HIV IN YOUNG ADULTS: AN EXPLORATION OF KNOWLEDGE AND RISK

DR. TODD SABATO
University of North Dakota

Abstract

Over three decades since its discovery, HIV/AIDS remains a critical public health challenge. An estimated 1.41 million AIDS cases, and approximately 659,000 AIDS-related deaths, were reported to the Centers for Disease Control and Prevention (CDC) through 2013 (Stine, 2013). While 53% of documented AIDS cases in the United States have occurred among male homosexuals/bisexuals, the epidemic has increasingly affected persons of all ages, races/ethnicities, and sexual orientations (Stine, 2013). Expanded prevention efforts now address not only those at enhanced risk, but also communities at the forefront of the epidemic.

Although estimates place young adults at lower risk for HIV than other at-risk groups, such as men who have sex with men and injection drug users, examination of epidemiological data reveals cause for concern. Persons between 13 and 24 years of age account for a mere 7% of the estimated 1.1 million persons living with HIV in the United States, yet continue to comprise a growing number of cases (Centers for Disease Control and Prevention [CDC], 2012). Between 2007 and 2010, rates of infection among 15 to 19 year olds increased 25%, and rose 31% among 20 to 24 year-olds – the only age groups to experience increases in diagnosis. Of the estimated 47,500 newly diagnosed HIV infections in 2010, nearly 26% were among 13 to 24 year-olds (Childress, 2012).

Developmentally, adolescents and young adults are at a uniquely difficult crossroad. The need for autonomy and independence, as well as an evolving decisional capacity intersect and compete with concrete thinking processes, risk-taking behaviors, and a preoccupation with self-image (AIDSinfo, 2014). Such transitions challenge one’s ability to attract and sustain focus on health promoting behaviors. Nowhere is this more evident than on college campuses, where limited parental oversight, coupled with increasing responsibility for self-management of health, often places students at risk for negative health outcomes (Cleary, Walter, & Jackson, 2011). American College Health Association data indicate that a mere 50.3% of sexually active students use a condom or other protective barrier when engaging in vaginal sex, and only 29.2% and 5.7% of sexually active students report using barriers during anal and oral intercourse, respectively (American College Health Association [ACHA], 2013). The disinhibiting effects of binge drinking, a common practice among over 40% of students, further exacerbate potential risk (Griffin, Umstattd, & Usdan, 2010). Twenty percent of college students who consume alcohol report engaging in unprotected sex while under the influence, heightening not only the risk of pregnancy, but also transmission of infection in a population that is inordinately impacted (ACHA, 2013).
Almost half of the over 19 million sexually transmitted infections each year in the United States occur in 15 to 24 year-olds (Advocates for Youth, 2012). Similarly distressing are rates of HIV infection among heterosexual college students, which are estimated to be at least 10 times those of the heterosexual community at large (Stine, 2013).

The disproportionate impact of HIV and other sexually transmitted infections among young adults is particularly alarming, in light of reportedly high levels of knowledge pertaining to transmission and prevention (Inungu, Mumford, Younis, & Langford, 2009). While well informed, research has consistently shown that knowledge alone does not predict safer sexual practices (Davis, Sloane, MacMaster & Kilbourne, 2007). More than 75% of college students are sexually active, reporting more than two sexual partners annually (LaBrie, Earleywine, Schiffman, Pedersen, & Marriot, 2005). Only 62% of young adults report using a condom outside of a committed relationship, whereas a mere 19% report use within an established relationship (O’Sullivan, Udel, Montrose, Antoniello & Hofman, 2010). Despite acknowledging that HIV is a critical issue for their generation, such behaviors underscore the disconnect between perceived susceptibility to and actual risk for infection (Henry J. Kaiser Family Foundation, 2012). Perceived levels of risk among young adults have remained stable, impacting prevention education and antibody testing rates. Only 34% of 18 to 24 year-olds, and 29% of college students, report ever being tested for HIV infection (ACHA, 2013; Henry J. Kaiser Family Foundation, 2012).

As nearly 60% of young persons with HIV do not know of their seropositive status, the likelihood of unknowingly transmitting the virus to others is greatly enhanced (CDC, 2012). Inadequate or inaccurate prevention education methods further compound the risk of transmission among young adults. Data indicate a progressive decline in the prevalence of students having been taught about HIV or AIDS in school (Kann et al., 2014). Only 20 states mandate sexuality education and HIV education for public school children. Further, 31 states do not require medically, factually, or technically accurate information to be provided as a component of sexuality education programs (National Conference of State Legislatures, 2014). Acting upon false information which they believe to be accurate, students may mistakenly put themselves at risk of infection.

With no specific cure for HIV/AIDS, preventive measures based on information and education remain critical to tackling the epidemic and its associated problems. Communication and intervention strategies play essential roles in educating young adults on the prevention and control of infection. Although perceived estimates of HIV risk on college campuses are relatively low, factors such as peer pressure, alcohol and other drug use, and sexual maturation heighten the risk of transmission. The purpose of this study was to examine current levels of knowledge among sexually active college students, and the association between HIV transmission and prevention-based knowledge, sexual risk practices, and antibody testing. At a time when more than half of college students exhibit risky behavior for HIV transmission, identifying and addressing those factors that promote risk reduction is imperative.

Methods

Study Sample and Data Collection

The sample consisted of students enrolled in elective health education courses (e.g., Human Sexuality, Personal Health, and Women’s Health) at three large institutions. Upon receiving approval from the Institutional Review Boards of the respective universities and a brief discussion of the research purposes and
objectives, interested students were provided with a research packet containing a series of instruments addressing psychological, behavioral, and knowledge-based factors related to HIV. Students were given one week to return the packet. Upon completion, the informed consent form was detached from completed instruments to protect participant confidentiality.

Measures

Socio-demographic characteristics included age, gender identity, racial/ethnic background, and sexual orientation. Additional items inquired about the time period since the subject's most recent HIV antibody test, as well as the number of times the subject had been tested for antibodies in the prior five year period.

HIV/AIDS-related knowledge was ascertained using the Brief HIV Knowledge Questionnaire (HIV-KQ-18). This 18-item instrument provides a brief but reliable method of assessing knowledge domains relevant to sexual risk behavior, informed decisions, and behavior change, as well as misconceptions about the risk associated with close contact with persons with HIV. Respondents were asked to indicate their agreement or disagreement about each of the 18 statements about HIV. Summary scores were obtained by summing the number of items correctly responded to, with higher scores indicating greater levels of knowledge. The HIV-KQ-18 had shown internal consistency across samples ($\sigma=.75-.89$), test-retest reliability across several intervals ($\sigma=.76-.94$), and strong consistency with previously validated measures ($\sigma=.93-.97$) (Carrey & Schroder, 2002). In the present study, the HIV-KQ-18 yielded a reliability of .78.

HIV-related sexual risk was assessed using the University of California San Francisco Center for AIDS Prevention Studies Sexual Behaviors Questionnaire (Chesney, Polkman, & Chambers, 1996). This 22-item scale asked respondents to report the number of persons with whom they had engaged in sexual activity over the prior 90 days. Individuals reporting no sexual engagement during that time period were excluded from analyses. Participants were further asked to respond dichotomously to items inquiring about condom use, as well as insertive and receptive anal, oral, and vaginal intercourse. Scores were calculated based upon responses to items involving unprotected oral, anal, and vaginal intercourse, with respondents being scored dichotomously ($0 = \text{no}$, $1 = \text{yes}$) for each item. Summary scores could range from 0 to 22, with higher scores indicating greater HIV-related sexual risk behavior. The present study yielded a reliability of .81.

Data Analyses

After entry into IBM SPSS v. 21.0, all data were screened to identify missing information and outliers. All missing data was excluded from final analysis.

Six separate independent samples t-tests were conducted. The first three allowed for examination of HIV transmission and prevention knowledge by gender identity, sexual orientation, and history of HIV antibody testing. The last three similarly allowed for examination of HIV-related behavioral risk by gender identity, sexual orientation, and history of antibody testing. Finally, utilizing simple linear regression, the relationship was examined between levels both transmission and prevention knowledge and HIV-related behavioral risk.

Discussion

A total of 889 women and 375 men participated in the study (Table 1). Participants ranged in age from 17 to 54, with a mean age of 19.7 years. The majority of participants were White. Nearly one in twenty respondents (5.3%) self-identified as gay, lesbian, or bisexual. Only one in five respondents (18.2%) reported a prior history of HIV antibody
testing, with women significantly more likely than men to have ever been tested (19.9% vs. 13.7%, \( p < .05 \)).

**Table 1. Socio-demographic Characteristics of Self-Identified Sexually Active Students**

<table>
<thead>
<tr>
<th>Characteristic</th>
<th>Participants</th>
<th>Frequency (n)</th>
<th>% Valid</th>
</tr>
</thead>
<tbody>
<tr>
<td>Gender</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Male</td>
<td></td>
<td>375</td>
<td>29.7</td>
</tr>
<tr>
<td>Female</td>
<td></td>
<td>889</td>
<td>70.3</td>
</tr>
<tr>
<td>Ethnicity</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>White</td>
<td></td>
<td>1,053</td>
<td>83.3</td>
</tr>
<tr>
<td>Black or African American</td>
<td></td>
<td>74</td>
<td>5.9</td>
</tr>
<tr>
<td>Hispanic or Latino/a</td>
<td></td>
<td>25</td>
<td>2.0</td>
</tr>
<tr>
<td>Asian or Pacific Islander</td>
<td></td>
<td>71</td>
<td>5.6</td>
</tr>
<tr>
<td>American Indian, Alaska</td>
<td></td>
<td>6</td>
<td>0.5</td>
</tr>
<tr>
<td>Native or Native Hawaiian</td>
<td></td>
<td>35</td>
<td>2.8</td>
</tr>
<tr>
<td>Other</td>
<td></td>
<td>976</td>
<td>81.9</td>
</tr>
<tr>
<td>Sexual Orientation</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Heterosexual</td>
<td></td>
<td>1,157</td>
<td>94.7</td>
</tr>
<tr>
<td>Gay or Lesbian</td>
<td></td>
<td>46</td>
<td>3.8</td>
</tr>
<tr>
<td>Bisexual</td>
<td></td>
<td>19</td>
<td>1.5</td>
</tr>
<tr>
<td>History of HIV Testing</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Yes</td>
<td></td>
<td>215</td>
<td>18.2</td>
</tr>
<tr>
<td>No</td>
<td></td>
<td>976</td>
<td>81.9</td>
</tr>
</tbody>
</table>

Table 2 summarizes participant responses to the 18-item HIV knowledge questionnaire. Although the mean score of 13.7 (76%) indicates adequate levels of knowledge, more than one in four respondents (26.2%) believed that the virus could be transmitted by sitting in a hot tub or a swimming pool with an infected individual. Further, more than one in four students (26.3%) were not aware that HIV is not transmissible through deep kissing. Nearly one-third of respondents (29.4%) were unaware of potential transmission risks from engaging in oral sex.

Results of independent samples t-tests revealed that, compared to their male counterparts, female respondents exhibited greater knowledge related to HIV transmission and prevention (Table 3). While not statistically significant, this finding is consistent with prior research indicating an enhanced understanding of general HIV knowledge, prevention, and treatment issues among females (Sutton et al., 2011). Further examination also found that self-identified gay, lesbian, and bisexual students displayed greater prevention and transmission knowledge (\( p < .05 \)). This difference parallels earlier findings, showing high levels of knowledge among gay and bisexual males (Fay et al., 2011). Students indicating a prior history of HIV antibody testing also exhibited greater knowledge (\( p < .05 \)), paralleling prior research suggesting that greater HIV knowledge is associated with an increased likelihood of HIV testing (Dudley, O'Sullivan, & Moreau, 2002).

A second series of independent samples t-tests analyzed existing differences in sexual risk for HIV between males and females, self-identified heterosexual and sexual minority students, and those students who had and did not have a history of HIV antibody testing (Table 3). Males were significantly more likely to engage in risk behaviors (\( p < .001 \)), a finding that has consistently been reported in the literature (Ishida, Stupp, & McDonald, 2011; Puente et al., 2011). More than half (52.9%) of male respondents engaged in insertive oral sex without a condom to the point of ejaculation in the prior 90 days, and nearly one in three (29.1%) had vaginal sex without a condom to the point of ejaculation.

Analysis further revealed that self-identified sexual minority students were more likely to engage in risk behaviors for HIV, compared to their heterosexual counterparts (\( p < .001 \)). Nearly two-thirds of gay and bisexual males (63.3%) engaged in unprotected oral sex without a condom, and almost
Table 2. Responses to the HIV Knowledge Questionnaire by Sexually Active Students (n=1,264)

<table>
<thead>
<tr>
<th>Statement</th>
<th>% Correct</th>
<th>% Incorrect</th>
</tr>
</thead>
<tbody>
<tr>
<td>1. Coughing and sneezing DO NOT spread HIV.</td>
<td>81.7</td>
<td>18.3</td>
</tr>
<tr>
<td>2. A person can get HIV by sharing a glass of water with someone who has HIV.</td>
<td>82.8</td>
<td>17.2</td>
</tr>
<tr>
<td>3. Pulling out the penis before a man climaxes/cums keeps a woman from getting HIV during sex.</td>
<td>93.5</td>
<td>6.5</td>
</tr>
<tr>
<td>4. A woman can get HIV if she has anal sex with a man.</td>
<td>84.3</td>
<td>15.7</td>
</tr>
<tr>
<td>5. Showering, or washing one's genitals/private parts after sex keeps a person from getting HIV.</td>
<td>91.0</td>
<td>9.0</td>
</tr>
<tr>
<td>6. All pregnant women infected with HIV will have babies born with AIDS.</td>
<td>59.7</td>
<td>40.3</td>
</tr>
<tr>
<td>7. People who have been infected with HIV quickly show signs of being infected.</td>
<td>87.4</td>
<td>12.6</td>
</tr>
<tr>
<td>8. There is a vaccine that can stop adults from getting HIV.</td>
<td>79.5</td>
<td>20.5</td>
</tr>
<tr>
<td>9. People are likely to get HIV by deep kissing if their partner has HIV.</td>
<td>73.7</td>
<td>26.3</td>
</tr>
<tr>
<td>10. A woman cannot get HIV if she has sex during her period.</td>
<td>89.3</td>
<td>10.7</td>
</tr>
<tr>
<td>11. There is a female condom that can help decrease a woman's chance of getting HIV.</td>
<td>64.2</td>
<td>35.8</td>
</tr>
<tr>
<td>12. A natural skin condom works better against HIV than does a latex condom.</td>
<td>49.9</td>
<td>50.1</td>
</tr>
<tr>
<td>13. A person will NOT get HIV if she or he is taking antibiotics.</td>
<td>84.7</td>
<td>15.3</td>
</tr>
<tr>
<td>14. Having sex with more than one partner can increase a person's chance of being infected with HIV.</td>
<td>95.3</td>
<td>4.7</td>
</tr>
<tr>
<td>15. Taking a test for HIV one week after having sex will tell a person if he or she has HIV.</td>
<td>40.5</td>
<td>59.5</td>
</tr>
<tr>
<td>16. A person can get HIV by sitting in a hot tub or a swimming pool with a person who has HIV.</td>
<td>73.8</td>
<td>26.2</td>
</tr>
<tr>
<td>17. A person can get HIV from oral sex.</td>
<td>70.6</td>
<td>29.4</td>
</tr>
<tr>
<td>18. Using Vaseline or baby oil with condoms lowers the chance of getting HIV.</td>
<td>70.3</td>
<td>29.7</td>
</tr>
</tbody>
</table>

Table 3. Personal and Behavioral HIV Risk Means among Sexually Active College Students

<table>
<thead>
<tr>
<th>Component</th>
<th>Gender</th>
<th>Sexual Orientation</th>
<th>History of Antibody Testing</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Male</td>
<td>Female</td>
<td>df</td>
</tr>
<tr>
<td>HIV Knowledge</td>
<td>13.7</td>
<td>13.8</td>
<td>-.44</td>
</tr>
<tr>
<td></td>
<td>(3.4)</td>
<td>(3.3)</td>
<td></td>
</tr>
<tr>
<td>Sexual Risk</td>
<td>3.6</td>
<td>2.4</td>
<td>9.10&quot;</td>
</tr>
<tr>
<td></td>
<td>(2.4)</td>
<td>(1.8)</td>
<td></td>
</tr>
</tbody>
</table>

Note. Standard deviations appear in parentheses below means.
*p < .001, **p < .05.
half (46.7%) did so to the point of ejaculation — behaviors that clearly enhance risk for infection. Such findings are supported by prior research, which has documented earlier ages of sexual intercourse debut, more lifetime and recent sexual partners, and greater levels of unprotected sexual intercourse among gay, lesbian, and bisexual teens (Cochran, Stewart, Ginzel, & Cauce, 2002; Saewyc, Pettingell, & Skay, 2004). Those with a history of HIV antibody testing similarly displayed greater sexual risk ($p < .001$). This result parallels prior findings among high school students that the odds of HIV testing were higher among those who had not used a condom during their last sexual encounter, or had sexual intercourse, as well as those having engaged in sexual intercourse with four or more persons curing their lifetime (Balaji et al., 2012).

Results of the simple linear regression (Table 4) indicate that HIV knowledge is associated with fewer safe sex acts ($p < .05$). Less than 1% of HIV-related sexual risk behavior was explained by respondents’ levels of knowledge. While this finding was unexpected, prior examination of Information-Motivation-Behavior (IBM) skills models have reported inconsistent results for the relationship between information and HIV-preventive behavior (Fisher, Williams, Fisher, & Malloy, 1999).

<table>
<thead>
<tr>
<th>Variable</th>
<th>$b$</th>
<th>SE(b)</th>
<th>t</th>
<th>Sig (p)</th>
</tr>
</thead>
<tbody>
<tr>
<td>HIV knowledge</td>
<td>0.37</td>
<td>0.18</td>
<td>0.58</td>
<td>1.983</td>
</tr>
</tbody>
</table>

Note. $R^2 = .003$

The present study examined knowledge of HIV transmission and prevention, as well as engagement in HIV-related risk behaviors among sexually active college students. Results provide evidence of varying degrees of knowledge, with greater awareness among females, self-identified sexual minority students, and those reporting a prior history of antibody testing. Sexual risks for HIV transmission were more prominent among males, sexual minority students, and those who had previously been tested for HIV antibodies. An independent association between HIV prevention-based knowledge and sexual risk for transmission was also found. While this independent association exists, it does not purport a cause and effect relationship between knowledge and risk behaviors.

The finding that students were knowledgeable about HIV transmission and prevention is not unexpected. Mwanwenda’s (2013) study of college students in New York City similarly indicated familiarity with issues related to the virus. Similar to the present findings, research has found that, while students are typically well informed about HIV overall, misperceptions still exist regarding viral transmission. Analysis of data from Taiwanese college students revealed that more than one third (35.6%) thought that HIV could be transmitted by mosquitoes, 28% agreed that HIV could be contracted through toilet seats, and nearly one quarter (22.7%) thought the virus could be spread through swimming pools (Tung, Ding, & Farmer, 2008). Lewis, Miguez-Burbano, and Malow (2009) similarly found that approximately 25% of U.S. college students believed that a spermicidal agent could prevent viral transmission. Thus, opportunities still exist to heighten levels of HIV knowledge among students.

Reported associations between gender and HIV-related transmission and prevention-based knowledge have produced varied results. Research among Chinese students
found no relationship between gender and the number of correctly answered HIV knowledge and practice questions (Tan, Pan, Zhou, Wang, & Xie, 2007). While not significant, the present study suggests a greater level of prevention and transmission knowledge among females. Such findings are supported by Sutton et al. (2011), who reported average to high levels of knowledge of HIV risk among African American female college students. Similar findings among young adults in Ghana, Malaysia and Nigeria support the argument that, generally, females are more knowledgeable about both transmission and prevention of HIV (Chng, Eke-Huber, Eddy, & Collins, 2005; Wong, Chin, Low, & Jaafar, 2008).

Greater levels of HIV prevention and transmission knowledge among self-identified gay, lesbian and bisexual respondents in the present study parallel prior findings. In his study of safer sex knowledge and behavior among sexual minority men, Maxwell (1998) found that most gay and bisexual male youth have an understanding of activities that pose a high risk for HIV infection. Sabato (2003) similarly found a strong knowledge base of HIV prevention and transmission methods, as well as the ability to identify common HIV-related myths, among self-identified gay and bisexual males. Enhanced levels of knowledge exhibited by sexual minority males also make intuitive sense, given the historic context of HIV in gay and bisexual males. In the absence of political or cultural responses to the AIDS epidemic, the gay community was increasingly mobilized, creating new models of prevention, care and support (Institute of Medicine, 2011). Despite such knowledge and mobilization, gay and bisexual men continue to be disproportionately impacted by HIV, accounting for 63% of estimated new infections in the United States in 2010 (CDC, 2014).

Often ignored in HIV prevention and service programs, lesbian and bisexual females have exhibited limited knowledge of the potential for transmission (Marrazzo, Coffey, & Bingham, 2005). Existing information on female-to-female transmission of HIV lacks support. The presence of a large amount of vaginal secretions during oral sex (Gay Men’s Health Crisis, 2009). A post-hoc independent samples t-test revealed that, in the present study, lesbian and bisexual females had significantly less knowledge about HIV prevention and transmission than their heterosexual female counterparts ($p < .05$). Given such realities, it is essential that lesbian and bisexual females have greater exposure to accurate prevention-based information.

The observed association between knowledge and voluntary HIV antibody testing is well supported by the literature. Among sexually experienced youth, findings suggest that greater HIV knowledge is linked to greater likelihood of testing (Swenson et al., 2009). Among both men and women in South Africa, Haile, Chambers and Garrison (2007) found that those who had been tested for HIV had significantly more knowledge than those who had not. Scott-Sheldon et al. (2013) similarly reported that, compared to those who had never been tested, men who tested for HIV were more knowledgeable about HIV transmission, yet did not differ in their sexual risk behaviors. Existing gaps between knowledge and health promoting behaviors have been widely reported (Grimshaw, Eccles, Lavis, Hill, & Squires, 2012).

Collectively, student engagement in sexual risk behaviors was low ($M = 2.78$, $SD = 2.1$). However, closer examination of individual behaviors reveals greater cause for concern. Almost half (45.6%) of sexually active respondents indicate engaging in unprotected vaginal sex, with nearly one in three (29.3%) reported doing so to the point of ejaculation. Similarly, approximately one fifth (17.6%) practiced oral sex without
a barrier. Such findings support previous assertions that young adults are more concerned about preventing unwanted pregnancy than sexually transmitted infections (Abel & Brunton, 2005).

Research has found that young men tend to become sexually active earlier, and report a higher number of casual partners than females (Romero-estudillo, Gonzalez-jiminez, Mesa-franco, & Garcia-garcia, 2014). As such, the finding that males in the present study engaged in significantly greater sexual risks was not unexpected. Puente et al. (2011) similarly found, in their study of 14 to 16 year olds, that males had more sexual partners, and used condoms as a contraceptive method less frequently than females. The influence of alcohol and other drugs, may similarly impact levels of risk behavior. Young males are significantly more likely to engage in sexual intercourse under the effect of drugs, which not only influences the choice of partner, but also utilization and failure rates of condoms (Anna et al., 2012).

Self-identified sexual minority respondents engaged in a significantly greater number of HIV-related sexual risks, a finding that is widely supported in the literature. Studies have consistently reported a higher prevalence of HIV risk behaviors among gay, lesbian and bisexual teens, including earlier age of sexual intercourse debut, more lifetime and recent sexual partners, and equal or greater levels of unprotected sexual intercourse and injection drug use (Blake et al., 2001). Engaging in HIV risk behaviors may be seen by sexual minority youth as a means of coping with sexual orientation stigma (Saewyc et al., 2006).

The finding that young adults who sought testing opportunities engaged in greater risk behaviors than those who did not seek testing reflects prior research conclusions. Leta, Sandoy and Fylkesnes' (2012) study of Ethiopian males found that high risk sexual behavior was significantly associated with utilization of voluntary HIV counseling and testing services. Having an HIV test in the previous six months is further associated with a near twofold increase in the likelihood of unprotected sex, suggesting the possibility that those who engage in riskier behaviors may be aware of potential risks, and thus make concerted efforts to determine their serostatus (Kabiru, Luke, Izugbara, & Zulu, 2010).

Results of the simple linear regression indicate that HIV knowledge is associated with fewer sex acts, underscoring the gap between prevention-based knowledge and behavior. Multiple studies have similarly suggested that greater knowledge about HIV may actually increase transmission risk, since HIV knowledge is related to a reduced concern about HIV and subsequently a less frequent need to use condoms (Demmer & Caroleo, 2001; Opt & Loffredo, 2004). The inconsistency between knowledge and protective behaviors is likely mediated by a lack of perceived risk. Only half (54%) of sexually active college students report condom use during their last engagement in vaginal sex, and only one in four (26%) used a condom during their last engagement in anal sex. Similarly, less than 4% of sexually active students used a condom during their last episode of oral sex (ACHA, 2007; Lewis, Miguez-Burbano, & Malow, 2009). Despite such risks, nearly 80% of students consider themselves at low risk for infection (Sutton et al., 2011).

The findings discussed previously are not without limitations. A convenience sample, representing students from three institutions, limits the scope by which results may be generalized to other geographic regions, or the student population as a whole. The homogeneous nature of the sample also limits generalizability. While males represent 43% of the undergraduate population in the United States, they comprised only 29% of the sample. Similarly, ethnic minorities are underrepresented in the data. Non-White students constitute 40% of
the college attending population, yet were only
17% of the present sample (U.S. Department of Education, 2014). Sexual minority students,
who comprised 5% of the sample, may be
similarly underrepresented. As prior research
has found that nearly 13% of college students
indicate a sexual orientation that is not hetero-
sexual (McAleavey, Castonguay, & Locke,
2011). Lastly, the self-reporting nature of sex-
ual activity among young persons has shown to
be inconsistent, potentially biasing results
(Beguy, Kaburu, Nderu, & Ngware, 2009).

Despite research limitations, the results
provide a strong argument for enhanced
efforts aimed at HIV prevention education.
This study supported prior findings regarding
adequate levels of knowledge among sexually
active students. Closer examination, however,
revealed misperceptions and demographically-
based differences in knowledge, possibly
owing to inadequate or limited health and
sexual education in secondary schools. It
is thus strongly recommended that students
engage in coursework that thoroughly
addresses issues of sexuality and sexual health
early in their college experience. Faculty with
a background and experience in public health
education must incorporate gender-, sexuality-
-, and behaviorally-specific HIV prevention
content into classes, and link such efforts with
nonacademic resources. Although such ef-
forts may not inherently change engagement
in risk behaviors, findings from the present
study suggest that, at a minimum, they may
have a mediating effect upon decisions to ac-
cess testing, counseling, and referral services.

References

Abel, G., & Brunton, C. (2005). Young people’s use of condoms and their perceived vulnerability to sex-

Retrieved from http://www.advocatesforyouth.org/publications/publications-a-z/2056-young-people-
and-hiv-in-the-united-states

AIDSinfo. (2014). *Guidelines for the Use of Antiretrovi-
fo.nih.gov/guidelines

American College Health Association [ACHA]. (2013).
*American College Health Association – National College Health Assessment: Spring 2013 Reference
Group Executive Summary*. Hanover, MD: Author.
Retrieved from http://www.acha-ncha.org/docs/
ACHA-NCHA-II_ReferenceGroup_ExecutiveSummary_Spring2013.pdf

American College Health Association [ACHA]. (2007).
*American College Health Association – National
College Health Assessment: Reference Group Data
Report Fall 2006*. Hanover, MD: Author. Retrieved
from http://www.acha-ncha.org/docs/ACHA-
NCHA_Reference_Group_Report_Fall2006.pdf

Anna, L.H., Margolis, A.D., Warner, L., Korosteleva,
O.A., O’Donnell, L., Reitmeijer, C.A., ... Malette,
C.K. (2012). Condom use problems during anal sex
among men who have sex with men (MSM): Find-
ings from the 2010 in the city study. *AIDS Care, 24*(6),
1028-1038. doi: 10.1080/09540121.2012.668285

Baijai, A.B., Eaton, D.K., Voclsch, A.C., Wiegand,
between HIV-related risk behaviors and HIV testing among high school students in the
United States, 2009. *Archives of Pediatrics & Ad-
olescent Medicine, 166*(4), 331-336. doi: 10.1001/
archpediatrics.2011.1131

Beguy, D., Kaburu, C.W., Nderu, E.N., & Ngware, M.W.
(2009). Inconsistencies in self-reporting of sexual
activity among young people in Nairobi, Kenya.
*Journal of Adolescent Health, 45*(6), 595-601. doi:
10.1016/j.jadohealth.2009.03.014

Blake, S.M., Ledsky, R., Lehman, T., Goodenow, C.,
risk behaviors among gay, lesbian, and bisexual ado-
lescents: The benefits of gay-sensitive HIV instruc-


HIV in Young Adults: An Exploration of Knowledge and Risk


