	.56	.78			
If my brother or sister told me he or she was gay, I would not be ashamed to talk about it to other people.	.74	.58			
A lot of my friends think it is okay for someone to be gay.	.58	.68			
<u>AIDS Knowledge (General - GK; Transmission - TK; Treatment (TXK))</u>			.66	.67	.67
General:			.60	.56	.58
AIDS is a medical condition in which your body cannot fight off diseases. (GK)	.67	.45			
AIDS is caused by a virus. (GK)	.45	.30			
If a pregnant woman has AIDS, there is a chance it may harm her unborn baby. (GK)	.58	.72			
Most people who get AIDS usually die from it. (GK)	.54	.65			
Using a condom (rubber) during sex can lower the risk of getting AIDS. (GK)	.60	.68			

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Table 2 (continued). Factor Structure for Subscales Used in the Health and Lifestyle Survey

Question	Factor Loadings		Coefficient Alpha		
	Sample 1	Sample 2	Sample 1	Sample 2	Total
Transmission:			.55	.55	.55
You could get AIDS by eating in a restaurant if the cook has it. (TK)	.74	.70			
Mosquitoes can transmit AIDS.(TK)	.61	.64			
You can get AIDS from a public toilet. (TK)	.74	.60			
Treatment:			.62	.63	.63
AIDS can be cured if treated early.(TXK)	.61	.72			
A new vaccine has recently been developed which can prevent AIDS. (TXK)	.68	.57			
<u>Stereotyping About Who Has HIV/AIDS</u>			.85	.68	.77
All gay men have AIDS.	.93	.87			
All gay women have AIDS.	.93	.87			
<u>Perceived AIDS Risk</u>			.87	.85	.86
I feel that I am at risk of getting AIDS at this time in my life.	.70	.66			
I sometimes think that I may have been exposed to AIDS.	.83	.73			
I believe I can do things to help protect myself from getting AIDS.	.81	.76			
If you were to make a guess, how much risk do you have for getting HIV/AIDS at this time in your life?	.79	.81			
How sure of your answer to "About how many sex partners has your most recent partner had" are you?	.71	.80			
How sure are you that your sex partner(s) have not been exposed to AIDS?	.74	.75			

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Table 2 (continued). Factor Structure for Subscales Used in the Health and Lifestyle Survey

Question	Factor Loadings		Coefficient Alph		
	Sample 1	Sample 2	Sample 1	Sample 2	Total
<u>Sexual Assertiveness for Communication</u>			.89	.90	.89
I would ask if I want to know if my partner ever had an HIV test.	.77	.80			
I would ask my partner about the AIDS risk or his or her past partners, if I want to know.	.84	.85			
I would ask if I want to know if my partner ever had a sexually transmitted disease (STD).	.88	.80			
I would ask if I want to know if my partner ever had sex with someone who shoots drugs with a needle.	.89	.90			
I would ask if I want to know if my partner ever used needles to take drugs.	.79	.85			
<u>Sexual Assertiveness for Condom Use</u>			.79	.82	.80
I would have sex without a condom if my partner doesn't like them, even if I want to use one	.68	.72			
I would make sure my partner and I use a condom when we have sex.	.72	.76			
I would insist on using a condom if I want to, even if my partner doesn't like them.	.76	.79			
I would have sex without using a condom if my partner insists, even if I don't want to.	.70	.73			
I would refuse to have sex if my partner refuses to use a condom.	.81	.80			
<u>Self Efficacy for Condom Use</u>			.91	.91	.91
I would use a condom.....					
...when I am really turned on.	.79	.83			
...when my partner gets mad about using a condom.	.83	.83			
...when I am depressed.	.86	.87			
...when I have been drinking or doing drugs.	.81	.80			
...when I feel angry.	.89	.86			
...when I feel pressured to have sex.	.80	.80			

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Table 2 (continued). Factor Structure for Subscales Used in the Health and Lifestyle Survey

Question	Factor Loadings		Coefficient Alpha		
	Sample 1	Sample 2	Sample 1	Sample 2	Total
<u>Peer Influence in Condom Use</u>			.72	.67	.70
My close friends insist on using condoms when they have sex with a risky partner.	.78	.75			
My close friends think that their partner would not mind using a condom when they have sex.	.68	.67			
My close friends are afraid to ask their partner to use a condom when they have sex.	.58	.53			
My close friends think that it's okay for a woman to ask a partner to use condoms.	.63	.59			
My close friends ask a sex partner to use a condom.	.72	.75			
<u>Alcohol Use</u>			.92	.90	.91
In the past year, how often have you had a drink of beer, wine or liquor?	.90	.88			
In the past year, how many drinks did you normally have when you drank alcohol?	.83	.84			
In the past year, how often did you have 3 or more drinks in one day?	.94	.91			
In the past year, how often did you have 6 or more drinks in one day?	.91	.90			
<u>Drug Use</u>			.60	.52	.57
In the past year, how many times did you use marijuana or hashish (grass, pot, hash, hash oil) without a doctor's orders?	.67	.83			
In the past year, how many times did you use other drugs, without a doctor's orders?	.87	.84			
In the past year, how many times did you share a needle to shoot drugs?	.70	.41			

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Table 2 (continued). Factor Structure for Subscales Used in the Health and Lifestyle Survey

Question	Factor Loadings		Coefficient Alpha		
	Sample 1	Sample 2	Sample 1	Sample 2	Total
<u>Problems from Substance Abuse</u>					
How often have these things happened to you in the past year because of drinking or drug use?					
Minor abuse:			.87	.85	.86
I had a hangover.	.77	.78			
I got sick or threw up.	.75	.51			
I drove a car after having alcohol or drugs.	.88	.85			
I couldn't remember for a while (blacked out).	.48	.67			
Moderate abuse (Abuse involved other persons):			.77	.80	.79
I messed up on something important.	.78	.64			
I broke or messed up someone else's things.	.87	.68			
I got into an argument or fight.	.89	.64			
I was hurt or injured.	.67	.89			
Someone I know talked to me about how]					
I was acting.	.56	.68			
I did something I wished I hadn't.	.66	.66			
Severe abuse:			.70	.70	.70
I was arrested for drunk driving.	.82	.80			
I tried to stop using but didn't.	.65	.70			
I thought about or tried to kill myself.	.70	.75			
<u>Behavior Risk</u>			.86	.82	.85
How many sex partners have you had who shoot drugs with a needle?	.93	.79			
How many sex partners have you had who tested positive for HIV or were told that they had AIDS?	.78	.87			
How many sex partners have you had who have been treated for hemophilia (a bleeding disorder)?	.75	.53			
How many sex partners have you had who were male and had sex with other men?	.77	.94			
How many sex partners have you had who had a blood transfusion between 1978 and 1985?	.75	.52			

The subscales shown in Table 2 are the ones used for subsequent analyses. It should be noted that there are some differences in scale structure from what was initially proposed. For example, the proposed items concerning peer and family influences formed three separate factors: Communication About Sex (the ease at which a participant feels he or she can discuss matters pertaining to sex); Family Influence (the influence of family on a person's HIV/AIDS knowledge and sex); and Peer Influence (the influence of peers on knowledge about HIV/AIDS and sex). Questions concerning AIDS Fear or Anxiety formed two separate factors: AIDS Anxiety (general anxiousness about the disease); and Fear of AIDS (describing a more intense fear of contracting HIV/AIDS). Additionally, the Negative Attitudes Toward Gay and Lesbian Individuals formed two factors, one containing negatively-worded questions and the other containing positively-worded questions. Both subscales were used in any analyses involving the Attitudes Toward Gay and Lesbian Individuals scale, and they were coded to represent negative attitudes (i.e. the higher the score, the more negative the attitude toward gay and lesbian individuals).

Another difference lies in the Problems for Substance Abuse scale. The questions actually formed three separate factors representing problems that are minor (e.g., a person has experienced blackouts), moderate (e.g., a person has gotten into an argument or fight) and severe (e.g. a person has contemplated suicide because of alcohol use). Analyses involving problems from substance abuse were conducted using the three individual subscales.

The resulting 27 variables were used for the various analyses conducted in this study. The HOWAIDS scale consists of a number of subscales including: (1) School Education Influence {consisting of (2) Passive School Learning, (3) Interactive School Learning, and (4) Sex Education Training subscales}; (5) Communication About Sex; (6) Family Influence; (7) Peer Influence; (8) Proximity; (9) Famous Persons Influence; and (10) Media Influence. Other scales used are: (11) Perceived AIDS Knowledge; (12) AIDS Anxiety; (13) Fear of AIDS; (14) Negative Attitudes Toward Gay and Lesbian Individuals; (15) AIDS Knowledge (one scale consisting of Transmission, General and Disease components); (16) Stereotyping About Who Has HIV/AIDS; (17) Perceived AIDS Risk; (18) Sexual Assertiveness for Communication; (19) Sexual Assertiveness for Condom Use; (20) Self-Efficacy for Condom Use; (21) Peer Influence in Condom Use; (22) Alcohol Use; (23) Drug Use; Problems from Substance Abuse {(24) Minor, (25) Moderate, and (26) Severe}; and (27) Behavioral HIV Risk.

Phase 2: Analysis of Hypotheses

Prior to analysis of predictions, a Multivariate Analysis of Variance (MANOVA) was performed to determine whether statistically significant differences existed between the CCRI (n=55) and URI (n=619) samples on each of the 28 subscales presented in Table 2. A random subsample of the URI group was selected in order to obtain relatively equal sample sizes. The MANOVA was not statistically significant [Wilks' lambda = .99, $F(3,66) = 1.70$, $p > .05$]. Therefore, the two samples were pooled together for subsequent analyses.

Demographics.

Table 3 reports the demographic results for this study.

Table 3. Results of the Demographic Analyses for Study Sample (N = 674)

Category	Number	Percent
Gender:		
Male	304	45
Female	370	55
Age:		
18 years	316	47
19 years	244	36
20 years	114	17
Ethnic Background:		
White	613	91
African-American	011	02
Asian-American	020	03
Hispanic-American	018	03
Other	012	02
Marital Status:		
Single	671	99
Married	003	< 1
Religion:		
Catholic	387	57
Protestant	088	13
Jewish	059	09
None	070	10
Other	070	10

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Table 3 (continued). Results of the Demographic Analyses for Study Sample

Category	Number	Percent
Living Arrangement:		
Live with both mother and father	393	58
Live with mother only	097	14
Live with father only	026	04
Live with someone else	124	18
Live alone	034	05
Mother's Education:		
8th grade or less	021	03
Some high school	029	04
High school graduate	178	26
Some College	164	24
College Graduate	282	42
Father's Education:		
8th grade or less	018	03
Some high school	038	06
High school graduate	134	20
Some College	141	21
College Graduate	343	51
If you know someone with HIV/AIDS, how old were you when you first knew this person with HIV/AIDS?		
12 years or younger	015	02
About 13-14 years old	023	03
About 15-16 years old	038	06
About 17 years old or older	048	07
I do not know a person with HIV/AIDS	550	82
How old were you when you had your first class in school that talked about HIV/AIDS?		
12 years or younger	077	11
About 13-14 years old	309	46
About 15-16 years old	233	35
About 17 years old or older	036	05
I do not know a person with HIV/AIDS	019	03

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Table 3 (continued). Results of the Demographic Analyses for Study Sample

Category	Number	Percent
How old were you when you first talked about HIV/AIDS with your parents or other family members?		
12 years or younger	062	09
About 13-14 years old	187	28
About 15-16 years old	209	31
About 17 years old or older	087	13
I do not know a person with HIV/AIDS	129	19
How old were you when you and a close friend talked about HIV/AIDS?		
12 years or younger	023	03
About 13-14 years old	168	25
About 15-16 years old	296	44
About 17 years old or older	122	18
I do not know a person with HIV/AIDS	065	10
How old were you when you first learned about HIV/AIDS from TV, radio or movies?		
12 years or younger	109	16
About 13-14 years old	265	39
About 15-16 years old	254	38
About 17 years old or older	042	06
I do not know a person with HIV/AIDS	004	01

The sample is approximately evenly split between male and female. Most participants are 18 or 19 years old (83%); ethnic representation is approximately 91% white, 9% other. In comparison, the split in the larger Rhode Island Community is 89% white, 11% other (U.S. Bureau of the Census, 1992). Most affiliate with some religion (about 90%), with Catholic being the selection of 57% of the respondents. Nearly 100 percent are single (only 3 of 674 were married). Seventy seven percent live with either

one or both parents, and in 65 % of the cases, the mother has at least some college education; the father, 70%.

Sexual experience

Table 4 gives information collected concerning the degree of sexual experience of the sample. Eighty four percent of the participants have engaged in at least one sexual experience, not unusual given the findings of previous research.

Table 4. Sexual Experience

Category	Number	Percent
Is there a partner you regularly have (or had) sex with?		
No	181	30
Yes	493	70
What is your sexual orientation?		
Gay male	006	01
Lesbian	012	02
Bisexual	024	04
Heterosexual	632	93
About how long have you been involved with your most recent partner?		
I have never had a sex partner	108	16
Less than one month	072	11
Between 1 and 6 months	159	24
Six months to one year	093	14
Over one year	242	36
How old were you the first time you had sex?		
I have never had a sex partner	108	16
12 years old or younger	014	02
About 13-14 years old	083	12
About 15-16 years old	244	36
About 17 years old or older	225	33

50% of the participants had had sex by the time they were 15-16 years old. 73% currently have or have had a regular sex partner, and almost 50% of the respondents have been in relationships lasting over 6 months.

Table 5 presents percentages for participation in certain behaviors associated with HIV/AIDS risk. This includes sexual practices (vaginal, oral, anal) with and without condom use, number of sexual partners during the past year as well as over one's lifetime, and whether the participants have ever had an HIV test.

Table 5. Behavior Risk Information

Category	Number	Percent
Do you use condoms (rubbers)?		
I have never had a sex partner	110	16
Started always using 6 or more months ago	216	32
Started always using 1 - 6 months ago	056	08
Sometimes, but not always	228	34
How many sex partners have you had who shoot drugs with a needle?		
None, or I have never had a sex partner	650	96
One	014	02
Two to four	006	01
Five to seven	001	<1
Eight or more	003	<1
Never	064	10
How many sex partners have you had who tested positive for HIV or were told they had AIDS?		
None, or I have never had a sex partner	663	98
One	007	01
Two to four	002	<1
Five to seven	002	<1
How many sex partners have you had who have been treated for hemophilia?		
None, or I have never had a sex partner	655	97
One	009	01
Two to four	009	01
Five to seven	001	<1

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Table 5 (continued). Behavior Risk Information

Category	Number	Percent
How many sex partners have you had who were male and had sex with other men?		
None, or I have never had a sex partner	651	97
One	014	02
Two to four	005	01
Five to seven	003	< 1
Eight or more	001	< 1
How many sex partners have you had who had a blood transfusion between 1978 and 1985?		
None, or I have never had a sex partner	636	94
One	019	03
Two to four	013	02
Five to seven	004	< 1
Eight or more	002	< 1
How many sex partners have you had in your life?		
None	107	16
One	156	23
Two to four	250	37
Five to seven	087	13
Eight or more	074	11
How many sex partners have you had in the past year?		
None	132	20
One	297	44
Two to four	205	30
Five to seven	024	04
Eight or more	042	06
How many sex partners has your most recent partner had (including yourself)?		
None	103	15
One	200	30
Two to four	237	35
Five to seven	070	10
Eight or more	064	10

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Table 5 (continued). Behavior Risk Information

Category	Number	Percent
Have you ever been tested for HIV?		
No, I have never been tested	549	82
Yes, and I do not have HIV	115	17
Yes, and I do have HIV	009	01
For the past year:		
Number of people who have engaged in oral sex at least one time (without a condom):	428	64
Number of people who have engaged in oral sex at least one time (with a condom):	019	03
Number of people who have engaged in anal sex at least one time (with a condom):	043	06
Number of people who have engaged in anal sex at least one time (without a condom):	019	03
Number of people who have engaged in vaginal sex at least one time (without a condom):	368	55
Number of people who have engaged in vaginal sex at least one time (with a condom):	405	60

Although 84% of the sample is or has been sexually active, 82% have never been tested for HIV.

Analyses of Major Hypotheses

Analyses of each hypothesis were performed on two subsamples. The original sample (n=674) was randomly divided into two subsamples (sample 1, n= 339: male = 156, female = 183; sample 2, n=335: male = 148, female = 187). A different random split was used for this phase to maximize generality of results within the sample. Hypotheses were initially analyzed on sample 1, and then sample 2 analyses

were used to lend support to the conclusions reached from the analyses conducted on sample 1.

Behavioral HIV Risk. The Behavioral HIV Risk dependent variable (DV) was regressed onto the following independent variables (IVs) in a stepwise multiple regression procedure: HOWAIDS subscales; Negative Attitude Toward Gay and Lesbian Individuals; Fear of AIDS; AIDS Anxiety; Sexual Assertiveness for Condom Use; Sexual Assertiveness for Communication; Self-Efficacy for Condom Use; Peer Influence in Condom Use; Perceived AIDS Risk; Religiosity; Age of First Intercourse; Drug and Alcohol Use; and Minor, Moderate and Severe Problems from Substance Abuse. In sample 1, significant predictors of Behavioral HIV Risk included: Perceived AIDS Risk ($F(7,338)=41.7, p < .05$); Sexual Assertiveness for Condom Use ($F(7,338)=18.9, p < .05$); Drug Use ($F(7,338)=13.7, p < .05$); Communication about Sex (one of the HOWAIDS subscales), ($F(7, 338)=8.8, p < .05$); and Self-Efficacy for Condom Use ($F(7,338)=3.8, p < .05$). In sample 2, significant predictors were: Sexual Assertiveness for Condom Use ($F(8,335) = 42.2, p < .05$); Perceived AIDS Risk, ($F(8,334) = 29.9, p < .05$); Communication about Sex, ($F(8,334)=11.02, p < .05$); Media Influence (a HOWAIDS subscale), ($F(8,334)=11.5; p < .05$), and Proximity (a HOWAIDS subscale), ($F(8,334) = 4.26, p < .05$). Thus, higher behavioral risk was associated with less communication about sex, reduced proximity to someone with AIDS, lower assertiveness for condom use, higher perceived AIDS risk and lower self-efficacy for condom use. In sample one, the significant predictors accounted for 22% of the explained variance; in sample two, 25% of the variance was

explained. Table 6 shows each significant predictor, the variance explained by the specific variable in question after the previous variables were added, and standardized regression coefficients (betas) for each variable significant at the .05 level or better.

Table 6. Behavioral HIV Risk Predictors

Predictor	Sample One		Sample Two	
	R-square	Beta	R-square	Beta
Perceived AIDS Risk	.1101	.2112	.0734	.2475
Sexual Assertiveness for Condom Use	.0475	-.1603	.1125	-.2751
Communication About Sex	.0209	.1649	.0262	.1964
Drug Use	.0332	.1346		NS
Media Influence		NS	.2065	-.1418
Self Efficacy for Condom Use	.0088	-.1160		NS
Proximity		NS	.0097	-.1017

Note: NS = Not significant, $p > .05$.
R-square denotes the change in R-square when the individual variable is added.
Values for beta are standardized regression coefficients.

Perceived Risk. The following IVs were used as predictors of the DV,

Perceived AIDS Risk: HOWAIDS subscales, Negative Attitudes Toward Gay and Lesbian Individuals; Fear of AIDS; AIDS Anxiety; Sexual Assertiveness for Condom Use; Sexual Assertiveness for Communication; Self-Efficacy for Condom Use; Peer Influence in Condom Use; Perceived AIDS Knowledge; Religiosity; Age at First Intercourse, Drug and Alcohol Use; and Minor, Moderate and Severe Problems from Substance Abuse. For sample 1, Minor Problems from Substance Abuse ($F(7,338)=79.13$, $p < .05$), Sexual Assertiveness for Communication

($F(7,338)=27.03$, $p < .05$), Fear of AIDS ($F(7,338)=21.6$, $p < .05$), Religiosity ($F(7,338)=9.33$, $p < .05$), Negative Attitudes Toward Gay and Lesbian Individuals ($F(7,338)=5.65$, $p < .05$), Peer Influence (a HOWAIDS subscale) ($F(7,338)=4.82$, $p < .05$), and Drug Use ($F(7,338)=4.26$, $p < .05$) were all significantly related to Perceived AIDS Risk. For sample 2, Minor Problems from Substance Abuse ($F(8,334)=55.78$, $p < .05$), Fear of AIDS ($F(8,334)=16.7$, $p < .05$), Negative Attitudes Toward Gay and Lesbian Individuals ($F(8,334)=10.6$, $p < .05$), Drug Use ($F(8,334)=16.2$, $p < .05$), Proximity (a HOWAIDS subscale) ($F(8,334)=6.27$, $p < .05$), and Alcohol Use ($F(8,334)=6.66$, $p < .05$) were all significantly related to Perceived AIDS Risk. Thus, higher perceived AIDS risk was associated with increased incidence of minor problems from substance abuse, higher fear of AIDS, more drug use, lower assertiveness for communication with a partner about previous high risk behaviors, less negative attitudes toward gay and lesbian people, more direct association with people having HIV/AIDS, increased peer influence in HIV/AIDS awareness, lower religiosity, and higher alcohol use. In sample 1, the significant predictors explained 35% of the variance. In sample 2, 28% of the variance was explained. Table 7 shows results for Perceived AIDS Risk, providing the variance explained by each variable after the previous variables were added, and standardized regression coefficients (betas) for each variable significant at the .05 level or better.

Table 7. Perceived AIDS Risk Predictors

Predictor	Sample One		Sample Two	
	R-square	Beta	R-square	Beta
Minor Problems from Substance Abuse	.1902	.2867	.1435	.2352
Fear of AIDS	.0454	.2339	.0392	.2138
Drug Use	.0084	.1000	.0399	.1470
Sexual Assertiveness for Communication	.0603	-.2400		NS
Negative Attitudes Toward Gays and Lesbian Ind.	.0114	-.0945	.0242	-.1732
Proximity		NS	.0141	.1170
Peer Influence	.0096	.1155		NS
Religiosity	.0191	-.0970		NS
Alcohol Use		NS	.0147	.1580

Note: NS = Not significant, $p > .05$.

R-square denotes the change in R-square when the individual variable is added.

Values for beta are standardized regression coefficients.

Negative Attitudes Toward Gay and Lesbian Individuals. The Negative

Attitudes Toward Gay and Lesbian Individuals DV was regressed on the following IVs:

HOWAIDS subscales; Fear of AIDS; AIDS Anxiety; Self-Efficacy for Condom Use;

Perceived AIDS Risk; and Behavioral HIV Risk. In sample 1, AIDS Anxiety

($F(5,338)=108.7$, $p < .05$), Proximity (a HOWAIDS subscale) ($F(5,338)=9.15$,

$p < .05$), and Fear of AIDS ($F(5,338)=8.35$, $p < .05$) were significant predictors. For

sample 2, AIDS Anxiety ($F(6,334)=183.7$, $p < .05$), Fear of AIDS ($F(6,334)=7.75$,

$p < .05$), Self Efficacy for Condom Use ($F(6,334)=16.3$, $p < .05$), Proximity (a

HOWAIDS subscale) ($F(6,334)=6.00$, $p < .05$), and Media Influence (a HOWAIDS

subscale) ($F(6,344)=4.85$, $p < .05$) were significant predictors. In sample 1,

statistically significant predictors accounted for 28% of the variance. In sample two, there was 42% of the variance explained. Therefore, looking at the common factors from both samples, more negative attitudes toward gays and lesbians were associated with a higher anxiety and fear about AIDS and less proximity to people with AIDS. Table 8 shows the variance explained by the specific predictor at that point, after the previous variables were added, and standardized regression coefficients (betas) for each predictor that was significant at the .05 level or better.

Table 8. Negative Attitudes Toward Gay and Lesbian Individuals

Predictor	Sample One		Sample Two	
	R-square	Beta	R-square	Beta
AIDS Anxiety	.2439	.4253	.3556	.5344
Self Efficacy for Condom Use		NS	.0303	-.1493
Proximity	.0200	-.1602	.0107	-.0898
Fear of AIDS	.0179	.1329	.0141	.1514
Media Influence		NS	.0086	-.0867

Note: NS = Not significant, $p > .05$.

R-square denotes the change in R-square when the individual variable is added.

Values for beta are standardized regression coefficients.

Canonical correlation analysis of HOWAIDS and risk variables. Exploratory analysis using the canonical correlation technique was undertaken to assess how the HOWAIDS subscales (School Education Influence; Communication about Sex; Family Influence; Peer Influence; Proximity; Famous Persons Influence; and Media Influence) relate to the following risk-related variables: Negative Attitudes Toward Gay and Lesbian Individuals; AIDS Anxiety; Fear of AIDS; AIDS Knowledge; Perceived AIDS Knowledge; Age at First Intercourse; Behavioral HIV Risk; and Stereotyping About Who Has HIV/AIDS. In sample one, the overall canonical analysis was significant (Wilks' Lambda = .51, $p < .05$) with three significant paths relating certain HOWAIDS variables to risk variables. In sample two, the overall analysis was again significant (Wilks' Lambda = .50, $p < .05$) with five significant paths. Table 9 on the next page gives the squared canonical coefficients and standardized canonical structure coefficients for the first three pairs of canonical variates which were significant at the .05 level or better in samples 1 and 2.

Table 9. Canonical Correlation Analysis: How One Comes to Know About AIDS versus Risk-Related Variables

Sample One			
How One Comes to Know About AIDS Factors		Risk-Related Variables	
First Pair Canonical Variates (Squared Canonical Correlation = .29)			
School Learning Influence	.40	AIDS Anxiety	-.46
Communication About Sex	.85	Neg. Att. Toward Gay and Lesbian Ind.	-.49
		AIDS Knowledge	.65
		Perceived AIDS Knowledge	.63
		AIDS stereotyping	.62
Second pair canonical variates (Squared Canonical Correlation = .12)			
Proximity	.96	Perceived AIDS Risk	.45
		Neg. Att. Toward Gay and Lesbian Ind	-.48
		Age of First Intercourse	.48
		AIDS Knowledge	.56
Third pair canonical variates (Squared Canonical Correlation = .096)			
Peer Influence	.78	Perceived AIDS Knowledge	.45
Media Influence	.73	AIDS Knowledge	.54
		Fear of AIDS	.54

Note: Canonical variates listed are significant at the .05 level or better.

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Table 9 (continued). Canonical Correlation Analysis: How One Comes to Know About AIDS versus Risk-Related Variables

Sample Two			
How One Comes to Know About AIDS factors		Risk-Related Variables	
First pair of canonical variates (Squared Canonical Correlation = .25)			
School Learning Influence	.37	AIDS Anxiety	-.39
Communication About Sex	.91	Neg. Att. Toward Gay and Lesbian Ind.	-.40
		AIDS Knowledge	.44
		Perceived AIDS Knowledge	.58
		Age of First Intercourse	.74
Second pair of canonical variates (Squared Canonical Correlation = .18)			
Proximity	.62	Perceived AIDS Risk	.36
Famous Persons Influence	.50	Neg. Att. Toward Gay and Lesbian Ind.	-.37
Media Influence	.58	Fear of AIDS	.39
Peer Influence	.48	Behavioral HIV Risk	.47
Third pair of canonical variates (Squared Canonical Correlation = .05)			
School Learning Influence	.77	Perceived AIDS Knowledge	.45
Proximity	.39	AIDS Knowledge	-.55
		Perceived AIDS Risk	.69

Note: Canonical variate pairs are significant at the .05 level or better

Sample one. For the first significant pair of canonical variates, an ease of communication variate (consisting of School Education Influence and Communication

about Sex) is related to a broad knowledge variate that includes Perceived AIDS Risk, Behavioral HIV Risk, Stereotyping About Who Has HIV/AIDS, Negative Attitudes Toward Gay and Lesbian Persons, and AIDS Anxiety (explained variance = 29%). Those who have more education about HIV/AIDS and more comfort communicating about sex tend also to have less negative attitudes toward gays and lesbians, higher knowledge about HIV/AIDS, and to be less anxious about AIDS. It also indicates that, in spite of school education, people tend to hold more stereotypes about those who have HIV/AIDS.

For the second significant pair of canonical variates, Proximity is related to a perceived risk variate that includes Negative Attitudes Toward Gay and Lesbian Individuals, AIDS Knowledge, and Perceived AIDS Risk (explained variance = 12%). Those who know someone with AIDS tend to harbor less negative attitudes toward gays and lesbians, perceive themselves to be at higher risk, and possess more accurate knowledge about HIV/AIDS.

The third significant pair of canonical variates relates an external influences factor (Peer Influence and Media Influences) to a risk variate that includes AIDS Knowledge, Perceived AIDS Knowledge, and Fear of AIDS (explained variance = 10%). Higher external influences on HIV/AIDS awareness are associated with higher knowledge and more fear about contracting HIV/AIDS.

Sample 2. For the first pair of significant variates, School Learning Influence and Communication About Sex are related to a knowledge/experience variate that includes Negative Attitudes Toward Gay and Lesbian Individuals, Age of First

Intercourse, Perceived AIDS Knowledge, AIDS Knowledge, and AIDS Anxiety (explained variance = 25%). As in sample one, those who have more had more education in HIV/AIDS and sex are more likely to have less negative attitudes toward gays and lesbians, more accurate knowledge about HIV/AIDS, and to be less anxious about HIV/AIDS. Also significant is the link showing greater school learning and communicating about sex is associated with an older age of first intercourse.

The second pair of significant variates relates several of the HOWAIDS variables to a risk variate that includes Behavioral HIV Risk, Perceived AIDS Risk, Fear of AIDS and Negative Attitudes Toward Gay and Lesbian Individuals (explained variance = 19%). Individuals having more awareness of HIV/AIDS, including those who have personally known someone with HIV/AIDS, tend to have less negative attitudes toward gays and lesbians, have higher perceived risk, higher behavioral HIV risk, and a lower fear of AIDS.

The third variate pair relates School Learning Influence and Proximity to a factor that includes Perceived AIDS Risk, Perceived AIDS Knowledge and AIDS Knowledge (explained variance = 6%). Again, school influence and proximity to someone with HIV/AIDS appear to be positively associated with more accurate HIV/AIDS knowledge and higher perception of risk for HIV/AIDS.

Canonical correlation analysis of attitudes toward gays and lesbians and risk variables. In an effort to determine the extent to which attitudes toward gays and lesbians affect risk, AIDS Anxiety, Fear of AIDS, and Negative Attitudes Toward Gay and Lesbian Individuals were related to four variables of risk: Perceived AIDS Risk;

Behavioral HIV Risk, Self-Efficacy for Condom Use and Age of First Intercourse. In sample 1, the overall canonical correlation analysis was significant (Wilks' Lambda = .83, $p < .05$). There were two canonical correlations significant at the .05 level. In sample 2, the overall canonical correlation analysis was again significant (Wilks' Lambda = .84, $p < .05$) with two significant correlations. Table 10 indicates squared canonical coefficients and canonical structure coefficients for significant relationships found.

Table 10. Canonical Correlation Analysis - Attitudes Toward Gays and Lesbians versus Risk

Sample One			
Neg. Att. Toward Gay and Lesbian Ind.		Risk Variables	
First canonical variate pair (Squared Canonical Correlation = .12)			
Fear of AIDS	.99	Perceived AIDS Risk	.94
		Behavioral HIV Risk	.50
		Self-Efficacy for Condom Use	-.42
Second canonical variate pair (Squared Canonical Correlation = .05)			
Neg. Att. Toward Gay and Lesbian Ind. (1)	.67	Self-Efficacy for Condom Use	-.78
Neg. Att. Toward Gay and Lesbian Ind. (2)	.58	Behavioral HIV risk	-.42
AIDS Anxiety	.84		

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Table 10 (continued). Canonical Correlation Analysis - Attitudes Toward Gays and Lesbians versus Risk

Sample Two			
Neg. Att. Toward Gay and Lesbian Ind.		Risk Variables	
First canonical variate pair (Squared Canonical Correlation = .09)			
Neg. Att. Toward Gay and Lesbian Ind.	.99	Self Efficacy for Condom Use	-.86
AIDS Anxiety	.61	Behavioral HIV Risk	.32
Second canonical variate pair (Squared Canonical Correlation = .06)			
Neg. Att. Toward Gay and Lesbian Ind.	.35	Perceived AIDS Risk	.89
Fear of AIDS	.94	Behavioral HIV risk	.53
		Self Efficacy for Condom Use	-.30
Note: Canonical variate pairs are significant at the .05 level. (1) Negative-worded items (2) Positive-worded items			

Sample 1. In the first canonical correlation, Fear of AIDS is related to a general risk variate that includes Perceived AIDS Risk and Behavioral HIV Risk, and Self-Efficacy for Condom Use (explained variance = 12%). Individuals with a higher fear about HIV/AIDS are more likely to perceive themselves to be at higher risk, place themselves at higher risk for contracting HIV/AIDS, and report themselves to be less efficacious in taking measures to reduce the risk for HIV/AIDS transmission.

In the second canonical variate pair, Negative Attitudes Toward Gay and Lesbian Individuals and AIDS Anxiety is significantly related to a behavioral risk variate (explained variance = 5%). Those reporting more negative attitudes toward gay and lesbian persons tend to be engage in behaviors that place them at lower risk for HIV/AIDS transmission and are less efficacious in taking measure to prevent HIV/AIDS.

Sample 2. In the first canonical correlation, Negative Attitudes Toward Gay and Lesbian Individuals is related to a behavior risk variate that includes Self-Efficacy for Condom Use and Behavioral HIV Risk (explained variance = 9%). Those with more negative attitudes toward gays and lesbians tend to place themselves at higher behavioral risk for HIV/AIDS transmission, as well as report themselves to be less efficacious in taking measures to reduce the risk of HIV/AIDS transmission.

The second canonical correlation relates a fear variate, including Negative Attitudes Toward Gay and Lesbian Individuals and Fear of AIDS, to a risk variate that includes Perceived AIDS Risk, Behavioral HIV Risk, and Self-Efficacy for Condom Use (explained variance = 6%). Thus, those having more negative attitudes toward gays and lesbians and having more fear of AIDS report higher perceived AIDS risk, higher behavioral risk for HIV/AIDS, and less efficacy for condom use.

Gender Differences. Gender differences among several of the dependent variables were investigated. The following scales were used as dependent variables in a multivariate analysis of variance (MANOVA) procedure with gender as the IV: HOWAIDS subscales (consisting of: School Education Influence; Communication

About Sex; Family Influence; Peer Influence; Proximity; Famous Persons Influence; and Media Influence); AIDS Anxiety; Fear of AIDS; Negative Attitudes Toward Gay and Lesbian Individuals; Perceived AIDS Risk; and Peer Influence in Condom Use. In sample 1, the overall MANOVA was significant (Wilks' Lambda = .75, $F(13,325)=8.39$, $p < .05$). In sample 2, the overall MANOVA was again significant (Wilks' Lambda = .74, $F(13,321) = 8.79$, $p < .05$). In sample one, statistically significant gender differences were found on the School Education Influence, Communication About Sex, AIDS Anxiety, and Negative Attitudes Toward Gay and Lesbian Individuals subscales. In the second sample, differences were found among the following six dependent variables: Communication about Sex; Peer Influence; Famous Persons Influence; Media Influence; AIDS Anxiety; and Negative Attitudes Toward Gay and Lesbian Individuals. Table 11 gives the means for each of the variables used in the MANOVA procedure.

Table 11. Multivariate Analysis of Variance for Gender and Hypothesis Variables

Sample One			
Wilks' Lambda:		.75	F=8.39*
Variable	Mean(Males)	Mean(Females)	F statistic
School Learning Influence	2.99	3.22	10.44*
Communication About Sex	4.19	4.56	30.32*
Family Influence	2.15	2.04	1.90
Peer Influence	2.47	2.54	0.83
Proximity	1.66	1.72	0.52
Famous Persons Influence	2.34	2.53	2.72
Media Influence	2.74	2.87	2.66
AIDS Anxiety	2.23	1.78	22.23*
Fear of AIDS	2.37	2.22	3.35
Neg. Attitude Towards Gay and Lesbian Individuals	2.74	2.05	58.48*
Perceived AIDS Risk	2.20	2.12	0.66
Peer Influence in Condom Use	3.16	3.17	0.13
Sample Two			
Wilks' Lambda:		.74	F=8.79*
Variable	Mean(Males)	Mean(Females)	F statistic
School Learning Influence	3.04	3.15	1.92
Communication About Sex	4.25	4.47	9.11*
Family Influence	2.12	2.22	1.31
Peer Influence	2.45	2.60	5.48
Proximity	1.52	1.67	3.08
Famous Persons Influence	2.33	2.58	5.82*
Media Influence	2.72	2.94	6.93*
AIDS Anxiety	2.35	1.71	49.71*
Fear of AIDS	2.27	2.22	0.33
Negative Attitude Towards Gay and Lesbian Individuals	2.83	2.01	82.65*
Perceived AIDS Risk	2.12	2.04	0.66
Peer Influence in Condom Use	3.09	3.17	4.00*

Note: * $p < .05$

In sample one, differences indicate that young women are influenced more from school learning and find it easier to communicate about sex than young men. Young men, on the other hand, as a group exhibit more AIDS anxiety and more negative attitudes toward gay and lesbian people. In sample two, the same differences were found. Additionally, sample 2 differences suggest that young women are influenced more through peers and media sources about HIV/AIDS and by peers in condom use than are young men.

Knowing someone with AIDS. From survey results, it was determined that 138 people knew someone with AIDS. A random sample of the remaining people who did not report knowing someone with AIDS was drawn. In the MANOVA analyses that followed, the two groups consisted of 138 people who claimed to know someone with AIDS and 183 who reported not knowing someone with AIDS. Differences in sample sizes were again due to the specific randomization procedure used. The following scales were used as dependent variables: AIDS Anxiety; Fear of AIDS; Negative Attitudes Toward Gay and Lesbian Individuals; Sexual Assertiveness for Condom Use; Sexual Assertiveness for Communication; Perceived AIDS Risk; Behavioral HIV Risk; and Self Efficacy for Condom Use. The overall MANOVA was not statistically significant [Wilks' Lambda = .95, $F(9,311) = 1.83$, $p > .05$].

Discussion

Findings

This study confirms that AIDS risk is a multidimensional phenomenon. Variables that have traditionally not been studied, such as those pertaining to negative attitudes toward gays and lesbians, anxiety about AIDS, and many of the factors analyzed in the “How One Comes to Know About AIDS” (HOWAIDS) subscales, explain significant proportions of variance in predicting perceived AIDS risk and engagement in AIDS risking behavior. These findings might help in designing interventions specifically targeted to young college students.

The study sample was randomly split into two subsamples. Analyses conducted for each sample indicated that the results were in some cases different for each subsample. In cases where this occurred, findings that were consistent in both samples will be interpreted. Although it is possible that, through chance, the two samples could be different, it is more likely that some of the factors used in the analyses are not stable across samples. Though many of the scales were reliable, several of the factors used had internal consistencies below .70 {e.g. Communication About Sex; Family Influence; Peer Influence; Fear of AIDS; Negative Attitudes Toward Gay and Lesbian Individuals (only the scale with positively worded items); each of the three Knowledge subscales (for this reason, knowledge variance was assessed using only the combined scale); and Drug Use}, indicating that results for these latter factors should be interpreted with caution.

The questions selected for use in this survey did indeed form subscales consistent with those predicted. The “HOWAIDS” subscales that formed were: School Learning Influence (Passive School Learning, Interactive School Learning, and Sex Education Training); Communication About Sex; Family Influence; Peer Influence; Proximity; Famous Persons Influence; and Media Influence. The overall School Learning Influence subscale appeared to be most consistent, with the individual subscales having lower consistencies. Therefore, all analyses were conducted using the overall School Learning Influence subscale.

The first prediction was partially supported. High behavioral HIV risk was predicted by higher perceived AIDS risk, lower sexual assertiveness for condom use and lesser ease at communicating about matters pertaining to sex. Influence of the media and proximity (personally knowing someone with HIV/AIDS) were also significant predictors. That is, one who puts himself or herself at higher behavioral risk tends to also be less influenced by media sources of HIV/AIDS education and is less likely to know someone with HIV/AIDS, but only for one of the two samples each. Therefore, there is some support that media and proximity influences do affect a person’s risk behavior, but this association needs to be developed further.

Reviewing the results regarding perceived AIDS risk, some of the hypothesized factors were significant. The results show that higher perceived AIDS risk is associated with those having more minor substance abuse problems, more drug use, more fear of AIDS, and less negative attitudes toward gays and lesbians. Proximity, peer influence on HIV/AIDS knowledge, religiosity and alcohol use were significant,

but in only one of the two samples. What is interesting about this finding is that negative attitudes toward gays and lesbians and fear of AIDS are associated with a person's perception of risk and, therefore, indirectly associated with his or her actual AIDS risking behavior. This lends support to the notion that HIV/AIDS is still being perceived as a "gay disease". In addition, this finding is consistent with those reported by Mickler (1993). She found that there is a general illusion of invulnerability among heterosexual college students and that there was support for the notion that AIDS is perceived as an outgroup problem (as noted earlier).

The third prediction, that the HOWAIDS subscales, Perceived AIDS Risk and Behavioral HIV Risk, would successfully predict negative attitudes toward gays and lesbians, was partially supported. Negative attitudes toward gays and lesbians were associated with more anxiety about HIV/AIDS, a higher fear of AIDS, and less proximity to people with AIDS. This finding supports the hypothesis that proximity AIDS epidemic is related to negative attitudes toward gay and lesbian people. Since the majority of HIV/AIDS-infected people at this time (in the U.S.) are gay and bisexual men, it can reasonably be concluded that knowing someone who is gay or lesbian may be positively related to that person's attitudes toward these individuals.

The fourth hypothesis, involving the investigation of gender differences, was partially supported. In both samples, it was found that women appeared to be more comfortable talking about sex with friends, and men were more likely to have a negative attitude toward gay and lesbian people and to be more anxious about HIV/AIDS. These results concerning attitudes toward gay and lesbian people are

consistent with the findings of McDevitt, Sheehan and Lennon (1990), as well as with the commonly held perceptions that men generally view gay males and lesbians less favorably than do women.

Some additional gender differences were noted pertaining to the HOWAIDS scales, but they were detected in only one of the two samples. In one sample, young women were more likely to be influenced by media sources, famous individuals having AIDS, and peers in their learning about HIV/AIDS. However, since these latter findings occurred in only one sample, the differences should be interpreted with caution.

The fifth prediction was not supported by the findings. However, an explanatory note is in order. Responses to two specific questions were used: One concerns knowing a family member with HIV/AIDS; the other asks whether the respondent knows anyone other than a family member who has HIV/AIDS. A respondent could know someone from both categories. Therefore, there may be some ambiguity in the exact numbers from this information, making determination of the total number of people who know someone with AIDS difficult for analyzing group differences. There are not enough responses in each category alone to guarantee sufficient power for conducting separate group difference analyses for each category. Because of the difficulties in gaining an accurate total number of respondents who know someone with HIV/AIDS, the resulting statistical non-significance of this particular analysis should be regarded with caution.

The sixth prediction, involving the relationship between subscales within the HOWAIDS scale and a set of experience variables including Negative Attitudes Toward Gay and Lesbian Individuals, Fear of AIDS, AIDS Anxiety, AIDS Knowledge, Perceived AIDS Knowledge, Perceived AIDS Risk and Behavioral HIV Risk, was in large part supported by the findings. Those who had a more inclusive education about HIV/AIDS and sex were more likely to have a broader experience in that they tend to have less negative attitudes toward gays and lesbians and possess more accurate knowledge about HIV/AIDS. This finding supports the notion that school education can be an important factor in developing positive or negative attitudes toward HIV/AIDS, as well as toward members of outgroups, such as those associating with the gay and lesbian community. Knowing someone with HIV/AIDS was associated with less negative attitudes toward gays and lesbians and higher perceived AIDS risk. One of the hypotheses of this study was that negative attitudes toward gay and lesbian individuals are associated with perceived risk; the results support this hypothesis.

Another analysis, using canonical correlation related, Negative Attitudes Toward Gay and Lesbian Individuals, Fear of AIDS, and AIDS Anxiety to a set of risk variables including Perceived AIDS Risk, Behavioral HIV Risk, and Self-Efficacy for Condom Use. Individuals who held more negative attitudes toward gays and lesbians and who were more anxious about AIDS reported themselves to be less efficacious in taking measures to reduce risk for HIV/AIDS. Also, those who were more fearful about HIV/AIDS felt themselves to be at higher risk, were at a higher behavior risk, and were less efficacious in measures to reduce their own HIV/AIDS risk.

The implications reinforce the notion that negative attitudes toward gays and lesbians are somehow involved in the way individuals make sense of HIV/AIDS in their own lives. Earlier regression analyses supported the idea that negative attitudes toward gays and lesbians is related to perceived risk, and perceived risk explains a significant portion of the variance in behavior risk. In the analyses of canonical correlation, it appears that negative attitudes again are somehow mixed into a person's own self-perception of risk. Also worthy of note is the relationship found between attitudes and behavior, namely between negative attitudes toward gays and lesbians and the behavior individuals engage in that increase their risk for HIV/AIDS. If school education and the influence of family values help to form our attitudes, then there is some evidence to suggest that what is being taught, or not taught, can have some consequences for future behavior.

Fear appears to be an important variable in the AIDS epidemic as well as in forming a person's attitudes toward gay and lesbian people. The confirm that care should be exercised in how information is promulgated, that it be correct, and that the messages given not cause unnecessary fear. The findings indicate that, although more fear is associated with higher perceived risk and higher behavioral HIV risk, it is also associated with lesser efficacy in taking measures to reduce risk. As noted earlier, fear can be an important factor, and the AIDS Risk Reduction Model (ARRM) hypothesizes that a certain level of anxiety is necessary to promote movement toward behavior change. In these analyses, however, it is unclear whether higher risk results in more fear and lower perceived self-efficacy for condom use, or whether the reverse is true.

Although this study cannot determine a causal direction, the findings suggest that more education should be directed toward improving an individual's perceived efficacy for taking measures necessary to minimize HIV/AIDS risk. Further analysis should be directed toward more carefully determining the relationship between self-efficacy and fear, and also between behavior risk and fear.

Knowledge. Consistent with results in numerous studies, knowledge was not a significant predictor of behavioral and perceived risk. However, some gaps in HIV/AIDS information, specifically on transmission paths, still exist. For example, 44% of the sample responded either definitely yes or not sure to the question that "Mosquitoes can transmit AIDS". There have been no verified cases of this, and the research indicates that it is practically impossible to be infected by insects (CDC, 1993). Some questions, such as "People with AIDS usually have a lot of other diseases as a result of AIDS", and "The cause of AIDS is unknown" had mixed responses that could have been due to the wording of these questions. For example, in the first case, many illnesses are associated with AIDS (illnesses formerly known as AIDS Related Complexes - ARC). Though not necessarily diseases, the wording might have generated confusion. In any event, overall level of knowledge appears to be extremely high. Appendix C gives participant responses for each of the questions contained in AIDS Knowledge scale.

Although HIV/AIDS knowledge has not generally been found to be a significant predictor for behavior risk, the results of the canonical correlation analyses indicate that possessing accurate knowledge about HIV/AIDS is important. Individuals with

more influential school experiences involving HIV/AIDS awareness and sex education training were found to hold less negative attitudes toward gays and lesbians, were less anxious about HIV/AIDS, and possessed more complete knowledge about HIV/AIDS. This is compelling evidence that accurate and engaging information programs are important for educating young adults to be sensitive to differences that exist in a diverse society.

Suggested Intervention Directions. The present findings indicate that the levels of behavioral HIV risk and perceived AIDS risk are related to attitudes towards gay and lesbian people. Due to the correlational nature of this study, it is unclear whether attitudes cause higher perceived AIDS risk and higher behavioral HIV risk or whether the cause is in the opposite direction. However, in light of the historical trend of the AIDS epidemic and the negative associations manifested early in the epidemic between being gay and having AIDS, it can be assumed that negative attitudes toward gays and lesbians do contribute to how one personalizes HIV/AIDS risk in his or her life. Therefore, it is very important that interventions should be explicit in not stating that AIDS affects only certain types of people. Everyone is at risk for AIDS to the extent that they engage in behaviors that have been shown to transmit HIV (for example, unprotected vaginal and/or anal sex and a history of multiple sexual partners).

Intervention strategies should include contact with gay and lesbian people, and people having HIV/AIDS. Findings in this study support, along with those in other studies, that meeting these individuals can help to dispel stereotypes and general negative associations. Results also suggest that greater education in schools and at

home would be beneficial to young adults as they face a world of dating, multiple sexual encounters and a HIV/AIDS epidemic that currently is not showing signs of slowing down.

Given the seriousness of HIV/AIDS, schools should offer more training geared toward increasing knowledge, increasing exposure to members of all HIV/AIDS risk groups, and increasing one's efficacy in taking measures to minimize his or her own risk for contracting HIV/AIDS. Additionally, given that sex education training has not been associated with earlier age of first sexual intercourse, coupled with the findings of this study that those individuals more comfortable discussing sex-related matters tend to exhibit less negative attitudes toward gays and lesbians and have less anxiousness about HIV/AIDS, it appears that more detailed sex education instruction, that is, training that includes role play and frank discussion about human sexuality, might offer some insurance that young men and women can contribute to curtailing an epidemic that has claimed so many lives. When each person can take responsibility for his or her own sexual health, only then can one hope to stop the spread of HIV/AIDS.

Perceived AIDS risk is a predictor of AIDS risking behavior. The finding in this study was that the two are positively associated (i.e. the higher one's perceived risk, the higher the AIDS risking behavior). This seems unusual, since previous studies of other behaviors tend to find the opposite result. Intuitively, one would expect that, in a state of higher perceived risk, AIDS risking behavior should be lower. It is feasible that other factors might mitigate a person's perceived risk, thus allowing them to continue to engage in high risk behavior. For instance, young men and women

at high risk may believe in a “self fulfilling prophecy” (i.e. because I am at risk for AIDS, it doesn’t matter what I do). Or, it might be that those who engage in risky behavior correctly perceive that they are at higher risk. The relationship between self-perceived risk and engagement in risky behavior needs to be examined further.

Communication about sex seems to be important in minimizing AIDS-risking behavior. Training in communication skills, and allowing young people to gain confidence to feel more comfortable discussing traditionally “taboo” topics such as sex and birth control, would appear to give them more power over their sexual life and the confidence to make decisions that would place them at lower risk for contracting HIV.

Limitations. There are several methodological limitations to this study. First, the study is cross-sectional in nature, and the findings need to be interpreted with this in mind. It would be desirable to conduct longitudinal studies with the subscales used here. However, time, cost and availability of participating schools have resulted in few such endeavors, especially among high school (early and late adolescent) students.

Second, this sample was drawn mostly from University of Rhode Island students, with a few participants from CCRI. Additionally, most of the subjects were taken from introductory psychology courses. Therefore, one must be cautious in generalizing these results beyond this population.

Third, some of the scales had reliabilities less than .70, limiting the stability of the findings. To counteract this, findings were interpreted only when they were found significant in analyses of both samples. The reader should be aware of this and interpret results in the context of the scales used.

Fourth, this study involved a self-report measure requiring response to sensitive questions that asked participants to estimate numbers of occasions of specific sexual practices. A major objection of this type of study is the assumption that participants respond accurately to all questions. It is possible that responses might be biased, or response could be gender-specific, such as possible over-reporting of sexual activities with men and underreporting with women. Also, due to the stigma associated with being homosexual or bisexual, respondents might still report themselves as heterosexual, a less threatening response for some people. And, given the volatility of issues concerning acceptance of gay and lesbian sexuality, people might be inclined to answer questions concerning attitudes in a way that is more socially desirable.

Still, self-report responses were verified for consistency and appear to be sound. In assessing whether participants had engaged in sexual intercourse, several questions were reviewed that give a person the opportunity to provide the same answer. These included one question directly asking whether the individual has ever had a sex partner, as well as several items containing "I have never had sex" as a choice. Responses were very similar to each other (i.e. about 110 respondents reported never having had sex), and this number was consistent across a variety of responses.

Conclusion

The AIDS epidemic is rapidly diffusing into our political and social structures. No one is immune from the effects of the disease. It claims its victims regardless of sexual orientation, race, class, or age. However, as noted earlier, response by educators is still considered by many to be insufficient in light of the devastation. The potential risk to adolescents is great, and the question to be answered by politicians is whether money spent on education is resulting in the desired behavior change.

A more systematic response by institutions needs to be mandated to provide this education; elementary, secondary and post-secondary schools must be included. This study suggests that sex education and communication about sex between students and teachers, parents and children, and between friends, may be very important in diffusing anxiety about HIV/AIDS and dispelling negative stereotypes about gay and lesbian people. Although much more research needs to be done in order to determine causality, one could draw the conclusion that, in a society in which positive aspects of sexuality are repressed, we must deal with fundamental issues of sexuality if we are to have any hope of finding a permanent solution to the AIDS crisis. In light of these findings, models such as the AIDS Risk Reduction Model should include a component that recognizes sensitivity toward gays and lesbians as well as one that exposes the individual to members of all HIV/AIDS risk groups.

Studies of interventions have been nearly uniform in finding that interventions including people with AIDS and others representing at-risk populations are successful in at least changing attitudes. Proximity to PWA's is positively related to lower

anxiety about AIDS as well as to less negative attitudes toward gays and lesbians.

With an epidemic such as AIDS, it is incredible that we are not doing a better job of “beating the odds” by using interventions that have been shown to be effective in very specific types of settings. And, it may be that, if we continue to support the notion that AIDS is a gay disease and that “just say no” is the answer to the problem, more young adults will continue to engage in behaviors that place them at higher risk for HIV/AIDS, with little hope of stemming the spread of the HIV/AIDS epidemic.

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Appendix A

Health and Lifestyle Survey

Demographics:

1. I am
 - a. Male
 - b. Female
2. How old are you?
 - a. 17 years old or younger
 - b. 18 years old
 - c. 19 years old
 - d. 20 years old
 - e. 21 years old or older
3. What is your race or cultural group?
 - a. White
 - b. African-American
 - c. Asian-American
 - d. Hispanic-American
 - e. Other
4. What is the highest schooling that you have completed?
 - a. Grades 6-7
 - b. Grades 8-9
 - c. Grades 10-11
 - d. Graduated from high school
 - e. Some college work
5. Are you single or married now?
 - a. Single
 - b. Married

6. What is your religion?
 - a. Catholic
 - b. Protestant
 - c. Jewish
 - d. None
 - e. Other
7. How religious are you?
 - a. Not at all religious
 - b. Slightly religious
 - c. Somewhat religious
 - d. Fairly religious
 - e. Very religious
8. Who do you presently live with?
 - a. Both mother and father
 - b. Mother only
 - c. Father only
 - d. Someone else
 - e. Live alone
9. To the best of your knowledge, how much education has your mother completed?
 - a. 8th grade or less
 - b. Some high school
 - c. High school graduate
 - d. Some college
 - e. College graduate
10. To the best of your knowledge, how much education has your father completed?
 - a. 8th grade or less
 - b. Some high school
 - c. High school graduate
 - d. Some college
 - e. College graduate

11. If you know someone with HIV/AIDS, how old were you when you first knew this person with HIV/AIDS?
- 12 years old or younger
 - About 13-14 years old
 - About 15-16 years old
 - About 17 years old or older
 - I do not know a person with HIV/AIDS
12. How old were you when you had your first class in school that talked about HIV/AIDS?
- 12 years old or younger
 - About 13-14 years old
 - About 15-16 years old
 - About 17 years old or older
 - I never had a class that talked about HIV/AIDS
13. How old were you when you first talked about HIV/AIDS with your parents or other family members?
- 12 years old or younger
 - About 13-14 years old
 - About 15-16 years old
 - About 17 years old or older
 - I never talked about HIV/AIDS with parents or other family members
14. How old were you when you and a close friend talked about HIV/AIDS?
- 12 years old or younger
 - About 13-14 years old
 - About 15-16 years old
 - About 17 years old or older
 - I never talked about HIV/AIDS to a close friend
15. How old were you when you first learned about HIV/AIDS from TV, radio or movies?
- 12 years old or younger
 - About 13-14 years old
 - About 15-16 years old
 - About 17 years old or older
 - I never learned about HIV/AIDS from TV, radio or movies

School Education Influence

- a. Definitely not true
 - b. Not really true
 - c. Somewhat true
 - d. Mostly true
 - e. Definitely true
16. I learned a lot about HIV/AIDS in classes I took in grade school.
17. I learned a lot about HIV/AIDS in classes I took in junior high school.
18. I learned a lot about HIV/AIDS in classes I took.
19. Most of what I learned about HIV/AIDS in my classes was from listening to my teacher talk about it.
20. Most of what I learned about HIV/AIDS in my classes was from movies, books, and/ or slides.
21. Most of what I learned about HIV/AIDS in my classes was from asking my teacher to answer my questions about it.
22. Most of what I learned about HIV/AIDS in my classes was from doing assignments or projects.
23. Most of what I learned about HIV/AIDS in my classes was from role play exercises where someone pretended to have HIV/AIDS.
24. I learned a lot in my classes about the things people do that can cause them to get HIV/AIDS.
25. I learned a lot in my classes about what to do if I do not want to have sex.
26. Most of what I learned about how to practice safer sex was from my health or sex education classes.

27. I was taught how to keep myself from getting into a situation that would put me at risk for getting HIV/AIDS.

Communication About Sex, Peer Influence, and Family Influence

- a. Definitely not true
- b. Not really true
- c. Somewhat true
- d. Mostly true
- e. Definitely true

28. It would be easy for me to talk to my mother or father (or guardian) about sex.

29. It would be easy to talk about sex with my brother or sister (if you do not have brothers or sisters, consider cousins, or other relatives).

30. It would be easy for me to talk about sex with my best friends.

31. It would be easy for me to talk about sex with a boyfriend/girlfriend (husband/wife).

32. I would have learned more about sex from my parents if I could have asked them more questions about it.

33. Most of what I know about HIV/AIDS I learned from my mother or father (or guardian).

34. Most of what I know about HIV/AIDS I learned from my brother(s) and/or sister(s).

35. Most of what I know about HIV/AIDS I learned from my friends.

36. When my best friend(s) talk about HIV/AIDS, I believe that what they say is true.

37. Most of my friends have had sex.

- 38. I could talk to my friends about practicing safer sex.
- 39. Most of what I know about sex I learned from my friends.
- 40. I believe that my most popular friends know a lot more about HIV/AIDS than most other people I know.

Proximity

- 41. Knowing someone personally with HIV/AIDS would make me want to learn more about it.
- 42. Most of what I know about HIV/AIDS I learned from someone I know who has HIV/AIDS.

Famous Persons Influence

- 43. Knowing that “Magic Johnson”, a famous basketball player, has HIV/AIDS has made me want to learn more about HIV/AIDS.
- 44. Knowing that “Magic Johnson” has HIV/AIDS has made me be more careful with my sex life.
- 45. Knowing that a famous singer I really like has died of AIDS would make me want to learn more about how I can avoid getting it.
- 46. Knowing that a famous movie or TV star I really like has died of AIDS would make me want to learn more about how I can avoid getting it.
- 47. Knowing a famous movie or TV star I really like has HIV/AIDS would make me want to learn more about how I can avoid getting it.
- 48. Knowing a famous singer I rally like has HIV/AIDS would make me want to learn more about how I can avoid getting it.

Perceived AIDS Knowledge

- 49. If someone asked me a question about how to prevent getting HIV/AIDS, I can give them the right answer.
- 50. If someone asked me what things people do that can cause HIV/AIDS I can tell them the right answer.
- 51. If someone asked me how HIV/AIDS is transmitted, I can give them the right answer.

Negative Attitudes Toward Gay and Lesbian Individuals/Anxiety and Fear About AIDS

- 52. I think people with HIV/AIDS should be in a special classroom at school.
- 53. I would not like it if someone in my gym class has HIV/AIDS.
- 54. I would feel comfortable in a small room with a person who is gay.
- 55. If my best friend told me he or she was gay, I would probably not be their friend anymore.
- 56. If my roommate told me he or she has HIV/AIDS, I would ask them to move out.
- 57. If my brother or sister told me he or she was gay, I would not be ashamed to talk about it to other people.
- 58. I would stay away from people who are gay, because if I didn't, I would have a higher chance of getting HIV/AIDS.
- 59. It's okay for people who have HIV/AIDS to teach school.
- 60. Gay men and gay women are the reason that HIV/AIDS is such a big problem.
- 61. I really would not want to work at a place or go to school with people who I think are gay.

62. My friends and I would probably not go out to a place where there are people who are gay.

63. I am afraid that someone around me has HIV/AIDS and I do not know it.

64. I am not afraid that I might get HIV/AIDS from having sex.

65. I am afraid of making new friends because of HIV/AIDS.

66. A lot of my friends think it is okay for someone to be gay.

67. If my friends and I are at a place where there are gay people and my friends want to leave, I would go too.

68. The more I learn about HIV/AIDS, the more afraid I am that I might get it.

Media Influence

69. For me, watching TV has been an important way to learn about HIV/AIDS.

70. For me, listening to the radio has been an important way to learn about HIV/AIDS.

71. For me, seeing movies in the theater, or on video has been an important way to learn about HIV/AIDS.

72. For me, reading books or magazines has been an important way to learn about HIV/AIDS.

73. For me, reading newspapers has been an important way to learn about HIV/AIDS.

Proximity

- a. Definitely no
- b. Probably no
- c. Not sure
- d. Probably yes
- e. Definitely yes

- 74. I know a close friend who has HIV/AIDS.
- 75. Someone in my family has HIV/AIDS.
- 76. I know someone with HIV/AIDS who is not a close friend or member of my family.
- 77. I know a gay person who has HIV/AIDS.
- 78. I know a person who is not gay who has HIV/AIDS.
- 79. I know a woman who has HIV/AIDS.
- 80. I know a person who shoots drugs with a needle who has HIV/AIDS.

AIDS Knowledge

- 81. AIDS is a medical condition in which your body cannot fight off diseases.
- 82. AIDS is caused by a virus.
- 83. AIDS is a condition you are born with, you cannot get it from others.
- 84. Stress causes AIDS.
- 85. All gay men have AIDS.
- 86. What you eat can give you AIDS.
- 87. Anybody can get AIDS.

88. If a pregnant woman has AIDS, there is a chance it may harm her unborn baby.
89. Most people who get AIDS usually die from it.
90. Using a condom (rubber) during sex can lower the risk of getting AIDS.
91. Receiving a blood transfusion with infected blood can give a person AIDS.
92. You can get AIDS by sharing a needle with a drug user who has AIDS.
93. You could get AIDS by eating in a restaurant if the cook has it.
94. Mosquitoes can transmit AIDS.
95. You can get AIDS by shaking hands with a person with AIDS.
96. You can get AIDS from a public toilet.
97. People with AIDS usually have lots of other diseases as a result of AIDS.
98. AIDS is caused by the same virus that causes venereal disease.
99. Having sex with someone who has AIDS is one way of getting it.
100. There is no cure for AIDS.
101. I can avoid getting AIDS by exercising regularly.
102. AIDS can be cured if treated early.
103. A new vaccine has recently been developed which can prevent AIDS.
104. The cause of AIDS is unknown.
105. You can have AIDS and not know it.
106. I can avoid getting AIDS by having sex only with healthy looking persons.

- 107. You can get AIDS by donating blood.
- 108. All gay women have AIDS.
- 109. You can get AIDS by a sneeze or a cough from a person with AIDS.

Perceived AIDS Risk

- 110. I feel that I am at risk of getting AIDS at this time in my life.
- 111. I know someone who was tested for AIDS.
- 112. I sometimes think that I may have been exposed to AIDS.
- 113. I have had sex with someone who could have given me AIDS.
- 114. One of my close friends does things that could lead to them getting AIDS.
- 115. I believe I can do things to help protect myself from getting AIDS.
- 116. I try not to get into situations where I might get AIDS.

Sexual Assertiveness for Condom Use and Partner Communication

- a. Never
 - b. Sometimes
 - c. About half of the time
 - d. Usually
 - e. Always
- 117. I would ask if I want to know if my partner ever had an HIV test.
 - 118. I would have sex without a condom if my partner doesn't like them, even if I want to use one.
 - 119. I would ask my partner about the AIDS risk of his or her past partners, if I want to know.

120. I would make sure my partner and I use a condom when we have sex.
121. I would ask if I want to know if my partner ever had a sexually transmitted disease (STD).
122. I would insist on using a condom if I want to, even if my partner doesn't like them.
123. I would ask if I want to know if my partner ever had sex with someone who shoots drugs with a needle.
124. I would have sex without using a condom if my partner insists, even if I don't want to.
125. I would ask if I want to know if my partner ever used needles to take drugs.
126. I would refuse to have sex if my partner refuses to use a condom.

Locus of control

127. I can pretty much control what will happen in my sex life.
128. No matter what I do, if I am going to get AIDS, I will get AIDS.
129. My sex partner decides when we have sex.
130. Most things that affect my health happen to me by accident.
131. If my sex partner does not want to discuss birth control, we do not discuss it even if I want to.
132. I am in control of my health.
133. My sex partner(s) has a lot to do with my becoming sick or staying healthy.
134. When I get sick, I am to blame.
135. Luck plays a big part in determining whether I get a sexually transmitted disease.

- 136. My sex partner decides whether we use condoms during sex.
- 137. My good health is largely a matter of good fortune.
- 138. The main thing which affects my health is what I myself do.
- 139. If I take care of myself, I can avoid illness.
- 140. It is my sex partner's responsibility to provide birth control.
- 141. No matter what I do, I'm likely to get sick.
- 142. If it's meant to be, I will stay healthy.
- 143. If I take the right actions, I can stay healthy, and avoid getting AIDS.
- 144. Regarding my sexual health, I can only do what my sex partner tells me to do.

Self-Efficacy for Condom Use

- a. Not at all sure
- b. A little sure
- c. Kind of sure
- d. Fairly sure
- e. Very sure

I would use a condom

- 145.when I am really turned on.
- 146.when my partner gets mad about using a condom.
- 147.when I am depressed.
- 148.when I have been drinking or doing drugs.
- 149.when I feel angry.

150.when I feel pressured to have sex.

151.when I'm afraid I might get AIDS.

Peer Influence in Condom Use

- a. Definitely no
- b. Probably no
- c. Probably yes
- d. Definitely yes

152. My close friends insist on using condoms when they have sex with a risky partner.

153. My close friends think that their partner would not mind using a condom when they have sex.

154. My close friends are afraid to ask their partner to use a condom when they have sex.

155. Some of my close friends think that they are at risk of getting AIDS.

156. My close friends think that it's okay for a woman to ask a partner to use condoms.

157. My close friends ask a sex partner to use a condom.

Alcohol use

158. In the past year, how often have you had a drink of beer, wine or liquor?

- a. Never
- b. 1-2 times a month or less
- c. 1-2 times a week
- d. 3-4 times a week
- e. Almost every day

159. In the past year, how many drinks did you normally have when you drank alcohol?

- a. None, I don't drink
- b. 1-2 drinks
- c. 3-5 drinks
- d. 6-10 drinks
- e. 11 or more drinks

160. In the past year, how often did you have 3 or more drinks in one day?

- a. Never
- b. 1-2 times a month or less
- c. 1-2 times a week
- d. 3-4 times a week
- e. Almost every day

161. In the past year, how often did you have 6 or more drinks in one day?

- a. Never
- b. 1-2 times a month or less
- c. 1-2 times a week
- d. 3-4 times a week
- e. Almost every day

Drug use

162. In the past year, how many times did you use marijuana or hashish (grass, pot, hash, hash oil) without a doctor's orders?

- a. Never
- b. Once a month or less
- c. About once a week
- d. About twice a week
- e. Almost every day, or every day

163. In the past year, how many times did you use other drugs, without a doctor's orders?

- a. Never
- b. Once a month or less
- c. About once a week
- d. About twice a week
- e. Almost every day, or every day

164. In the past year, how many times did you share a needle to shoot drugs?

- a. Never
- b. 1 time
- c. 2-5 times
- d. 6-10 times
- e. 11 or more times

Problems from Substance Abuse

How often have these things happened to you **IN THE PAST YEAR** because of your drinking or drug use?

- a. Never
- b. Once
- c. 2-3 times
- d. 4-6 times
- e. More than 6 times

165. I had a hangover.

166. I messed up on something important.

167. I was in trouble with the police or other authority.

168. I broke or messed up someone else's things.

169. I got into an argument or fight.

170. I got sick or threw up.

171. I drove a car after having alcohol or drugs.

- 172. I was hurt or injured.
- 173. Someone I know talked to me about how I was acting.
- 174. I thought I might have a drinking or drug problem.
- 175. I couldn't remember for a while (blacked out).
- 176. I did something I wished I hadn't.
- 177. I was arrested for drunk driving.
- 178. I had sex that I wouldn't have had if I was sober.
- 179. I tried to stop using but didn't.
- 180. I thought about or tried to kill myself.

Present/past experience

- 181. Is there a partner you regularly have (or had) sex with?
 - a. No
 - b. Yes
- 182. Who do you like to have (or would you like to have) as a sex partner?
 - a. Only males
 - b. Only females
 - c. Both males and females
- 183. About how long have you been involved with your most recent sex partner?
 - a. I have never had a sex partner
 - b. Less than a month
 - c. Between 1 and 6 months
 - d. Six months to a year
 - e. Over one year

184. How old were you the first time you had sex (as defined on page 8)? [Sex was defined previously as willingly having vaginal, oral or anal intercourse with a sex partner]

- a. I have never had a sex partner
- b. 12 years old or younger
- c. About 13-14 years old
- d. About 15-16 years old
- e. About 17 years old or older

185. Do you use condoms (rubbers)?

- a. I have never had a sex partner
- b. Started always using 6 or more months ago
- c. Started always using 1-6 months ago
- d. Sometimes, but not always
- e. Never

186. In the next 6 months, do you plan to start **always** using condoms if you have sex?

- a. I have never had a sex partner and don't plan to have on in the next 6 months.
- b. I already always use condoms.
- c. Yes
- d. No

187. How sure are you that you have **NOT** been exposed to AIDS?

- a. Absolutely sure
- b. Very sure
- c. Somewhat sure
- d. Slightly sure
- e. Not at all sure

188. How sure are you that your sex partner(s) have **NOT** been exposed to AIDS?

- a. Absolutely sure, or I have never had a sex partner.
- b. Very sure
- c. Somewhat sure
- d. Slightly sure
- e. Not at all sure

189. Have you ever been tested for HIV?
- a. No, I have never been tested.
 - b. Yes, and I do not have HIV
 - c. Yes, and I do have HIV
190. How many sex partners have you had who shoot drugs with a needle?
- a. None or never had a sex partner.
 - b. One
 - c. Two to four
 - d. Five to seven
 - e. Eight or more
191. How many sex partners have you had who tested positive for HIV or were told that they had AIDS?
- a. None or never had a sex partner.
 - b. One
 - c. Two to four
 - d. Five to seven
 - e. Eight or more
192. How many sex partners have you had have been treated for hemophilia (a bleeding disorder)?
- a. None or never had a sex partner.
 - b. One
 - c. Two to four
 - d. Five to seven
 - e. Eight or more
193. How many sex partners have you had who were male and had sex with other men?
- a. None or never had a sex partner.
 - b. One
 - c. Two to four
 - d. Five to seven
 - e. Eight or more

194. How many sex partners have you had who had a blood transfusion between 1978 and 1985?
- None or never had a sex partner.
 - One
 - Two to four
 - Five to seven
 - Eight or more
195. About how many sex partners have you had in your life?
- None
 - One
 - Two to four
 - Five to seven
 - Eight or more
196. About how many sex partners have you had in the past year?
- None
 - One
 - Two to four
 - Five to seven
 - Eight or more
197. About how many sex partners has your most recent partner had (including yourself)?
- None or never had a sex partner.
 - One
 - Two to four
 - Five to seven
 - Eight or more
198. How sure are you of your answer to question #197?
- Absolutely sure, or I have never had a sex partner
 - Very sure
 - Somewhat sure
 - Slightly sure
 - Not at all sure

199. If you were to make a guess, how much risk do you have for getting HIV/AIDS at this time in your life?
- a. No risk
 - b. Slight risk
 - c. Some risk
 - d. Moderate risk
 - e. High risk

Questions 200-205 are part of a behavior matrix. Respondents were asked to fill out the frequency of specific sexual behaviors for up to 5 partners. The behaviors were for the past year.

In the past 12 months, how many times did you have.....

200. Vaginal sex **without** a condom?
201. Vaginal sex **with** a condom?
202. Oral sex **without** a condom?
203. Oral sex **with** a condom?
204. Anal sex **without** a condom?
205. Anal sex **with** a condom?
206. Have you had more than five sex partners?
- a. No
 - b. Yes
207. If yes, how many sex partners have you had in the past year? _____ partners
208. Please write down one or two TV programs that taught you the most about HIV/AIDS.
209. Please write down one or two magazines or books that taught you the most about HIV/AIDS.

210. Please write down how you felt when you found out someone you liked had HIV/AIDS. This could be a friend, relative, famous singer, etc.

You are now finished with the survey. If parts were hard to understand please tell us in the space below, or call Michelle or Gary at the URI number given below. Please put the survey in the envelop that was given to you and mail it as soon as you can. If you have any questions about AIDS or would like some information about AIDS, you can call Michelle or Gary at URI (401) 792-2741 or RI Project AIDS at 1-800-726-3010. If you have alcohol concerns or depressed feelings, you can talk with someone at Alcoholics Anonymous 1-800-439-8860, or the Samaritans at (401) 272-4044. Thank you for participating and for helping us learn about lifestyle behaviors.

Appendix B

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CONSENT FORM FOR RESEARCH for HEALTH AND LIFESTYLE SURVEY

I have been asked by a researcher from the University of Rhode Island to take part in a study of attitudes, knowledge and health-related behaviors concerning AIDS by completing a pencil and paper survey. The researcher will explain the project to me in detail. If I have more questions later, Gary J. Burkholder, the person mainly responsible for this study, (401) 792-2741, will discuss them with me.

I have been asked to take part in a study designed to assess how people come to know about AIDS. If I decide to take part in this study, my participation will involve completing a survey of 207 questions pertaining to a variety of factors such as education, sex history and behavior, anxiety and substance use. I understand that it is important that I should **complete the survey as fully and as honestly as possible**. My responses to questions in this survey will be analyzed to see how such factors affect sexual behavior. I understand that I must be 18 years of age or older to participate in this study.

The possible risks or discomforts of the study are minimal. However, some degree of initial awkwardness about sensitive information relating to lifestyle behaviors may occur. I can call Gary Burkholder to discuss these issues. Additionally, the following numbers are provided should you want to utilize them. RI Project AIDS Hotline: 1-800-726-3010 (or (401)831-5522 if calling between 9-9 Mon-Fri or 12-4 Sat); Alcoholics Anonymous: 1-800-439-8860; The Samaritans at (401) 272-4044.

One benefit to me for participation may be an increased knowledge about my personal behavior. In addition, the researcher may learn more about AIDS risk factors among the young adult population.

Guarantee of Anonymity. I understand that all information gathered in this study will be strictly anonymous. By completing and returning this survey, I am agreeing to participate in this research. My name will not appear anywhere on this survey. No one will be able to trace answers back to me.

The decision whether or not to take part in this study is up to me. I do not have to participate. If I decide to take part in the study, I may terminate my participation choosing to not return the survey to the researcher. Whatever I decide will in no way affect my grade in this course or affect my status as a student. If I am not satisfied with the way that the study is performed, I may discuss my complaints with Gary Burkholder (401) 792-2741, or the Vice Provost for Research, 70 Lower College Road, University of Rhode Island, Kingston, Rhode Island, telephone: (401)-792-2635 confidentially or anonymously if I choose.

I have read this Informed Consent Form. My questions have been answered. My completion and return of this survey means that I understand the information and I agree to participate in this study.

Dear Participant:

Thank you for agreeing to fill out this survey on lifestyle and health. It will take approximately 45 minutes or less to complete. You should consider completing this in a private workspace, because some of the questions ask for some personal information.

Please remember that all answers on the survey are totally anonymous. **ONLY YOU WILL KNOW HOW YOU ANSWER EACH QUESTION!** Your name can never be matched to your answers.

There is a computer-read "scan-tron" form enclosed with this survey. Please record answers to questions 1-199 on this form. It is important that you check that the question number you are filling in corresponds to the question you are answering on the survey. You do not need to fill in any other data except "Birthdate". For questions 200-210, fill in your answers directly on the survey form.

Once you have completed the survey, return the survey and the scan-tron form to your professor or to a designated collection site that will be explained to you when you are handed the survey.

If you find that you have questions about AIDS or if you have any feelings that you would like to talk about after completing the survey, phone numbers are provided for you on the consent form. Please make as many calls as you feel you need to help answer all of your questions.

Your honest answers are very important to me and other researchers as well as to you. It is important to learn how we can best protect ourselves and others from AIDS, other sexually transmitted diseases and other things that can harm us. Completing this survey might also help you to become more aware of certain factors in your lifestyle that may put you at higher health risk.

There are no "right" or "wrong" answers to questions on this survey. No answers are "good" or "bad" answers. We hope that this survey does not make you feel embarrassed or judged. We are very grateful for your help in helping us to understand more about our lifestyles.

Sincerely,

Gary J. Burkholder
University of Rhode Island

Appendix C

Pattern of Numbers and Percentages of Individuals for the AIDS Knowledge Scale Items

Item	Definitely/ Probably No	Not sure	Definitely/ Probably Yes
AIDS is a medical condition in which your body cannot fight off diseases.	36(05)	22(03)	616(92)
AIDS is caused by a virus.	65(10)	32(05)	577(85)
AIDS is a condition you are born with, you cannot get it from others.	664(98)	6(01)	4(<1)
Stress causes AIDS.	656(97)	10(02)	8(1)
All gay men have AIDS.	645(96)	15(02)	14(02)
What you eat can give you AIDS.	648(96)	13(02)	13(02)
Anybody can get AIDS.	20(03)	12(02)	642(95)
If a pregnant woman has AIDS, there is a chance it may harm her unborn baby.	15(02)	22(03)	637(95)
Most people who get AIDS usually die from it.	42(06)	32(05)	600(89)
Using a condom (rubber) during sex can lower the risk of getting AIDS.	28(04)	8(01)	638(95)
Receiving a blood transfusion with infected blood can give a person AIDS.	20(03)	8(01)	646(95)
You can get AIDS by sharing a needle with a drug user who has AIDS.	14(02)	11(02)	649(96)
You could get AIDS by eating in a restaurant if the cook has it.	520(77)	93(14)	61(09)
Mosquitoes can transmit AIDS.	387(57)	181(27)	106(16)

(continued on next page)

**Pattern of Numbers and Percentages of Individuals for the AIDS Knowledge Scale
Items (continued)**

Item	Definitely/ Probably No	Not sure	Definitely/ Probably Yes
You can get AIDS by shaking hands with a person with AIDS.	647(96)	7(01)	20(03)
You can get AIDS from a public toilet.	588(87)	63(9)	23(03)
People with AIDS usually have lots of other diseases as a result of AIDS.	361(54)	165(24)	148(22)
AIDS is caused by the same virus that causes venereal disease.	492(73)	149(22)	33(05)
Having sex with someone who has AIDS is one way of getting it.	15(02)	13(02)	646(96)
There is no cure for AIDS.	73(11)	31(05)	570(84)
I can avoid getting AIDS by exercising regularly.	652(97)	11(02)	11(01)
AIDS can be cured if treated early.	600(87)	49(07)	9(01)
A new vaccine has recently been developed which can prevent AIDS.	503(75)	139(21)	32(05)
The cause of AIDS is unknown.	377(56)	138(20)	159(24)
You can have AIDS and not know it.	57(08)	27(04)	590(88)
I can avoid getting AIDS by having sex only with healthy looking persons.	659(98)	9(01)	6(01)
You can get AIDS by donating blood.	556(82)	33(05)	85(12)
All gay women have AIDS.	652(97)	14(02)	8(01)
You can get AIDS by a sneeze or a cough from a person with AIDS.	604(91)	42(06)	28(03)

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