



The Context of Sexual Risk among African-American Female College Students

## Journal of Health Disparities Research and Practice

---

Volume 3 | Issue 1

Article 8

---

© Center for Health Disparities Research, School of Public Health, University of Nevada, Las Vegas

2009

### The Context of Sexual Risk among African-American Female College Students

Lucy Annang , *University of South Carolina*

Shacara D. Johnson , *University of Alabama at Birmingham*

Malaika A. Pepper-Washington , *University of Alabama at Birmingham*

Follow this and additional works at: <https://digitalscholarship.unlv.edu/jhdrp>



Part of the [Community-Based Research Commons](#), [Gender and Sexuality Commons](#), [Immune System Diseases Commons](#), [Medicine and Health Commons](#), [Public Health Commons](#), [Race and Ethnicity Commons](#), and the [Virus Diseases Commons](#)

---

#### Recommended Citation

Annang, Lucy; Johnson, Shacara D.; and Pepper-Washington, Malaika A. (2009) "The Context of Sexual Risk among African-American Female College Students," *Journal of Health Disparities Research and Practice*: Vol. 3: Iss. 1, Article 8.

Available at: <https://digitalscholarship.unlv.edu/jhdrp/vol3/iss1/8>

This Article is protected by copyright and/or related rights. It has been brought to you by Digital Scholarship@UNLV with permission from the rights-holder(s). You are free to use this Article in any way that is permitted by the copyright and related rights legislation that applies to your use. For other uses you need to obtain permission from the rights-holder(s) directly, unless additional rights are indicated by a Creative Commons license in the record and/or on the work itself.

This Article has been accepted for inclusion in Journal of Health Disparities Research and Practice by an authorized administrator of Digital Scholarship@UNLV. For more information, please contact [digitalscholarship@unlv.edu](mailto:digitalscholarship@unlv.edu).

---

## The Context of Sexual Risk among African-American Female College Students

### Abstract

**Objective:** To assess the sexually transmitted infection (STI) awareness, sexual risk behaviors, and related contextual factors of African-American female college students.

**Participants:** Eighty-nine African-American first year female students attending a majority public four-year college in the southern U.S. participated in the study in Spring, 2006.

**Methods:** Participants completed an anonymous self-administered paper-and-pencil survey and received a \$15 cash incentive.

**Results:** Participants were highly knowledgeable and aware about STIs and their consequences. While this awareness translated into low levels of risk for many, still others engaged in behaviors and maintained beliefs that could potentially put them at high risk for contracting STIs.

**Conclusions:** Given the disproportionate rates of STIs among young African-American females, researchers must not ignore the non-behavioral factors (i.e. beliefs and perceptions) that may influence sexual risk behaviors to help in determining optimal methods for intervention and prevention among young African-American females.

### Keywords

African American college students; African-American females; African American women; College students; Sexual risk; Sexually transmitted infections; Sexually transmitted diseases – Risk factors; Women college students

### Cover Page Footnote

This study was funded by the University of Alabama at Birmingham Minority Health and Research Center (MHRC). The authors are thankful for the thoughtful review and encouragement of the MHRC Project Leaders.



## **The Context of Sexual Risk among African-American Female College Students**

Lucy Annang, University of South Carolina

Shacara D. Johnson, University of Alabama at Birmingham

Malaika A. Pepper-Washington, University of Alabama at Birmingham

### **Abstract**

**Objective:** To assess the sexually transmitted infection (STI) awareness, sexual risk behaviors, and related contextual factors of African-American female college students. **Participants:** Eighty-nine African-American first year female students attending a majority public four-year college in the southern U.S. participated in the study in Spring, 2006. **Methods:** Participants completed an anonymous self-administered paper-and-pencil survey and received a \$15 cash incentive. **Results:** Participants were highly knowledgeable and aware about STIs and their consequences. While this awareness translated into low levels of risk for many, still others engaged in behaviors and maintained beliefs that could potentially put them at high risk for contracting STIs. **Conclusions:** Given the disproportionate rates of STIs among young African-American females, researchers must not ignore the non-behavioral factors (i.e. beliefs and perceptions) that may influence sexual risk behaviors to help in determining optimal methods for intervention and prevention among young African-American females.

**Key Words:** African-American females; sexual risk; sexually transmitted infections; college students

## INTRODUCTION

Nearly 20 million cases of sexually transmitted infections (STIs) are reported annually, half of which are among youth ages 15-24 (Weinstock, Berman, & Cates, 2004). Of these youth, African-American females suffer an inordinate amount yielding one of the dominant health disparities in the United States. In 2006, the rate of chlamydia among African-American females in the U.S. was more than 7 times higher than the rate among white females (Centers for Disease Control & Prevention [CDC], 2007). In the same year, African-American women ages 15-19 years had a gonorrhea rate 14 times that of white females of the same age (CDC, 2007). Currently, African-American women are one of the fastest growing segments of the U.S. population diagnosed with HIV, and AIDS related illness is the leading cause of death for black women ages 25-44 years (National Center for Health Statistics, 2007). Despite these facts, few studies have focused on African-American female college students' STI-related risk behaviors.

Numerous studies have been conducted to prevent STI risk among young adolescents (DiClemente et al., 2004; Dilorio et al., 2006; Jemmott, Jemmott, Braverman, & Fong, 2005), gay men (Kegeles, Hays, & Coates, 1996; Kelly et al., 1991, 1992, 1997), and STD clinic patients (Grimley & Annang, 2006; Malotte et al., 2004); however, limited research exists focused on matriculating African-American females. Possibly, much of this has been due to the fact that college students often exhibit a higher degree of knowledge regarding sex and safer sex alternatives than the general population. Yet, knowledge alone is not enough to ensure that healthy behavioral options are chosen (Duncan et al., 2002; Shapiro, Radecki, Charchian, & Josephson, 1999; Valentine, Wright, & Henley, 2003). In fact, some researchers have assessed that knowledge of HIV/AIDS risk factors has limited or no effect on reduced risk behavior, most strikingly among African-American college students (Carroll, 1991; Jemmott & Jemmott, 1991; Johnson et al., 1992; Johnson, Hinkle, Gilbert, & Grant, 1992).

College students, in general, are a population potentially at risk for STIs given that nearly 80% of all college-age individuals are sexually active (Rimsza, 2005; Roberts, Smith, Wiesmeier, & Ward, 2006). Previous research has shown that college students engage in high rates of behavior that place them at risk for HIV/AIDS (Davis, Sloan, MacMaster, & Kilbourne, 2007; Fisher & Fisher 1992; Fisher, Fisher, Misovich, Kimble, & Malloy, 1996; Lewis, Malow, & Ireland, 1997). Some researchers have suggested, in fact, that the new environs of the college setting provide students with a sense of "new independence, self-determination, and strong peer pressure to experiment with a variety of sexual behavior" (Bazargan, Kelly, Stein, Jusaini, & Bazargan, 2000, p. 391). Although college-age females are not often recognized as being at high risk for HIV/AIDS, studies have shown that this group is particularly vulnerable to other STIs (Adelbert, Simpson, & Chamberlain, 2006; Flannery, Ellingson, Votaw, & Schaefer, 2003; Revzina & DiClemente, 2005). These studies underscore the importance of expanding our understanding of sexual behaviors of college

age African-American women and the need to openly address STIs and STI prevention with this group.

Given the racial disparities in STI prevalence and the knowledge-behavior gap previously identified by researchers, more focus should be placed on elucidating the contextual issues related to sexual risk among college age African-American females. Further study of these factors is important to consider as possible opportunities for intervention or as predisposing factors and thus markers of risk. The findings reported here are the result of an exploratory study of African-American female college students. The purpose of this research was to assess the STI knowledge, awareness, and sexual risk behaviors among this sample of young women.

## **METHODS**

### **Sample and Procedure**

Study participants were recruited from a freshman-only residence hall at a four-year, public, majority, university campus in the South. Individuals eligible for study enrollment were African-American, first year, female students, ages 18-24, matriculating at the university and residing in the designated recruitment residence hall during the 2005-2006 academic year. Two graduate research assistants, trained on policies for the protection of human subjects in research, were available on-site to provide informed consent. Participants were asked to review a copy of the informed consent document as a research assistant reviewed it along with them. Participants were encouraged to ask questions during and after the document review, were then asked to sign the consent form indicating their approval, and were given a copy of the consent document for their records. Once participants were enrolled into the study, they were asked to complete an anonymous self-administered paper-and-pencil survey after which they received a \$15 cash incentive. In order to limit feelings of anxiety regarding responses to sensitive questions, after recruiters provided participants their surveys, participants completed them in private, were asked not to attach their name to the survey, and were then asked to drop the completed survey in a sealed container that would not be opened until the end of the recruitment day. The study protocol and procedures were reviewed and approved by the university's Institutional Review Board for Human Use.

### **Measures**

The paper-and-pencil survey included a total of 56 items designed to assess demographic characteristics, awareness about STI prevention and control, sexual behaviors, and perceptions of sexual risk. Survey items were based on items previously used for assessing STI preventive behaviors among an at-risk population (Grimley et al., 2006). Demographic items included race/ethnicity, age, marital status, and educational level. STI awareness items assessed awareness of common STIs, sources of information about STIs, knowl-

edge about modes of STI transmission, STI symptoms, and consequences of untreated STIs. Sexual behavior items assessed history of sexual activity, number of lifetime sexual partners, current sexual activity, alcohol and drug use before sex, presence of a main or casual sex partner, communication with partner about past sexual history, condom use during last sexual encounter, STI testing history, reason for not getting tested for an STI, and STI diagnosis history. To assess participants' perceptions of STI risk, attitudes toward STIs and related risk, and other contextual issues they were asked how much they thought their friends/partners/themselves might be at risk for an STI, if they thought some of their sexual partners had ever had an STI, and if they were considering future STI testing for themselves. Participants were also asked questions to ascertain level of comfort in initiating condom use, relative interest in protection from pregnancy or STIs, and use of birth control methods. For the majority of questionnaire items response options were provided, however participants were able to fill in responses categorized as "other" where applicable.

### Statistical Analysis

Data were analyzed using SPSS version 15.0 (SPSS Inc., Chicago, IL) software. Descriptive statistics are reported to characterize the demographic and contextual factors related to sexual risk of the study sample with prevalence reported as percentages.

## RESULTS

### Demographic Characteristics

Of the first year African-American female students invited to participate in the study, 94% ultimately enrolled in the project (N=89). The mean age of the study participants was 18.5 years (range=18-22 years) and 98% were African-American (2% multi-racial). All participants reported being single and most (59.6%) had completed their first semester of college (Table 1).

Race/ethnicity		n (%)	
African-American	87 (97.8)	Multi-racial	2 (2.2)
Age		n (%)	
18	49 (55.1)	19	37 (41.6)
20	1 (1.1)	21	1 (1.1)
22	1 (1.1)		
Marital status		n (%)	
Single	89 (100.0)		
Highest educational level		n (%)	
High school/GED	5 (5.6)	1st semester college	53 (59.6)
2nd semester college	24 (27.0)	3rd semester college	6 (6.7)

Note. All totals may not equal 100.0% due to missing data.

### **STI Awareness**

Regarding STI information, most participants were quite familiar having received information about STIs from a variety of sources, and expressing knowledge of common STIs, methods of transmission, symptoms, and adverse consequences of untreated infections. At least 75% of participants had heard of all the STIs listed with the smallest proportion of participants (41.6%) ever having heard of trichomoniasis. Most reported getting information about STIs from flyers/pamphlets and friends, with half of the sample acknowledging getting their information from health professionals. Few participants (12.4%) indicated that they received their STI information from their sexual partners. When asked about modes of STI transmission, the majority of respondents were knowledgeable about common modes including sexual contact, sharing needles, contact with an open sore, and vertical transmission.

Commonly misconceived modes of transmission, although minimally chosen, included kissing/saliva (40.4%), toilet seats (34.8%), touching without sex (21.3%), shaking hands (2.2%), and cannot be transmitted person-to-person (2.2%). STI symptoms commonly reported included burning/itching, sores/ulcers, discharge, and skin rashes. Less than 50% of participants indicated STI symptoms of spots on the skin, cannot tell physically, fever, weight loss, weight gain, and loss of hair. When asked about the effects of untreated STIs, the majority indicated infecting a sexual partner, infecting a baby, increased chance of getting other STIs, and death. Less popular choices included blindness and that "nothing would happen". Nearly 5% indicated that they did not know of any effects of untreated STIs (Table 2).

### **Sexual Risk**

Table 3 presents sexual risk behavior findings. Of the 89 participants surveyed, nearly 80% had ever had sex. The majority (91.4%) of participants reported having had vaginal sex, followed by 58.6% having had oral sex, and 15.7% having had anal sex (non-mutually exclusive). Participants reported a mean number of 4.7 lifetime sexual partners, and 80.0% of participants reported being sexually active within 2 months of survey administration. Regarding the use of illegal substances, few reported using alcohol (11.5%) or drugs (0.0% -- data not shown) before having sex. Nearly 70% had a current main sexual partner while just 10.0% reported having a casual sex partner. When asked about condom use with these partners, the majority (70.8%) of participants used condoms at the most recent sexual encounter with their main partners, while 100.0% used condoms during the last sexual encounter with casual partners. Regarding partner communication, respondents reported on speaking with their sexual partners about sexual history. Of those who identified having a main partner, the majority (87.5%) reported having spoken with this partner about their sexual history. Among those with casual partners, nearly three quarters (71.4%) had spoken with this partner about their sexual history. Just over 30% of sexually active participants had never been tested for an STI, with 59% of these participants acknowledging that they had not been tested because they felt they were not at risk. Among those who had been tested, 14.6% reported having had a previous positive STI diagnosis.

<b>Awareness of STIs</b>	<b>n(%)</b>	<b>Sources of information about STIs</b>	<b>n(%)</b>
Trichomoniasis	37 (41.6)	Sex partner	11 (12.4)
HPV	67 (75.3)	SHAPE <sup>a</sup>	21 (23.6)
Herpes	73 (82.0)	Family	25 (28.1)
Pubic Lice	76 (85.4)	Billboard/poster	34 (38.2)
Hepatitis	87 (97.8)	School lecture/ presentation	34 (38.2)
Syphilis	88 (98.9)	Health professional	45 (50.6)
Chlamydia	88 (98.9)	Friend	49 (55.1)
HIV/AIDS	88 (98.9)	Flyer/pamphlet	64 (71.9)
Gonorrhea	88 (98.9)		
<b>STI modes of transmission</b>	<b>n(%)</b>	<b>STI symptoms</b>	<b>n(%)</b>
Cannot transmit person-to-person	2 (2.2)	Weight gain	9 (10.1)
Shaking hands	2 (2.2)	Loss of hair	12 (13.5)
Touching without sex	19 (21.3)	Weight loss	17 (19.1)
Skin contact	22 (24.7)	Fever	28 (31.5)
Toilet seats	31 (34.8)	Cannot tell physically	39 (43.8)
Kissing/saliva	36 (40.4)	Spots on skin	43 (48.3)
Contact w/ open sore	71 (79.8)	Skin rashes	60 (67.4)
Sharing needles	72 (80.9)	Discharge	73 (82.0)
Mother to child	73 (82.0)	Sores/ulcers	74 (83.1)
Sexual contact	88 (98.9)	Burning/itching	80 (89.9)
<b>Effects of untreated STIs n (%)</b>			
Nothing	1 (1.1)	Increased chance of getting other STIs	71 (79.8)
Don't know	4 (4.5)	Infect baby	76 (85.4)
Blindness	33 (37.1)	Infect partner	83 (93.3)
Death	65 (73.0)		
Note: Responses not mutually exclusive. <sup>a</sup> SHAPE=Sexual Health Awareness through Peer Education, a campus-wide volunteer sexual health peer education program.			

<b>Characteristic</b>	<b>n (%)</b>	<b>Characteristic</b>	<b>n (%)</b>
<b>Sexually experienced</b>		<b>Spoken to main partner about past sexual history<sup>b,d</sup></b>	
Yes	70 (78.7)	Yes	42 (87.5)
No	18 (20.2)	No	6 (12.5)
<b>Type of sexual activity<sup>a,b</sup></b>		<b>Casual partner<sup>b</sup></b>	
Oral sex	41 (58.6)	Yes	7 (10.0)
Vaginal sex	64 (91.4)	No	56 (80.0)
Anal sex	11 (15.7)		
<b>Number of lifetime sexual partners<sup>b</sup></b>		<b>Condom used at last sexual encounter with casual partner<sup>b,e</sup></b>	
1	18 (20.2)	Yes	7 (100.0)
2-3	24 (27.0)	No	0 (0.0)
4-5	14 (15.7)		
6 or more	13 (14.4)		
<b>Sexually active in the preceding 2 months<sup>b</sup></b>		<b>Spoken to casual partner about past sexual history<sup>b,e</sup></b>	
Yes	56 (80.0)	Yes	5 (71.4)
No	14 (20.0)	No	2 (28.6)
<b>Alcohol use before sex<sup>b,c</sup></b>		<b>Ever been tested for an STI<sup>b</sup></b>	
Yes	8 (11.5)	Yes	48 (68.6)
No	60 (85.7)	No	22 (31.4)
<b>Main partner<sup>b</sup></b>		<b>Reason for not getting tested<sup>f</sup></b>	
Yes	48 (68.6)	Fear results	1 (0.5)
No	16 (22.9)	Feel not at risk	13 (59.1)
<b>Condom used at last sexual encounter with main partner<sup>b,d</sup></b>		<b>Previous positive STI diagnosis<sup>g</sup></b>	
Yes	34 (70.8)	Yes	7 (14.6)
No	14 (29.2)	No	41 (85.4)
<p>Note. Totals may not equal 100.0% due to missing data.  <sup>a</sup> Responses not mutually exclusive. <sup>b</sup> Asked only of those who had ever had sex.  <sup>c</sup> Responses of "sometimes" and "almost every time". <sup>d</sup> Asked only of participants who identified having a main partner. <sup>e</sup> Asked only of participants who identified having a casual partner. <sup>f</sup> Asked only of participants who had never been tested for an STI.  <sup>g</sup> Asked only of participants who had ever been tested for an STI.</p>			

## Attitudes, Perceptions, and Other Contextual Issues

Shown in Table 4 are selected participant attitudes, perceptions and other contextual issues related to sexual risk. Few participants believed that they themselves (3.3%) or their sexual partners (5.6%) were at high risk of contracting STIs, while a moderate number (21.4%) perceived their friends to be at high risk. When asked whether they thought their sexual partners had ever had an STI diagnosis, 22.9% reported “yes”. When asked about intentions to get tested for an STI in the future, just over forty percent (42.9%) revealed that they were thinking about getting tested in the next 30 days. Almost all sexually active participants (94.3%) indicated that they were comfortable with initiating condom use.

**Table 4. Attitudes, Perceptions, and other Contextual Issues related to Sexual Risk**

Characteristic	n (%)
Perceptions of high STI risk of... <sup>a</sup>	
Friends	19 (21.4)
Partner	5 (5.6)
Self	3 (3.3)
Perception of partners' positive STI history <sup>b</sup>	
Yes	16 (22.9)
No	54 (77.1)
Thinking about getting tested for an STI in next 30 days <sup>b</sup>	
Yes	30 (42.9)
No	40 (57.1)
Comfortable initiating condom use <sup>b</sup>	
Yes	66 (94.3)
No	3 (4.3)
What do you want to protect yourself from the most? <sup>b</sup>	
Curable STIs	1 (1.5)
Treatable STIs	3 (4.5)
Pregnancy	11 (16.4)
HIV	52 (77.6)
Use birth control methods <sup>b</sup>	
Yes	44 (62.9)
No	25 (35.7)
Methods of birth control used <sup>c,d</sup>	
IUDs/Nuva Ring	0 (0.0)
Cervical cap	0 (0.0)
Depo provera	0 (0.0)
Female condom	1 (2.3)
Birth control patch	2 (4.6)
Spermicides/gels	4 (9.1)
Male condom	24 (54.5)
Birth control pills	29 (65.9)

Note. Totals may not equal 100.0% due to missing data. a High risk consists of responses of both “high” and “very high” combined. b Asked only of participants who had ever had sex...c Responses not mutually exclusive. d Asked only of participants who use birth control methods.

The majority of participants (77.6%) reported a desire to protect themselves from HIV while few (16.4%) were concerned with getting pregnant and contracting a curable or treatable STI other than HIV (6.0%). Regarding birth control use, over 60% of participants reported using some method of birth control, with the majority (65.9%) using birth control pills.

## DISCUSSION

Eighty-nine participants were enrolled in the study, reflecting a proportion of nearly 70% of the university's population of African-American female first year students living in campus housing. The mean age, marital status, and educational level of the sample are also representative of the university's as well as many other four-year public institution's African-American female population.

As previous research has suggested, the majority of study participants were knowledgeable about STIs and were informed about key related issues such as modes of transmission, symptoms, and the consequences of untreated STIs (Duncan et al., 2002; O'Sullivan, Udell, & Patel, 2006). Regarding awareness about specific STIs, less than 42% of participants were aware of trichomoniasis as an STI which may be problematic given that it is the most common curable STI among young sexually active women with an estimated 7.4 million new cases occurring annually (CDC, 2008a). Although slightly more than three quarters of the sample had ever heard of HPV, undoubtedly even more would have reported in the affirmative if the survey assessment had been conducted a few months later in concert with the release of the HPV vaccine in June, 2006 (Markowitz et al., 2007). The most commonly identified sources of STI information were flyers or pamphlets followed by friends and health professionals, again findings that may intuitively follow given the lifestyle and environs of the target population. However, few acknowledged getting STI information from school lectures or presentations and sexual partners which may signify important opportunities for intervention. Given that students are captive in the classroom setting, either incorporating STI prevention information into existing curriculum or requiring health courses during the freshman year may be opportunities to educate and increase awareness about preventable health conditions such as STIs (Adepoju, Watkins, & Richardson, 2007). Although this may be common practice at some universities, it was not the case at the study campus. Thus, if students are having sex with one another and there has been a culture promulgated in the classroom (and consequently on the entire university campus) of communicating about sex, sexual risk, and methods of prevention, then any guilt, shame or embarrassment commonly associated with discussing such issues with sexual partners should begin to diminish.

Among our sample of college students, nearly 80% reported being sexually experienced, with 80% of those persons acknowledging being currently sexually active. This figure supports the current literature in which research-

ers have reported average rates of 80% of college students being sexually active (Gerend & Magloire, 2008; Rimsza, 2005; Roberts et al., 2006). Generally speaking, our sample exhibited a variable level of sexual risk evidenced by their high level of involvement in some risky activities and low levels of others. For example, our study findings indicate high risk behaviors in the form of the prevalence of oral and anal sex as well as rates of STI testing and STI history. Over half of those who had ever engaged in sexual activity reported having oral sex, while just over 15% of the sexually experienced sample had engaged in anal sex. Both of these proportions are higher than those reported for predominantly Caucasian populations in the U.S. (American College Health Association, 2008). Although rates for anal sex have been higher in other college female populations (Flannery et al., 2003), anal sex remains one of the most high-risk sexual behaviors for the transmission of STIs and HIV, and therefore should be of concern for this population (CDC, 2008b). Other researchers have found that young adults perceive oral sex as less intimate than vaginal sex, with females in particular making the claim (Chambers, 2007). Similar sentiments are perhaps indicative of the current sample given that nearly half had engaged in oral sex previously. Consistent with these behaviors, just over 30% of the sample had never been tested for an STI, even though 80% were sexually active and not all had used condoms consistently with their sexual partners. Of those who had been tested, nearly 15% reported having a previous STI diagnosis, a high yet consistent rate compared to reports from a previous study of predominantly African-American college females (Adelbert et al., 2006).

More moderate to low risk sexual behaviors included reports of the average number of lifetime sexual partners, condom use with main and casual partners, use of birth control, alcohol and drug use before sex, and partner communication about sexual history. Although not reported at levels that completely eliminate risk, participants engaged in the aforementioned behaviors at levels consistent with or below the average for the college population (American College Health Association, 2008; CDC, 1997). Of particular interest were reports of consistent condom use with casual partners during last sexual encounter and no drug use before sex. Slightly higher levels of risk were reported for alcohol use before sex and condom use during last sexual encounter with main partners. Similarly, upwards of 70% of participants reported speaking with their main or casual sexual partners about sexual history and a similar proportion reported using some method of birth control. It appears that efforts promoting limiting impairment during sexual activity and correct and consistent condom use with casual partners may be successful; however continued gains should be made to encourage consistent low- to no-risk sexual behaviors.

Contextual factors such as attitudes about sexual risk and related perceptions were also measured among study participants yielding one of the most intriguing findings of the study. Study participants rated their perception of high STI risk for themselves at just above 3%, the lowest risk level when

compared to their perception of high risk among their sexual partners and friends. However, given the aforementioned self-reported behaviors of the study sample, an objective observer might estimate that this number would be slightly higher. Interestingly, given that few (5.6%) participants perceived their partners to be at high risk for STIs, when asked about their perceptions of their partners having had a previous STI diagnosis, 22% of the sample reported affirmatively. With such an obvious discrepancy in rates, one might imagine that either participants do not consider STI history as a measure of high STI risk or that their conceptualization of their partners' behavior does not fit with that of an individual engaging in high risk activity. Some researchers have characterized African-American college students' high risk behaviors as experimental, attributing it to a personal belief in their own invincibility (Bazargan et al., 2000; Johnson et al., 1992; Thomas, Gilliam, & Iwrey, 1992). Several researchers have also suggested a knowledge-behavior gap, also described as cognitive dissonance, as it relates to sexual activity, knowledge and awareness of preventive behaviors, and risk perceptions (Carroll, 1991; Johnson, Grant, et al., 1992; Johnson, Hinkle, et al., 1992; O'Sullivan et al., 2006; Payne et al., 2006). The findings from the current study support this body of research. Regarding thoughts about getting tested in the next 30 days for STIs, just over forty percent of the sample indicated that they were thinking about it. If study participants were cognizant of the risk behavior levels suggestive of moderate to high risk, the expectation would be for more individuals to desire to get tested for STIs. As such, these findings are quite compelling. One might question whether participants perceive their behaviors to be risky, or rather, if there are other barriers at play that may hinder either engaging in healthier behaviors or secondary prevention of STIs in the form of screening. Previous literature has suggested issues such as negative views of condoms, trust, living for the moment, and feeling invincible as probable barriers to safer sex practices (Duncan et al., 2002).

Other related attitudes and perceptions measured in our study include comfort with initiating condom use and desire for protection from risk outcomes. An overwhelming majority of the sample reported feeling comfortable with initiating condom use. Such a high proportion might suggest that all participants were using condoms consistently; however as aforementioned, this was not the case. Participants were also asked about their most pressing issue related to sexual outcomes. While the majority of participants reportedly desired to prevent HIV compared to just over 15% whose main concern was the prevention of pregnancy, we found that of participants who used condoms, nearly half (48%) also reported using birth control pills (data not shown). There is a body of literature devoted to the subject of dual prevention of pregnancy and disease and the implication that they are not necessarily mutually exclusive issues (Gillmore et al., 1997; Hillman et al., 1991; Kirby, Korpi, Adivi, & Weissman, 1997; Whaley & Winfield, 2003). Our research suggests that they may indeed be mutually exclusive, and in fact, that the majority of persons are more interested in the prevention of long-term infirm

in the form of HIV/AIDS than pregnancy. However, it is important to note that a large proportion (62.9%) of the sexually experienced participants used some form of birth control, and therefore may not be primarily concerned about pregnancy for this reason.

### **Limitations**

As with most research, this study is not without limitations. First, we are limited in the generalizability of the study findings to all females as we focused on a population of African-American female college students attending a university in the southern U.S. While the study findings may be applicable to other populations, we only measured the sexual risk and contextual behaviors of a small sample of young women. Secondly, we relied on self-report data for our study and did not have the corroboration of biological markers. Third, we conducted the study with a relatively small sample of participants; however given the formative nature of the research and the high response rate, we are confident in its contribution to the literature on college-matriculating African-American females and sexual risk behaviors. Fourth, we were limited to the use of quantitative data which could have been well supported by the addition of qualitative analyses to elucidate some of the seemingly contradictory study findings.

### **CONCLUSION**

Young adults, particularly African-American females, are vulnerable to STIs and as public health professionals it is imperative that we uncover the related behaviors, attitudes, and most poignantly, perceptions that may contribute to the disquieting rates of preventable disease. As these findings indicate, knowledge alone does not translate into healthy behaviors, a challenge that continues to hinder prevention efforts. Likewise, it is not merely the traditional views of sexual risk that may be of importance in allaying disease and negative risk outcomes. Continued research must be conducted in order to unearth the areas of importance relevant to this population and disease state. These studies should consider oversampling for minority participants or conducting research in collaboration with institutions primarily serving minorities, such as Historically Black Colleges/Universities (HBCUs), in order to gather data relevant to addressing these populations at highest risk for infection. Such efforts will inevitably aim to begin to eliminate racial health disparities in STIs.

### **REFERENCES**

- Adelbert, J., Simpson, T., & Chamberlain, W. (2006). Chlamydia prevalence among university freshmen and implications for improved STI reduction programs on campuses. Poster presented at the National STD Prevention Conference; May 8-11, Jacksonville, FL.

- Adepoju, J.A., Watkins, M.P., & Richardson, A.M. (2007). A quick survey of an HBCU's first year nursing students' perception of the HIV/AIDS phenomenon. *Journal of the National Black Nurses Association*, 18, 24-29.
- American College Health Association. (2008). American College Health Association—National College Health Assessment Spring 2007 Reference Group Data Report (Abridged). *Journal of American College Health*, 56, 469-479.
- Bazargan, M., Kelly, E.M., Stein, J.A., Husaini, B.A., & Bazargan, S.H. (2000). Correlates of HIV risk-taking behaviors among African-American college students: The effect of HIV knowledge, motivation, and behavioral skills. *Journal of the National Medical Association*, 92, 391-404.
- Carroll, L. (1991). Gender, knowledge about AIDS, reported behavior change, and the sexual behavior of college students. *Journal of American College Health*, 40, 5-12.
- Centers for Disease Control and Prevention (CDC). (1997). Youth Risk Behavior Survey: National College Health Risk Behavior Survey—United States, 1995. *Morbidity and Mortality Weekly Report*, 46, 55-6.
- CDC. (2007, November). Sexually transmitted disease surveillance, 2006. Atlanta, GA: U.S. Department of Health and Human Services.
- CDC. (2008a). HIV/AIDS—Questions and answers. Available at: <http://www.cdc.gov/hiv/resources/qa/qa22.htm>. Accessed May 19, 2008.
- CDC. (2008b) Sexually transmitted diseases—trichomoniasis. Available at: <http://www.cdc.gov/std/trichomonas/default.htm>. Accessed May 19, 2008.
- Chambers, W.C. (2007). Oral sex: Varied behaviors and perceptions in a college population. *Journal of Sex Research*, 44, 28-42.
- Davis, C., Sloan, M., MacMaster, S., & Kilbourne, B. (2007). HIV/AIDS knowledge and sexual activity: An examination of racial differences in a college sample. *Health and Social Work*, 32, 211-218.
- DiClemente, R.J., Wingood, G.M., Harrington, K.F., Lang, D.L., Davies, S.L., Hook, E.W., 3rd. et al. (2004). Efficacy of an HIV prevention intervention for African-American adolescent girls. *Journal of the American Medical Association*, 292, 171-179.
- Dilorio, C., Resnicow, K., McCarty, F., De A.K., Dudley, W.N., Wang, D.T., et al. (2006). Keepin' it R.E.A.L.!: Results of a mother-adolescent HIV prevention program. *Nursing Research*, 55, 43-51.
- Duncan, C., Miller, D.M., Borskey, E.J., Fomby, B., Dawson, P., & Davis, L. (2002). Barriers to safer sex practices among African-American college students. *Journal of the National Medical Association*, 94, 944-951.
- Fisher, J.D., & Fisher, W.A. (1992). Changing AIDS risk behavior. *Psychological Bulletin*, 111, 455-474.

- Fisher, J.D., Fisher, W.A., Misovich, S.J., Kimble, D.L., & Malloy, T.F. (1996). Changing AIDS risk behavior: Effects of an intervention emphasizing AIDS risk reduction information, motivation and behavioral skills in a college student population. *Health Psychology, 15*, 114-123.
- Flannery, D., Ellingson, L., Votaw, K.S., & Schaefer, E.A. (2003). Anal intercourse and sexual risk factors among college women. *American Journal of Health Behavior, 27*, 228-234.
- Gerend, M.A., & Magloire, Z.F. (2008). Awareness, knowledge, and beliefs about human papillomavirus in a racially diverse sample of young adults. *Journal of Adolescent Health, 42*, 237-242.
- Gillmore, M.R., Morrison, D.M., Richey, C.A., Balassone, M.L., Gutierrez, L., & Farris, M. (1997). Effects of a skill-based intervention to encourage condom use among high risk heterosexually active adolescents. *AIDS Education & Prevention, 9* (Supplement A), 22-43.
- Grimley, D.M., & Annang, L. (2006). Efficacy of a "one-shot" computerized, individualized intervention to increase condom use and decrease STDs among clinic patients with main partners. Paper presented at the National STD Prevention Conference; May 8-11, Jacksonville, FL.
- Grimley, D.M., Annang, L., Lewis, I., Smith, R.W., Aban, I., Hooks, T., et al. (2006). Sexually transmitted infections among urban shelter clients. *Sexually Transmitted Diseases, 33*, 666-669.
- Hillman, E., Hovell, M.F., Williams, L., Hofstetter, R., Burdyslaw, C., Rugg, D., et al. (1991). Pregnancy, STD, and AIDS prevention: Evaluation of New Image Teen Theatre. *AIDS Education & Prevention, 3*, 328-340.
- Jemmott, J.B., Jemmott, L.S., Braverman, P.K., & Fong, G.T. (2005). HIV/STD risk reduction interventions for African-American and Latino adolescent girls at an adolescent medicine clinic. *Archives of Pediatrics and Adolescent Medicine, 159*, 440-449.
- Jemmott, L.S., & Jemmott, J.B., III. (1991). Applying the Theory of Reasoned Action to AIDS risk behavior: Condom use among Black women. *Nursing Research, 40*, 228-234.
- Johnson, E.H., Grant, L., Hinkle, Y.A., Gilbert, D., Willis, C., & Hoopwood, T. (1992). Do African-American men and women differ in their knowledge about AIDS, attitudes about condoms, and sexual behaviors? *Journal of the National Medical Association, 84*, 49-64.
- Johnson, E.H., Hinkle, Y., Gilbert, D., & Grant, L.M. (1992). Black males who always use condoms: Their attitudes, knowledge about AIDS, and sexual behavior. *Journal of the National Medical Association, 84*, 341-352.
- Kegeles, S.M., Hays, R.B., & Coates, T.J. (1996). The MPowerment project: A community-level HIV prevention intervention for young gay men. *American Journal of Public Health, 86*, 1129-1136.

- Kelly, J.A., Murphy, D.A., Sikkema, K.J., McAuliffe, T.L., Roffman, R.A., Solomon, L.J., et al. (1997). Randomised, controlled, community-level, HIV-prevention intervention for sexual-risk behaviour among men in US cities: Community HIV Prevention Research Collaborative. *The Lancet*, 350, 1500-1505.
- Kelly, J.A., St. Lawrence, J.S., Diaz, Y.E., Stevenson, L.Y., Hauth, A.C., Brasfield, T.L., et al. (1991). HIV risk behavior reduction following intervention with key opinion leaders of a population: An experimental analysis. *American Journal of Public Health*, 81, 168-171.
- Kelly, J.A., St. Lawrence, J.S., Stevenson, L.Y., Hauth, A.C., Kalichman, S.C., Diaz, Y.E., et al. (1992). Community AIDS/HIV risk reduction: The effects of endorsement by popular people in three cities. *American Journal of Public Health*, 82, 1483-1489.
- Kirby, D., Korpi, M., Adivi, C., & Weissman, J. (1997). An impact evaluation of project SNAAP: An AIDS and pregnancy prevention middle school program. *AIDS Education & Prevention*, 9(Supplement A), 44-61.
- Lewis, J.E., Malow, R.M., & Ireland, S.J. (1997). HIV/AIDS risk in heterosexual college students: A review of a decade of literature. *Journal of American College Health*, 45, 147-158.
- Malotte, C.K., Ledsky, R., Hogben, M., Larro, M., Middlestadt, S., St. Lawrence, J.S., et al. (2004). Comparison of methods to increase repeat testing in persons treated for gonorrhea and/or Chlamydia at public sexually transmitted disease clinics. *Sexually Transmitted Diseases*, 31, 637-642.
- Markowitz, L.E., Dunne, E.F., Saraiya, M., Lawson, H.W., Chesson, H., Unger, E.R., et al. (2007). Quadrivalent human papillomavirus vaccine: Recommendations of the Advisory Committee on Immunization Practices (ACIP). *MMWR Recommendations and Reports*, 56, 1-24.
- National Center for Health Statistics. (2007). *Health, United States, 2007: With chartbook on trends in the health of Americans*. Hyattsville, MD.
- O'Sullivan, L.F., Udell, W., & Patel, V.L. (2006). Young urban adults' heterosexual risk encounters and perceived risk and safety: a structured diary study. *Journal of Sex Research*, 43, 343-351.
- Payne, N.S., Beckwith, C.G., Davis, M., Flanigan, T., Simmons, E.M., Crockett, K., et al. (2006). Acceptance of HIV testing among African-American college students at a historically black university in the south. *Journal of the National Medical Association*, 98, 1912-1916.
- Revzina, N.V., & DiClemente, R.J. (2005). Prevalence and incidence of human papillomavirus infection in women in the USA: A systematic review. *International Journal of STD & AIDS*, 16, 528-37.
- Rimsza, M.E. (2005). Sexually transmitted infections: New guidelines for an old problem on college campus. *Pediatric Clinics of North America*, 52, 217-228.

- Roberts, C.M., Smith, P.D., Wiesmeier, E., & Ward, R.L. (2006). STI screening in college students: Practices of U.S. college health services. Presentation at: National STD Prevention Conference; May 8-11, Jacksonville, FL.
- Shapiro, J., Radecki, S., Charchian, A.S., & Josephson, V. (1999). Sexual behavior and AIDS-related knowledge among community college students in Orange County, California. *Journal of Community Health, 24*, 29-43.
- Thomas, S.B., Gilliam, A.G., & Iwrey, C.B. (1992). Knowledge about AIDS and reported risk behavior among Black college students. *Journal of American College Health, 44*, 55-58.
- Valentine, P.A., Wright, D.L., & Henley, G.L. (2003). Patterns of safer sex practices among allied health students at historically black colleges and universities. *Journal of Allied Health, 32*, 173-178.
- Weinstock, H., Berman, S., & Cates, W., Jr. (2004). Sexually transmitted diseases in American youth: Incidence and prevalence estimates, 2000. *Perspectives on Sexual and Reproductive Health, 36*, 6-10.
- Whaley, A.L., & Winfield, E.B. (2003). Correlates of African-American college students' condom use to prevent pregnancy, STDs, or both outcomes. *Journal of the National Medical Association, 95*, 702-709.

## ACKNOWLEDGEMENTS

This study was funded by the University of Alabama at Birmingham Minority Health and Research Center (MHRC). The authors are thankful for the thoughtful review and encouragement of the MHRC Project Leaders.

**Lucy Annang, PhD, MPH**, Department of Health Promotion, Education and Behavior, Arnold School of Public Health, University of South Carolina

**Shacara D. Johnson, MSPH**, Department of Epidemiology, School of Public Health, University of Alabama at Birmingham

**Malaika A. Pepper-Washington, MSPH**, Department of Health Behavior, School of Public Health, University of Alabama at Birmingham