Published in final edited form as:

J Am Coll Health. 2013 July ; 61(5): 254–262. doi:10.1080/07448481.2013.799480.

The Paradox of Risk: Historically Black College/ University Students and Sexual Health

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Abstract

Objective—This literature review provides an analysis of the current state of the empirical research on sexual health among students attending Historically Black Colleges and Universities.

Methods—Several electronic databases were used to identify twenty-four empirical studies that met criteria for inclusion in this review.

Results—The results indicated that perceived HIV risk, religiosity, HIV testing, condom use, and substance use were as high or higher for Black HBCU students in comparison to students of other racial/ ethnic groups.

Comment—Consistent with past findings, sexually transmitted infections continue to be of concern among HBCU students, as seen in the general Black population.

Limitations—This review only examined cross-sectional studies published between 2000 and 2013. Conclusions: The findings in this review suggest the importance of moving beyond individual risk models to examining structural barriers and assets related to promoting sexual health on HBCU campuses.

Keywords

college students; health status disparities; HIV/STI; sexual behavior

Young people aged 15 to 29 represent 25% of the sexually experienced population yet acquire nearly 50% of all new sexually transmitted infections (STIs).¹ STIs including HIV can lead to serious long-term health consequences for young people, especially if untreated. One of the primary objectives of Healthy People 2020 is to reduce the number of new STIs among individuals 15 to 29, those who are at most risk. A large proportion of young people in this age group are enrolled in college. College students engage in sexually risky behaviors, yet traditionally have been neglected by large-scale HIV/STI prevention efforts.² This oversight may be based on the assumption that educational attainment is correlated with greater STI knowledge and avoidance of sexual risk behaviors. Studies have consistently found that both aspects of this assumption are limited.² Greater STI knowledge is not a strong predictor of the avoidance of sexual risk behaviors. Similar to other populations, college students are inconsistent condom users and engage in a number of other high-risk behaviors.² In fact, developmental factors such as feelings of invincibility and

prevalence of risk behaviors may increase the need for effective prevention efforts with this population.³

African Americans[†] are disproportionately overrepresented in STI epidemics including gonorrhea, chlamydia, syphilis and HIV.¹ These health disparities are also evident on college campuses and reflect the general population.⁴ There is a small but growing body of literature on African American college students; however, much of the past research has focused on African American students attending predominately White institutions (PWIs), and students on these campuses tend to be largely under represented in large national datasets.⁴ The Centers for Disease Control and Prevention (CDC) has previously estimated HIV seroprevalence to be .2% on U.S. college campuses.⁵ Two decades ago, one of the earliest studies⁶ to examine African American male condom use, in the era of the HIV epidemic, found consistent condom use rates similar to current rates in the same population, demonstrating a need to increase our prevention efforts and promote behavior change among this group.⁴

An epidemiological investigation by the CDC demonstrated that students attending a Historically Black College/University (HBCU) may serve as a “bridge” between high and low risk populations resulting in the increased incidence of HIV documented in North Carolina from 1998 to 2002.⁷ Paradoxically, in some instances, students attending HBCUs may engage in less risky behaviors than their White counterparts, yet continue to experience a heavier burden of sexual consequences.⁴ Further research on Black students in general and those in unique sociocultural environments, such as HBCUs, is warranted. Perhaps even more interesting is a structural analysis of Black college students in various settings (e.g., HBCUs vs. PWIs). This type of formative research can potentially lead to the identification of outcomes associated with different institutional climates. Black students comprise 13% of the total US undergraduate student population, however, approximately 20% of Black college graduates attend a Historically Black College/University (HBCU).⁸ The dearth of existing research on Black college student health behaviors along with the call for the incorporation of structural level factors, demonstrates that the generalization of the existing studies to various and unique environments, such as HBCUs, may be limited. HBCUs are a cornerstone of the Black community and represent an understudied population.⁸ National HIV prevention initiatives have called for a systems level approach that examines structural and individual level factors. Prevention interventions for these populations should not be developed without a clear understanding of the inter-institutionally differences that may exist for students at the greatest risk for compromised health outcomes.

The purpose of this review is to provide a formative description of the current state of the empirical research on sexual health for students attending HBCUs. Previous reviews of sexual health among college students have been conducted; however, to date, no reviews of sexual behaviors and college students attending HBCUs are in the published literature domain. Students attending HBCUs may experience both environmental challenges and assets related to promoting sexual health that differ from students attending PWIs. Challenges confronted by all college students may be particularly salient amongst HBCU students including the disproportionate impact of STIs on young African American populations,^{1, 4} college and university gender ratio imbalances,^{8, 9} and the perception of availability and quality of health services. Institutional assets within the HBCU context include the ability to promote student leadership skills, career goals, and character development.⁸ Developing effective prevention efforts for this population is complicated by the dearth of studies on HIV/STI among Black college students in general, and those attending HBCUs in particular. The current review provides an overview of research

[†]The terms “Black” and “African American” will be used interchangeably in accordance with the terms used in the articles reviewed.

conducted on sexual health with HBCU student populations, discusses gaps and limitations in the current research, and provides suggestions for future research.

METHODS

The authors conducted a search of the EBSCO and PubMed databases entering in combinations of the following keywords: *HBCU and condom use*, *sexual risk*, *sexual health*, *STI prevention*, and *HIV prevention*. We supplemented the initial list with searches using Google Scholar and hand searches based on reference lists.

In order to be included in this review, the research studies a) had to be published between 2002–2013 in a peer reviewed journal, b) include a sample of participants from an HBCU and c) examine a specific domain related to sexual health (e.g., condom use, history of STIs, HIV testing).

A total of 36 articles were identified from the initial search of EBSCO and PubMed. The combination of key word terms “HBCU and Condom Use” yielded seven articles. The terms “HBCU and sexual risk,” yielded ten articles, “HBCU and sexual health” yielded six articles, “HBCU and STI prevention” yielded two articles, and “HBCU and HIV Prevention” yielded nine articles. Eight articles were duplicated in multiple databases resulting in the exclusion of fifteen articles in total from this search. Nine additional articles were identified from reference lists and Google Scholar. Two reviewers screened the remaining studies for relevance. Articles were rejected if they did not assess a relevant sexual health domain or did not use a hypothesis driven approach (e.g., theoretical articles). Methodological articles that focused on measurement development or validation and used the same database as a study already included in the review were also excluded from the review. The reviewers extracted relevant data from the text and compiled data according to domains assessed within the study (e.g., condom use, HIV testing, HIV knowledge, etc.). The 24 studies that met the criteria for inclusion in this review utilized varied approaches and sample sizes. Most studies employed quantitative methodology and only three utilized a qualitative approach.^{9–11} The sample sizes for the quantitative studies ranged from 100 to 7,372 (see Table 1). Most of the coed studies had a greater percentage of female participants. The number of HBCU’s used for recruitment ranged from one to thirty-four. Most studies recruited participants from an HBCU while only one study recruited from an HBCU and a PWI.¹² Several studies reviewed were part of large multi-site datasets, including the 2001 National Substance Abuse Survey, the United Negro College Fund-Special Programs Corporation (UNCF-SP) and CDC Prevention Dataset and a Centers for Disease Control and Prevention Cooperative Agreement with several HBCUs (See Table 2). All of the studies reviewed utilized a cross-sectional study design. The following section provides an overview of the studies’ findings organized by sexual health outcome and predictor variables.

Results

HIV Knowledge

The relationship between HIV knowledge and protective behaviors is complicated and made further complex by the different methodological assessments of knowledge (e.g., knowledge of prevalence rates, transmission, prevention strategies). In our review, several studies ($n=7$) examined the link between HIV knowledge and intention to engage in protective behaviors and actual risk behaviors among HBCU students. Two studies found no significant association between HIV knowledge and sexual risk behaviors^{18,19} while another study found that HIV knowledge was a significant predictor of condom use.¹⁵ In general, women reported being more knowledgeable about HIV than their male counterparts,^{13, 19, 20}

however, one study found that despite being assessed on modes, rates, risk, and prevention of HIV, the only difference demonstrated was that *men* were significantly more knowledgeable than *women* regarding the rate of HIV infection among Black women.²¹ A qualitative investigation demonstrated that students were aware of HIV/AIDS in their college community and understood the consequences of engaging in risk behaviors.²²

Perceived HIV Risk

In the studies that assessed perceived HIV risk ($n=7$), the majority of students perceived themselves as being at low risk for HIV,^{13–16} however, compared with PWI White students, HBCU students perceived a higher risk of HIV infection.¹² One study found that students who perceived themselves at average or high risk for HIV were *less* likely to report using a condom than those who reported themselves at low risk.¹⁷ Men were significantly more likely to perceive themselves at higher risk for HIV in comparison with women.^{13, 17} Participants who perceived themselves at higher risk for HIV were more likely to have been previously tested for HIV.¹⁷

Religiosity

Given that most HBCUs were founded with strong ties to religious institutions, an important characteristic to explore in this population is religiosity. Several studies ($n=6$) examined the role of religiosity on sexual behavior. One study reported that most African American students (65%) reported attending church more than two times per year and had a higher frequency of church attendance than White students.²⁴ Voetche found that HBCU students who had attended church infrequently or described themselves as less religious were more likely to have sex with a bisexual man.¹⁴ In a qualitative study of factors related to sexual decision making, Thompson-Robinson described a theme that emerged such that HBCU students perceived that religiosity impacted decisions to engage in sex and this impact was more prominent for women than men.²² In contrast, several studies found that religiosity was not associated with sexual risk taking behaviors^{25,28,23} However, after adjusting for covariates, Washington and colleagues found that students who reported religion as *extremely important* or *very important* were more likely to use condoms than students who reported religion as *not at all important* or *somewhat important*.²⁵

Age of Sexual Debut

Several studies ($n=7$) assessed age of sexual debut. Hayes and colleagues reported an average sexual debut of 15 years old,³⁰ while both Valentine²⁴ and Hou¹² found an average age of sexual debut of 16. In Browne and colleagues' sample of male students, 33% of participants reported sexual debut before the age of 13.²⁸ Valentine and colleagues found that women were on average 2.37 years older than men at first sexual encounter.²⁴ Browne and colleagues found that a larger percentage of MSM reported engaging in sexual activity before the age of 14 (55%) in comparison with MSW (32%).²⁷ The studies that examined racial differences found that Black HBCU students reported an earlier age of sexual debut in comparison with White PWI students.¹² In Valentine et al.'s study of undergraduate and graduate students attending an HBCU, only a weak relationship existed between ethnicity and age of sexual debut.²⁵ The findings of lower age of sexual debut for African American men compared to African American women and for African American youth relative to White youth are consistent with studies based on national data.³¹

Number of Partners

Several studies ($n=6$) assessed the number of partners as it relates to sexual behaviors. Consistent with previous research on college populations, most of the participants reported being sexually active and having multiple sexual partners in the past twelve months. One

study found that 44% of participants reported being in an exclusive partnership.¹⁵ Thomas et al. found that 83% of participants reported having at least one sex partner in the preceding 12 months and 14% of male respondents reported having sex with other males in the past year.¹⁷ Another study of only college freshmen found that for 74% of their sample, the median number of sexual partners in the past six months where condoms were used was 5.5.¹⁵ In contrast, one study reported the mean number of partners, among sexually active students, to be three.³⁰ Consistent with previous research, men were more likely to report multiple sexual partners, than women,^{17,20,29,30} and MSM were more likely than MSW to have multiple sex partners.²⁸ One study found that 61% of males and 44% of females reported having two or more sex partners in the previous 12 months.²⁰

Alcohol and Other Drug Use

Several studies ($n=7$) examined substance use behavior among college students. One study found that most students (77%) reported *not* using alcohol in a typical week, *not* having been intoxicated in the past month (65%),²⁹ *not* using marijuana in a typical week (75%) and *not* using substances before engaging in sexual behavior (84%).²⁸ In a study of Black HBCU students and White PWI students, Hou found that Black HBCU students reported lower alcohol use than White PWI students.¹² Hayes and colleagues found that only 9% of students reported using alcohol or other substances before their last sexual intercourse.³⁰ However, for students who do engage in alcohol or other drug use, use of alcohol or other drugs before a sexual encounter and frequency of alcohol and marijuana use were reportedly correlated with risky sexual behavior.¹⁷

A study by Wang and colleagues found that students who had an earlier age of sexual debut (before age 13) were more likely to use illegal drugs.³² Women rated being under the influence of alcohol or drugs the highest barrier to engaging in safer sex.¹⁰

Condom Use

Several studies ($n=14$) assessed condom use in a variety of ways including at “last sexual intercourse (LSI),” “never/sometimes, or always,” and “unprotected vaginal or anal sex in the past 90 days.” The studies reviewed found that consistent condom use ranged from 27% to 72%. One study of women found that 9% of the sample reported anal intercourse²³ another study of both men and women found that 22% of participants at HBCUs engaged in anal intercourse.¹² Another study found that of the 7.5% of women who reported unprotected receptive anal intercourse, 3% of participants reported having unprotected anal intercourse with a bisexual man¹⁴ while another study found that 16% of male and female participants reported unprotected anal intercourse.²⁰ The total number of participants who engaged in anal intercourse for both of the aforementioned studies was not reported. The studies reviewed examined condom use while measuring, in some instances, but not controlling for relationship status. In addition, condom use in general was assessed in some instances, without specific reference to the type of sexual behavior it was used for (e.g., oral, anal, or vaginal) in some of the studies.²³ Washington and colleagues found that male students who reported having had anal sex more than once were less likely to use condoms.¹⁷ Condom use was higher among male students in comparison to female students.^{17,24} Condom use was also reportedly higher among men who have sex with women (MSW) in comparison with men who have sex with men and women (MSM/W),²⁵ among participants whose mothers graduated from high school or college,²⁶ who lived on campus and worked more than 20 hours per week^{20, 26} and among participants with casual partners in comparison to relationship partners.²⁷ Valentine, Wright and Henley found that rates of condom use were higher among HBCU Black students when compared to White students and all other ethnic groups attending an HBCU.²⁴ Similarly, Hou found that HBCU Black students were more likely to use condoms during oral sex than PWI White students.¹²

When relationship status was assessed and taken into account for condom use, students in casual/non-monogamous partnerships were more likely to use condoms.^{24, 27} Psychosocial predictors of greater condom use also included less substance use,^{28,29} behavioral skills and efficacy, and positive experiences/attitudes towards condoms.²⁸

Duncan and colleagues found that barriers to condom use were negative perceptions of condoms, trust, living for the moment, invincibility beliefs, and lack of self-control.¹⁰ In a qualitative investigation, Ferguson and colleagues found that participants discussed the notion of sex ratio imbalance.⁹ The sex ratio imbalance referred to a greater proportion of females relative to males on campus. The participants associated the sex ratio imbalance with men having more partners and with women complying with male condom use preferences.

History of an STI

A total of ($n=4$) studies examined history of an STI. Self-reported lifetime sexually transmitted infection (STI) rates in the studies reviewed ranged from 5%²⁸ to 45% of participants.¹⁷ Women were more likely to report having had an STI in comparison with men in the past year.^{17,12} More men who have sex with men (MSM) (18%) reported having an STI in comparison with men who have sex with women (MSW) (4%).^{25,28} The American College Health Association's National College Health Assessment findings demonstrate that Black students report twice the rate of STIs within the last school year in comparison with their White peers.⁴ Hou reported that Black HBCU students were 4.4 times more likely to have had STIs in comparison to White PWI students even when, paradoxically, rates of condom use during vaginal/ anal sex were similar.¹²

HIV Testing

The ($n=10$) studies reviewed found that African American HBCU students were willing to participate in HIV testing. In these studies, the percentage of HBCU students who reported ever being tested ranged from 45%¹⁵ to 75%²⁴ Payne and colleagues found that students who reported previous HIV testing were more likely to get tested as part of a routine exam (e.g. pap smear) rather than specifically seeking HIV testing.¹⁶ The studies that assessed racial differences found that Black HBCU students were more likely to have reported receiving an HIV test in comparison with White PWI students¹² and non-Black students attending HBCUs.²⁴ These findings are consistent with national datasets of HIV testing among Black and White students.⁴ Sex differences in HIV testing behaviors varied. Chng et al. found significant gender differences such that men were more likely than women to be tested for HIV on campus.¹³ Mancoske et al. found no significant gender differences with on campus testing,²¹ however, consistent with other findings, students in general were more comfortable being tested off campus.¹³

Sutton and colleagues found no difference in HIV testing behaviors based on HIV knowledge (e.g., prevention, transmission, risk).²⁰ Correlates of HIV testing included higher risk behaviors including higher knowledge of HIV and HIV testing, prior testing behaviors, older age, and identifying as gay or bisexual.^{17,25, 28} St. Rose et al. found that 55% of participants had never been tested for HIV.¹⁵ Students described the following barriers to testing: perception of a negative impact of testing on their relationship (29%), lack of information about testing sites (20%), and fear of lack of confidentiality of results (18%).¹⁶

Other Noteworthy Findings

Only two studies reported the exchange of sex for payment and found that only a small percentage (1.5%¹⁵ and 3%¹⁷) of their samples engaged in this behavior. Interestingly, older students were more likely to report lower peer support for safer sex practices and younger

students were more likely to report a higher percentage of condom use.^{11,25} Women were more likely to report that their peers would be disappointed if they engaged in unprotected sexual intercourse in comparison to men.²¹ One study found that 11% of women in their sample reported having sex with a bisexual man in the past 12 months.¹⁴ Studies have found no significant differences in HIV knowledge based on the type of institution one attends (e.g., large vs. small HBCU).²⁰ Feelings of invisibility and desire to avoid condom use due to intimacy were also examined and are salient for this population.¹⁰ Additionally, Washington and colleagues found that students who reported a family income less than \$30,000 were less likely to use condoms, however, students with family incomes higher than \$75,000 did not report significantly different condom rates than those with incomes less than \$30,000.²⁵

Subsequently, in a qualitative investigation, Warren-Jeanpiere found that the concept of paternalism, which is characteristic of HBCU campus culture, impacted the sexual decision making of students.¹¹ The researchers operationalized paternalism as “a policy or practice that an authority undertakes to supply needs or regulate conduct of those under its control...” (p 742) In Warren-Jeanpiere’s findings, participants identified five subcategories related to paternalism related to sexual behaviors on campus, including a) sneaking to have sex; b) safe sex; c) campus control of condom acquisition and distribution; d) stigma and lack of confidentiality surrounding HIV testing; and e) stigma and lack of dialogue about homosexuality on campus.

Comment

Historically Black College and University students are a diverse population and are representatives of the communities from which they come. Unfortunately, large-scale HIV/STI prevention efforts have not directly targeted HBCU populations. Based on the findings from this review, HBCU students report individual protective factors associated with sexual health behaviors such as HIV/STI knowledge, perceived HIV/STI risk, condom use, HIV testing, religiosity, and alcohol and drug abstinence. The aforementioned individual factors, with the exception of those excluded from racial comparisons, were as high or higher for Black HBCU students in comparison with students of other racial/ethnic groups; however, rates of lifetime STIs were higher among *some* Black HBCU students in comparison to White PWI students.¹² There are a multiplicity of individual and structural risk factors that place HBCU students at increased risk for HIV/STIs including a younger age of sexual debut for Black HBCU students in comparison to White PWI students, and an increased number of sexual partners.⁴ At the structural level, smaller sexual networks and the sex ratio imbalance also impact partner choice and behaviors among students attending HBCUs. In addition, as noted in the Hightow⁷ study, heightened HIV risk for HBCU students may be attributed to engaging in sexual intercourse with individuals outside of the institution, introducing “higher risk” individuals into an otherwise small sexual network.

The paradox of Black adolescents and young adults engaging in similar or less risky sexual and substance use behaviors than White adolescents and young adults, but experiencing higher rates of STIs is consistent with other research on non college populations.¹ This paradox suggests a need to examine factors beyond individual risk behaviors and correlates. Other findings from this review are consistent with previous reviews of college students such that HBCU students report higher rates of condom use and lower rates of substance use; however, when substance use is involved, there is a positive correlation with risky sexual behaviors.² Despite the finding that HBCU students have a lower reported rate of substance use in comparison with students at PWIs,³³ this relationship is largely understudied and in need of further empirical investigation. In depth examination of the relationship between substance use and sexual behaviors may be able to identify both the

risk and seemingly protective factors that exist within the HBCU environment. Protective aspects of the HBCU environments may be replicated in other environments for intervention.⁸

The few studies that sought to elicit the lived experiences of HBCU students, reported that relationship factors (trust, intimacy), developmental factors (invincibility beliefs), and sociocultural factors (gender ratio imbalance) are aspects described by students as critical issues relevant to sexual health. The participants in this review also reported on the role that the institutional culture played on their behaviors. A paternalistic environment that often characterizes HBCUs along with a distrust of confidentiality when testing on campus, act as deterrents for promoting sexual health and must be addressed by institution administrators. Individual models of health guided the majority of the studies reviewed, with limited attention to sociocultural and environmental factors. Various theoretical models were used to guide the studies (e.g. information-motivation-behavioral skills model, theory of gender and power, theory of planned behavior). This finding further highlights the need to incorporate ecological models of behavior to examine factors that may be addressed at various levels.

College healthcare professionals play a vital role in the health maintenance of college students at multiple system levels. College healthcare professionals may use the information compiled in this review to better serve their populations and identify targeted behavior to intervene. More specifically, specific behaviors can be promoted including increased and regular confidential (and when possible anonymous) STI/HIV testing, on or off campus. Substance use behaviors may be better screened and addressed in relation to sexual risk behaviors and abstinence and mutual monogamy options may also be addressed and discussed with students. The consistent use of condoms despite partner status (e.g., casual or serious) in the context of higher rates of STI/HIV in the sexual networks of Black emerging adults may be encouraged as a viable option. Lastly, college healthcare providers can act as an intermediary to impact policy that helps to facilitate the aforementioned interventions.

Limitations

There were several limitations to this review. There exists a small, but growing body of literature on sexual health behaviors among HBCU college students. Perhaps due to the small available sample sizes of Black students on PWI campuses, no studies included in this review were able to compare Black students attending HBCUs to Black students attending PWIs. Given this limitation, it is difficult to extrapolate institutional differences on the behaviors of Black students. As noted, all of the studies included in this review were cross-sectional. This type of design does not allow for temporal inferences that may be imperative for this emerging adult population.

Another limitation of the review is the varying methods used for assessing outcomes and correlates in addition to the reporting of findings. More specifically, some studies assessed STI history in the past 12 months, whereas others examined reports of lifetime STIs. The measurement variability creates methodological challenges for comparing findings across studies. One study, assessed condom use at last intercourse during both vaginal or anal intercourse.¹⁴ This double-barreled question makes it difficult to discern condom use between oral, vaginal and anal intercourse. Most studies used convenience sampling and as a result, the findings may be subject to the biases of nonrandom sampling procedure.

Lastly, the number of studies reviewed was relatively small; therefore, single studies that report a finding need to be interpreted with caution. As with any review, non-significant findings are less likely to be published and thus more likely to be absent from a review. Studies that found racial similarities or lack of support for a theoretical model may not have

been published and are therefore absent from this review. The results from this review demonstrate the variability in findings, but variability may be attributed to the heterogeneity of HBCUs and the individuals who attend these institutions.

Directions for Future Research

National studies of college students demonstrate variability in sexual behaviors and despite Black students reportedly engaging in *some* safer sexual behaviors, they appear to experience worse health outcomes.⁴ In order to better understand and respond to this paradox of risk among college students in general, further research is warranted. The call for research and interventions that focus on policy, institutional, and other structural level factors would require an understanding of the various types of institutions that students attend including HBCUs. The nuances of the HBCU environments and the students who attend these institutions must be further researched and taken into account. Most of the findings discussed are consistent with the most recent review by Lewis and colleagues²; however, the present review also highlights the need for further research among young men who have sex with men (MSM). Only four studies in our review specifically examined the behaviors of MSM or MSM/W^{17,17,25,28} and one study explored women who engaged in sexual behaviors with MSM/W.¹⁴ Given that Black MSM comprise the largest proportion of individuals infected with HIV, further research into the MSM population is imperative.

Additional research that examines institutional barriers such as stigma and financial limitations that may hinder the ability of administrators to address sexual health at an institutional level should be examined. Warren-Jeanpiere and colleagues call for the exploration of student, as well as administrator, perspectives that can lead to campus-specific health promotion curriculum.¹¹ Additional research is also needed to determine how environmental assets such as the “community/family” environment promoted at many HBCUs can be used to facilitate health behaviors. Finally, technology is particularly salient among this generation and can play a role in sexual risk behaviors and should be further explored in these populations, specifically the use of social media and internet dating sites. The findings of the current review undergird the importance of developing theoretical models that better capture the experiences of HBCU students.

In conclusion, the public health establishment has largely understudied, and in turn, underserved the African American student population. College healthcare providers play a key role in a college institution’s environment. These health care providers are on the frontline of helping to promote healthy behaviors among students and can act as an intermediary between policy and student needs. College health providers can also impact institutional budgets and use behavioral health data from these and future studies to help provide effective and evidenced based services. HBCU health providers may also play a significant role by intervening on many of the behaviors that are formed or reinforced in college, to eliminate health disparities among their students and in turn, have an impact on the larger African American community.

Acknowledgments

This manuscript was supported by funds from the National Institute of Mental Health (R25 MH067127) awarded to the University of California, San Francisco’s Center for AIDS Prevention Studies’ Training Program for Scientists Conducting Research to Reduce HIV/STI Health Disparities (Torsten Neilands, Principal Investigator).

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Table 1

Sample Demographics of Review Articles

Author(s)	Publication Year	Participants	Race of Participants
1. Alleyne	2008	189 (100% women)	100% Black undergraduate and graduate students
2. Bcheraoui et al.	2012	824 (51% women; 49% men)	Unspecified
3. Brown et al.	2011	375 (44% women; 56% men)	Unspecified
4. Browne et al.	2009	1837 (100% men)	100% African American
5. Burns & Dillon	2005	154 (68% women; 32% men)	100% African American
6. Chng et al.	2006	1,146 (58% women; 42% men)	Unspecified
7. Duncan et al.	2002	30 (57% women; 43% men)	Unspecified
8. Ferguson et al.	2006	31 (74% women; 26% men)	100% African American
9. Hayes et al.	2009	1,173 (48% women; 52% men)	96% African American, 4% "other"
10. Hou	2009	557 (76% women; 24% men)	335 PWI & 222 HBCU
11. Jean-Pierre et al.	2011	66 (Unspecified)	100% African American
12. Mancoske et al.	2006	238 (75% women; 25% men)	Unspecified
13. Mongkuo et al.	2011	300 (Unspecified)	81% Black, 10% Caucasian, 4% Hispanic, 1% Native American, 4% "other"
14. Payne et al.	2006	161 (64% women; 36% men)	100% African American
15. Poulson et al.	2008	155 (57% women; 43% men)	97% African American
16. St. Rose	2011	222 (Unspecified freshmen)	100% African American
17. Sutton et al.	2011	1,230 (51% women; 49% men)	100% African American
18. Thomas & Freeman	2011	100 (100% women)	98% African American, 1% Pacific Islander, 1% Alaskan Native
19. Thomas et al.	2008	5,291 (66% women; 34% men)	95.6% African American, 2.2% Hispanic, 2.4 other races, 1.3% "other"
20. Thompson- Robinson et al.	2005	54 (Unspecified)	Unspecified
21. Valentine et al.	2003	614	63.7% African American, 20.3% White, 6.5% Asian, 2.9% Hispanic, 1.1% Native American
22. Voetsch et al.	2010	2705 (100% women)	100% Black
23. Washington et al.	2009	1,865 (100% men)	MSM/MSMW 100% Black Males
24. Wang et al.	2011	7,372 (65% women; 35% men)	100% African American

Table 2

Study Methodology of Review Articles

Author(s)	Data Collection Source	Sampling Strategy	Data Analysis
1. Alleyne	On Campus Venues	Convenience	Ordinal Logistic Regression
2. Bcheraoui et al.	United Negro College Fund-Special Programs w/ CDC	Convenience	Chi Square & Multivariate Logistic Regression
3. Brown et al.	On Campus	Convenience	Chi Square
4. Browne et. al.	National HBCU Substance Use Survey	Convenience	GEE Logistic Regression
5. Burns & Dillon	On Campus Venues (participant pool)	Convenience	Multiple Regression
6. Chng et al.	On Campus Venues	Convenience	Multivariate Analyses
7. Duncan et. al.	On Campus Venues	Convenience	Nominal Group Technique
8. Ferguson et. al.	On Campus Venues	Random Recruitment	Qualitative Analysis
9. Hayes et al.	On Campus Venues	Convenience	T-test
10. Hou	Online surveys	Convenience	Mann-Whitney U/Multiple Logistic Regression
11. Jean-Pierre et al.	United Negro College Fund—Special Programs w/ CDC	Convenience	Qualitative Analysis
12. Mancoske et al.	On Campus Venues	Convenience	Descriptive & T-tests
13. Mongkuo et al.	On Campus Venues	Convenience	Exploratory Factor Analysis, bivariate analysis,
14. Payne et. al	On Campus Venues	Convenience	Descriptives
15. Poulson et al.	Participant Pool	Convenience	Bivariate Analysis
16. St. Rose	On Campus	Convenience	Pearson Product Moment Correlations
17. Sutton et al.	Corporation (UNCF-SP), in conjunction with the CDC	Convenience	Stepwise Regression
18. Thomas & Freeman	On-Campus Venues	Convenience	Mantel-Haenszel Chi Square
19. Thomas et. al.	CDC Cooperative Agreement	Convenience	ANOVA, General Linear Model (GLM)
20. Thompson- Robinson et. al.	On Campus Venues	Convenience	Qualitative Analysis
21. Valentine et. al.	On Campus Venues	Convenience	Chi Square and Logistic Regression
22. Voetsch et. al.	7 HBCUs in 3 States	Convenience Regression	Bivariate Analysis & Logistic
23. Washington et al.	National HBCU Substance Use Survey	Convenience	Chi Square & Logistic Regression
24. Wang et. al.	National HBCU Substance Use Survey	Convenience	Discrete Time Survival Analysis