

Drug Use and High-Risk Sexual Behaviors Among African American Men Who Have Sex With Men and Men Who Have Sex With Women

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Sexually transmitted diseases (STDs) threaten the sexual and reproductive health of adolescents and young adults, as indicated by the fact that an estimated half of the STD cases reported in 2000 occurred among those aged 15 to 24 years.¹ African Americans and men who have sex with men (MSM) are disproportionately affected by HIV/AIDS and other STDs.^{2–7} Moreover, although previous research indicates that Black MSM are no more likely than other MSM to engage in sexual risk behaviors,⁸ this group has been particularly affected by the HIV/AIDS epidemic.⁹

Few studies have compared Black men who have same-gender and opposite-gender sexual partners. Thus, it is unclear whether Black MSM and Black men who have sex with women (MSW) differ in terms of their sexual risk behaviors. In addition, although a number of large studies have collected data from populations of young MSM,^{10–14} few analyses have focused specifically on college populations.¹⁵

In general, sexual risk-taking behaviors have received less attention among college students than among other groups; however, concerns regarding HIV/AIDS in this population were heightened by the rise in the number of HIV/AIDS diagnoses among male college students, particularly Black MSM, in North Carolina from 2001 to 2003.¹⁶ The majority of college students are sexually active, with prevalence estimates of lifetime sexual activity ranging from 74%¹⁵ to 86.1%.¹⁷ Less is known regarding students enrolled in historically Black colleges and universities (HBCUs). In one study of students enrolled at 8 HBCUs, 82% of the respondents reported a history of sexual intercourse and 59.6% reported that they had used a condom during their most recent intercourse.¹⁸

Studies have identified risk and protective factors for sexual risk taking, including early onset of sexual activity,^{19–21} substance use and

Objectives. We investigated covariates related to risky sexual behaviors among young African American men enrolled at historically Black colleges and universities (HBCUs).

Methods. Analyses were based on data gathered from 1837 male freshmen enrolled at 34 HBCUs who participated in the 2001 HBCU Substance Use Survey. The covariates of risky sexual behavior assessed included condom nonuse, engaging in sexual activity with multiple partners, and history of a sexually transmitted disease.

Results. Young Black men who had sex with men were more likely to engage in risky sexual behaviors than were young men who had sex with women. Two additional factors, early onset of sexual activity and consumption of alcohol or drugs before sexual activity, were independently associated with modestly higher odds of sexual risk behaviors.

Conclusions. Services focusing on prevention of sexually transmitted diseases should be provided to all male college students, regardless of the gender of their sexual partners. Such a general approach should also address drug and alcohol use before sexual activity. (*Am J Public Health*. 2009;99:1062–1066. doi:10.2105/AJPH.2007.133462)

early initiation of use,^{22–25} and academic achievement.²⁶ Although the relation of other factors to risky sexual behaviors is less clear, some studies have shown that adolescents and college students with higher levels of religiosity are less likely to report a history of sexual activity.^{27–29} However, findings regarding condom use are inconsistent,^{28,30} and in 1 study individuals' religiosity during adolescence was not related to their likelihood of contracting a sexually transmitted infection 6 years later.²⁶ Among college students, living situation may also be an important factor to consider, given previous research indicating that undergraduates who live with their parents are less likely than those who do not to use marijuana and alcohol.³¹

We examined covariates of risky sexual behaviors, including inconsistent condom use, engaging in sexual activity with multiple partners, and history of STD infection (the latter as a proxy for risky behavior), among Black MSM and Black MSW attending HBCUs. In addition to the association between risky sexual behaviors and

partner gender, we investigated relations between risky behaviors and early onset of sexual activity, substance use in conjunction with sexual activity, religiosity, and living situation.

METHODS

The data for this study were derived from the 2001 HBCU Substance Use Survey, conducted by the National HBCU Substance Use Consortium with funding from the Center for Substance Abuse Treatment. Data were collected from freshmen attending 34 HBCUs that agreed to participate. These HBCUs were primarily located in the south and mid-Atlantic areas of the United States. All freshmen at the participating HBCUs were eligible for the study. Participants completed self-administered surveys in a variety of settings, including freshman classes, freshman orientation sessions, and prearranged freshman assemblies.

To be included in our analyses, students had to have a history of sexual activity and had to

be African American, male, single, a freshman (first semester, second semester, or of advanced standing), and aged 17, 18, or 19 years. Respondents were considered to have sexual experience if they reported a history of at least 1 sexual partner or an age of onset for at least 1 of 5 different sexual activities (vaginal sex, oral sex, anal sex, group sex, same-gender sex). A total of 2294 students met all of the inclusion criteria.

Given our focus on comparisons of risky sexual behaviors between MSM and MSW, participants with missing data on 2 or more of the 3 covariates assessed (inconsistent condom use, STD infection history, and multiple sexual partners in the preceding 3 months; $n=219$) and those with missing information regarding same-gender sexual experiences were excluded ($n=238$); as a result, the final sample size for our analyses was 1837. Participants who were included in the analytic sample were not significantly different from those who were excluded with respect to mother's educational level, type of neighborhood lived in during childhood, grade-point average (GPA), living conditions, age at initiation of sexual activity, and substance use during recent sexual activity. However, the percentage of respondents regarding religion as highly important was lower in the analytic sample (74% vs 81%).

Measures

Dependent variable. Two direct measures (inconsistent condom use and multiple sexual partners in the preceding 3 months) and 1 indirect measure (STD infection history) were used to assess risky sexual behaviors. STD infection history was included because it has been shown to be closely correlated with risky sexual behavior.³² Condom use was assessed with the question "Do you or your partner(s) use a condom during sexual activities?" Response options were "yes, always"; "sometimes"; and "never." Responses were dichotomized to indicate whether a respondent always used condoms.

Participants were also asked "During the past 3 months, with how many different people have you been involved with sexually?" Response options were "none," "only 1 person," "2 or 3 people," "4 to 6 people," "7 to 10 people," and "more than 10 people." Responses were used to create a dichotomous variable

indicating whether the participant had had more than 1 partner in the preceding 3 months. History of STD infection was assessed with the question "Have you ever had a sexually transmitted disease?" Response options were "no," "1 time," "2 times," "3 times," and "4 times or more." Participants were categorized as having or not having a history of STD infection on the basis of their responses.

Independent variables. The survey included an item assessing the frequency with which participants had engaged in 5 types of sexual behaviors (vaginal sex, oral sex, anal sex, group sex, same-gender sex). Students responded on a 5-point scale ranging from never (1) to 5 (all of the time). Those who reported that they had engaged in same-gender sex at least once were placed in the MSM group, and those who reported that they had never engaged in same-gender sex were placed in the MSW group. Among MSM, 30% ($n=35$) had never engaged in vaginal sex and were considered to have sex with men exclusively; 70% (83) reported that they had had vaginal sex with women and were considered as having sex with both men and women.

Other covariates. Demographic variables included maternal educational level, type of neighborhood in which participants lived as children, and participants' current living arrangements. Importance of religion, high-school cumulative GPA, and school or college attended were also included as covariates. In addition, age at onset of sexual activity and drug or alcohol use before sexual activity were included because they have been shown to be related to risky sexual behaviors.

Current living arrangement was categorized as on campus (dormitory, university apartments, fraternity or sorority house, other university housing) or off campus (dormitory, university apartments, fraternity or sorority house, house or apartment). Mother's highest level of education was dichotomized as at least some college or high school or less. Students' descriptions of the neighborhoods in which they grew up were used to categorize neighborhoods as either urban or nonurban. Students who reported that religion was extremely important or very important to them were grouped in the high religiosity category, whereas those who indicated that religion was somewhat important or not at all important

to them were grouped in the low religiosity category. Participants' self-reported GPA was categorized as A, B, C, or lower than a C (D+ to F). A dummy variable was created for each HBCU to hold constant other characteristics that could have confounded our results.

Age of onset of sexual activity was assessed with the question "How old were you the first time you participated in any of the following sexual activities?" (vaginal sex, oral sex, anal sex, group sex, same-gender sex). Response options were "10 years or younger," "11 to 13 years old," "14 to 16 years old," "17 to 19 years old," and "20 years or older"; students also were given the option of reporting that they had not engaged in these activities. Participants who had initiated any of these types of sexual activity at 13 years or younger were classified as having initiated sexual activity at an early age.

Finally, 2 questions were used to assess whether participants had used drugs or alcohol before their most recent sexual activity. Participants who responded yes to either of the 2 questions were categorized as having used drugs or alcohol before their most recent sexual activity, and those who responded no to both questions were categorized as not having done so.

Statistical Analyses

Descriptive analyses were conducted to estimate frequencies of the indicators of risky sexual behaviors (inconsistent condom use, STD infection history, and multiple sexual partners in the preceding 3 months) as well as frequencies of the other covariates and whether they differed between the MSM and MSW groups. Because the 3 indicators of risky sexual behavior assessed in this study tend to be correlated for any given individual, we used a generalized estimating equation (GEE) model approach to accommodate these interrelationships.³³ We used GEE logistic regression³⁴ to detect differences in profiles of risky sexual behaviors across the MSM and MSW groups as well as the groups defined via other covariates. This methodology is similar to that used to examine multiple indicators of depressive or panic symptoms³⁵ and drug dependence symptoms.^{36,37}

We used an unstructured correlation design, along with a robust estimation of variance, to allow for maximum flexibility with respect to the interrelation of the sexual risk behaviors

assessed. STATA 9.0 (StataCorp LP, College Station, TX) was used in conducting all analyses.

RESULTS

Table 1 presents selected sample characteristics as well as comparisons of characteristics

between MSM and MSW. Briefly, 94% of the participants were MSW, and 6% were MSM. Almost one third (35%) did not consistently use condoms and 44% had had multiple sexual partners in the preceding 3 months. An estimated 5% of the respondents had a history of an STD infection. Approximately one third had initiated

sexual activity at or before the age of 13 years, and approximately one sixth had used alcohol or illegal drugs during a recent sexual encounter.

Chi-square analyses and the Fisher exact test indicated that the percentage of inconsistent condom use was higher among MSM (44%) than among MSW (34%). Similarly, higher percentages of MSM than MSW had had multiple partners in the preceding 3 months (54% vs 43%) and had an STD history (18% vs 4%). More MSM (55%) than MSW (32%) had initiated sexual activity before the age of 14 years. However, MSM and MSW were similar in terms of sociodemographic characteristics such as mother's educational level, type of neighborhood lived in during childhood, importance of religion, GPA, and current living situation.

Odds ratio (OR) estimates based on the GEE logistic regression are presented in Table 2. MSM were approximately 1.8 times more likely than MSW to inconsistently use condoms, to have had multiple sexual partners within the preceding 3 months, and to have an STD history (for all 3 risky sexual behaviors in combination, crude OR=1.8; 95% confidence interval [CI]=1.4, 2.3). After control for other confounders, the OR for MSM was attenuated but still significant (adjusted OR=1.4; 95% CI=1.1, 1.9). Participants who had used alcohol or other drugs before a recent sexual encounter (adjusted OR=1.7; 95% CI=1.5, 2.0) and those who had initiated sexual intercourse before the age of 14 years (adjusted OR=1.7; 95% CI=1.5, 1.9) were also more likely than their counterparts to be involved in risky sexual behaviors. Type of neighborhood lived in during childhood, importance of religion, high school GPA, and current living situation were not related to risky sexual behaviors either before or after adjustment for other covariates.

DISCUSSION

Our results provide information on a seldom-studied population, young Black men attending HBCUs. We found that MSM were more likely than MSW to be involved in the covariates of risky sexual behavior assessed in this study: inconsistent condom use, multiple sexual partners in the preceding 3 months, and history of an STD infection. Early onset of sexual activity and substance use in

TABLE 1—Selected Sample Characteristics: HBCU Substance Use Survey, 2001

Characteristic	Overall, No. (%) ^a	MSW, No. (%) ^b	MSM, No. (%) ^c	P
Total	1837 (100)	1719 (94)	118 (6)	.038
Inconsistent condom use				
No	1108 (65)	1046 (66)	62 (56)	
Yes	598 (35)	549 (34)	49 (44)	
More than 1 partner in past 3 mo				.025
No	992 (56)	940 (57)	52 (46)	
Yes	776 (44)	715 (43)	61 (54)	
History of sexually transmitted disease				<.001
No	1675 (95)	1589 (96)	86 (82)	
Yes	83 (5)	64 (4)	19 (18)	
Age at onset of sexual activity, y				<.001
≥14	1181 (67)	1129 (68)	52 (45)	
≤13	587 (33)	524 (32)	63 (55)	
Substance use during recent sexual activity				.776
No	1479 (84)	1384 (84)	95 (83)	
Yes	276 (16)	257 (16)	19 (17)	
Mother's educational level				.134
Some college or more	564 (31)	520 (31)	44 (37)	
High school or less	1249 (69)	1175 (69)	74 (63)	
Type of neighborhood during childhood				.119
Nonurban	861 (50)	797 (49)	64 (57)	
Urban	877 (50)	828 (51)	49 (43)	
Importance of religion				.150
Low	474 (26)	450 (26)	24 (20)	
High	1352 (74)	1258 (74)	94 (80)	
GPA				.315 ^d
A+/A/A-	243 (13)	221 (13)	22 (19)	
B+/B/B-	953 (52)	894 (52)	59 (50)	
C+/C/C-	611 (34)	576 (34)	35 (30)	
D+ or lower	21 (1)	20 (1)	1 (1)	
Current living situation				.344
On campus	1501 (89)	1398 (89)	103 (92)	
Off campus	180 (11)	171 (11)	9 (8)	

Note. HBCU = historically Black colleges and universities; MSW = men who have sex with women; MSM = men who have sex with men; GPA = grade-point average.

^aPercentages in this column were calculated as the number of MSM or MSW grouped in the category divided by the number of analytic sample members (MSM or MSW) who did not have missing values for the variable in question.

^bPercentages in this column were calculated as the number of MSM grouped in the category divided by the total number of MSM who did not have missing values for the variable in question.

^cPercentages in this column were calculated as the number of MSW grouped in the category divided by the total number of MSW who did not have missing values for the variable in question.

^dFisher exact test used instead of χ^2 test for comparison of GPA between MSM and MSW groups.

TABLE 2—Odds Ratio Estimates for Risky Sexual Behaviors: HBCU Substance Use Survey, 2001

Characteristic	Crude OR (95% CI)	P	Adjusted OR ^a (95% CI)	P
Gender group		<.001		.011
MSW (Ref)	1.00		1.00	
MSM	1.8 (1.4, 2.3)		1.4 (1.1, 1.9)	
Age at onset of sexual activity, y		<.001		<.001
≥14 (Ref)	1.00		1.00	
≤13	1.7 (1.5, 1.9)		1.7 (1.5, 1.9)	
Substance use during recent sexual encounter		<.001		<.001
No (Ref)	1.00		1.00	
Yes	1.8 (1.5, 2.1)		1.7 (1.5, 2.0)	
Mother's educational level		.344		.890
High school or less (Ref)	1.00		1.00	
Some college or more	0.9 (0.8, 1.1)		1.0 (0.9, 1.2)	
Type of neighborhood during childhood		.369		.052
Nonurban (Ref)	1.00		1.00	
Urban	0.9 (0.8, 1.1)		0.9 (0.8, 1.0)	
Importance of religion		.058		.113
Low (Ref)	1.00		1.00	
High	0.9 (0.8, 1.0)		0.9 (0.8, 1.0)	
Grade-point average				
A+/A/A- (Ref)	1.00		1.00	
B+/B/B-	0.9 (0.8, 1.1)	.293	0.9 (0.7, 1.1)	.245
C+/C/C-	1.1 (0.9, 1.3)	.581	1.0 (0.8, 1.2)	.720
D+ or lower	1.0 (0.5, 1.8)	.920	0.9 (0.4, 2.0)	.880
Current living situation		.176		.294
On campus (Ref)	1.00		1.00	
Off campus	0.9 (0.7, 1.1)		0.9 (0.7, 1.1)	

Note. HBCU = historically Black colleges and universities; OR = odds ratio; CI = confidence interval. For total sample, N = 1837. The risky sexual behaviors assessed were inconsistent condom use, history of a sexually transmitted disease, and multiple sexual partners in the preceding 3 months. ORs were derived from generalized estimating equation models.

^aAdjusted for the covariates listed as well as the colleges or universities the students attended.

conjunction with sexual activity were also found to be independently associated with modestly higher odds of risky sexual behaviors.

Our findings are limited by a number of factors. First, as is the case with many other studies of adolescents and college populations, we relied on the self-reports of respondents at a single point in time. Also, the HBCU Substance Use Survey was conducted in 2001, and a more recent survey may be needed to replicate the results reported here. Second, the relation between early onset of sexual activity and risky sexual behaviors, although not a focus of this study, may have been confounded by experiences of childhood sexual abuse.^{38,39} The HBCU Substance Use Survey did not

include questions regarding childhood sexual abuse; thus, this factor could not be included in our analyses. Finally, in the absence of replication with more diverse samples, the findings described here cannot be generalized to young African American men in different age groups or at different types of universities.

Additional factors may be important to consider in future studies of young Black men attending HBCUs, including their perceptions of their sexual identity and masculinity, their experiences of discrimination and victimization related to their sexual behaviors, and the availability of prevention programs and condoms on campus.⁴⁰ Such research should take into account the diversity among MSM and

include comparisons of MSM and men who have sex with both men and women.⁴¹

The effects of technology may be particularly relevant for college students, who are strongly encouraged to have personal computers. One study indicated that MSM were more likely than non-MSM to have sex with a partner met via the Internet,⁴² and a syphilis outbreak among MSM in San Francisco was linked to use of the Internet to locate partners.⁴³ Thus, future studies may need to include measures of Internet use in relation to men's sexual behavior. Finally, this study focused on entering freshmen, whose sexual behaviors may be established before they arrive on campus. Longitudinal studies of college men's health would provide insight into how risky sexual behaviors change as students continue to make the transition into college life.

Our findings have implications for college officials, who must be prepared to meet the needs of incoming students. One issue facing colleges and universities is whether to implement programs that target MSM specifically. Although MSM in our study were 1.5 times more likely than MSW to report sexual risk behaviors, the prevalence estimates observed here underscore the fact that this is an issue for both groups of young men. In addition, the gender of a man's sexual partner does not carry an inherent risk for sexually transmitted diseases. Instead, it is the behaviors engaged in or not engaged in with that partner that pose a threat to men's reproductive health.

Taken together, our findings add to the chain of evidence indicating that a more effective approach may be to target the general health status of male college students. Such a general approach should address the linkage between risky sexual behaviors and drug and alcohol use, as indicated by our findings and others in the literature. Provision of education on the adverse health effects of drug and alcohol use on HBCU campuses might be combined with efforts to prevent risky sexual behaviors. Finally, most of the young men surveyed here reported that religion or spirituality is very or extremely important to them. Thus, HBCUs may want to form partnerships with local churches to deliver prevention messages aimed toward this population. ■

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At the time this research was completed, all of the authors were with the Prevention Sciences Research Center, Morgan State University, Baltimore, MD.

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Contributors

D. C. Browne originated and supervised the study, prepared the outline for the article, and led the writing of the article. P. A. Clubb co-led the writing and participated in the analyses. Y. Wang conducted the analyses. F. Wagner participated in the writing and the analyses.

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Human Participant Protection

This study was approved by the institutional review board of Morgan State University.

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