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Examining Predictors of Protective and High-Risk Sexual Behaviors among Incoming Students at a Historically Black College/University

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2013

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Abstract

Examining Predictors of Protective and High-Risk Sexual Behaviors among Incoming Students at a Historically Black College/University

By Lynsey A. Terrell

Introduction. Engaging in high-risk sexual behaviors, such as having multiple partners and inconsistent condom use, may put college students at an increased risk for HIV and STI acquisition. In the limited studies that have compared college students by race, black college students have been disproportionately impacted by HIV and STIs, despite higher engagement in some protective sexual health behaviors compared with their white peers.

Objective. The purpose of this study was to fill a gap in the literature on the existing sexual health behaviors, knowledge, and attitudes of incoming, male students at a southeastern, historically black college/university (HBCU).

Methods. This study utilized a cross sectional design with a convenience sample of 211 incoming students attending New Student Orientation at a southeastern HBCU during summer 2015.

Results. Among participating students, 64% reported ever having oral, vaginal, or anal sex. The majority of men who reported having sex within 30 days of taking the survey reported that they had used a condom at their last sexual encounter (64%). Multivariate analyses found that men who reported their behavior as safe and those with higher condom use self-efficacy scores were significantly more likely to have used a condom at last sex. However, the majority of sexually experienced men (89%) reported their sex behaviors as "safe" or "very safe." Of men who perceived their behavior as safe, 29% had more than one sex partner in the past 30 days and 60% never had an HIV test. Significant predictors of reported history of HIV testing included having four or more lifetime sex partners, fewer perceived barriers to HIV testing resources, and lower anxiety regarding HIV testing. Nearly half of the students indicated not knowing where to get an HIV test (44%).

Conclusions. The findings supported the previous literature with regards to high-perceived levels of safety among male students, despite engagement in some high-risk sexual behaviors. Future strategies should utilize peer-led, targeted interventions to address perceived insusceptibility to poor sexual health outcomes and emphasize available resources on campus.

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Chapter 1: Introduction

Context

Historically black colleges and universities (HBCUs) are institutions established prior to the 1964 Civil Rights Act with the principal mission to provide an education to black Americans (U.S. Department of Education, 2015). Today, there are 105 public, private, 2-year, and 4-year HBCUs in 20 States, the District of Columbia, and the U.S. Virgin Islands offering students of all races higher education, (White House Initiative on Historically Black Colleges and Universities, 2015). Approximately 8% of all black college students and 20% of black college graduates attend HBCUs (U.S. Department of Education, 2015; Whitehouse Initiatives on HBCUs, 2013). Key tenants of HBCU culture include themes of leadership, ethics, and community (Morehouse College Fact Book 2014, 2015; Whitehouse Initiatives on HBCUs, 2013).

Statement of the Problem

In the United States, young people between the ages of 15 and 24 years old account for 27% of the sexually active population, yet they contract approximately 50% of the 20 million new sexually transmitted infections (STIs) each year (Centers for Disease Control and Prevention [CDC], 2014a). An estimated 20 million people in this age group are enrolled in colleges and universities, yet college students have been relatively neglected by large-scale HIV/STI prevention efforts (Lewis, Miguez-Burbano, & Malow, 2009; National Center for Education Statistics, 2015). The Healthy People 2020 initiative (2014) has identified college students as at increased risk of HIV and STI acquisition due to high tendencies for high-risk sexual behaviors, including: sex under the influence, multiple sex partners, and inconsistent condom use (Adefuye, Abiona,

Balogun, & Lukobo-Durrell, 2009; Buhi, Marhefka, & Hoban, 2010; CDC, 2012a; CDC, 2014b; Thomas et al., 2008).

Along with high-risk sexual behaviors, environmental, social, and cultural factors put some populations at increased risk for adverse sexual health outcomes (CDC, 2015). Both in the general population and on college campuses, STIs and HIV disproportionately affect the black population compared to other races (Buhi et al., 2010; CDC, 2014a). In the American College Health Association's National College Health Assessment (ACHA-NCHA), black students represented approximately 15% of all college students; yet they reported twice the rate of STIs over a 12-month period compared to white college students (Buhi et al., 2010; National Center for Education Statistics, 2015). Paradoxically, several studies have found that black students and students at HBCUs reported engaging in some protective behaviors, such as condom use at last oral sex or ever having an HIV test, more frequently than white students (Buhi et al., 2010; Davis, Sloan, MacMaster, & Kilbourne, 2007).

Social determinants of health and social-sexual networks may also contribute to disparities in sexual health outcomes among black and white college students (Adimora & Schoenbach, 2005; LeBlanc, Sutton, Thomas, & Duffus, 2011; Leone et al., 2004; Upchurch et al., 2004). HBCUs have distinct structural and cultural nuances that set them apart from PWIs. Qualitative research has identified themes of paternalism, religiosity, and leadership as core components of HBCU culture, which may offer different assets and challenges for HBCU students (Thomas et al., 2008; Warren-Jeanpiere, Jones, & Sutton, 2011; Washington, Wang, & Browne, 2009; Whitehouse Initiatives on HBCUs, 2013; Younge et al., 2013). Warren-Jeanpiere et al. (2011) conducted qualitative

interviews among HBCU administrators and identified themes of paternalism, defined as, "a policy or practice that an authority undertakes to supply needs or regulate conduct of those under its control" (p. 172). Paternalistic policies were further related to student perceptions regarding: 1) hiding sexual behavior, 2) barriers to accessing condoms, 3) safe sex, 4) lack of confidentiality around HIV testing, and 5) minimal dialogue and stigma about MSM behaviors (Warren-Jeanpiere et al., 2011, p. 172; Younge et al., 2013).

Religious tenants of HBCU culture have been identified as influential on both high-risk and protective sex behaviors. Washington and colleagues (2009) reported that HBCU students who indicated religion as "extremely important" or "very important" also reported significantly more consistent condom use. However, themes of religiosity have also been speculated to influence increased feelings of shame and secrecy of high-risk behaviors among HBCU men who have sex with men (MSM) and men who have sex with men and women (MSM/W) (Warren-Jeanpiere et al., 2011; Washington et al., 2009). MSM/W at HBCUs were more likely to have had more lifetime sex partners and less likely to report consistent condom use than men who reported only having sex with women (Washington et al., 2011). The MSM/W population was also connected to an HIV epidemic at an HBCU in the Southeast in 2002 (Hightow et al., 2005).

Previous studies have acknowledged that people who identify as black generally choose sex partners within their own race or ethnicity (Adimora & Schoenbach, 2005; Hall & Applewhite, 2013). However, because the black population has a higher prevalence of HIV infection, it has been speculated that intra-racial sex may contribute to the increased prevalence of STIs and HIV among black college students (Adefuye et al.,

2009; Adimora & Schoenbach, 2005). Additionally, HBCUs often have smaller campuses and higher ratios of women compared to men (Adimora & Schoenbach, 2005; Hall et al., 2014). As a result, some students may be leaving the low-risk sexual network on campus and engaging with high-risk partners from areas surrounding HBCUs, which typically have a higher burden of HIV prevalence (Hightow, 2005; LeBlanc et al., 2011). Epidemiologic analyses using The Geographic Information System (GIS) identified that the rates of HIV were significantly higher in the Southeastern region of the United States, the area of the country with the most HBCUs (LeBlanc et al., 2011). For example, in the state of Georgia, there are ten HBCUs and the rate of HIV is 67.7 per 100,000 (CDC, 2014a; LeBlanc et al., 2011). Comparatively, the national rate of HIV is 39.9 per 100,000 (CDC, 2014a; LeBlanc et al., 2011). Ten of the thirteen states with significantly higher HIV rates than the national average contain four or more HBCUs (LeBlanc et al., 2011).

While multiple datasets collecting information on the health behaviors, knowledge, and attitudes of college students have grown to include more diverse demographics, most black students included have attended predominately white institutions (PWIs) and limited data exists for students attending HBCUs (Buhi, Marhefka, & Hoban, 2010; Younge, Corneille, Lyde, & Cannady, 2013). Furthermore, of the existing HBCU health literature, much of the target focus has been on female students and heterosexual behaviors; there are significant gaps on the sexual behaviors, knowledge, and attitudes of black men attending HBCUs (Younge et al., 2013). Collecting and analyzing data on men attending HBCUs is vital to examine and eliminate the disproportionate burden of negative sexual health outcomes faced by young, black males.

Purpose

The purpose of this analysis was to examine the sexual health behaviors, knowledge, and attitudes of incoming male students at a southeastern, all male HBCU. Quantitative data analyses were conducted to identify existing protective and high-risk behaviors, as well as analyze predictors of two protective behaviors for STI and HIV transmission: 1) condom use at last sex and 2) ever getting testing for HIV. Results from the findings may be utilized to tailor student health services, health programs, and funding priorities to the anticipated health needs of incoming students at a southeastern HBCU. Findings from this research may also be used to inform grant proposals, program resources, and school policies to improve sexual health resources for male HBCU students, and potentially HBCU students around the country.

Future studies and evaluations can be completed to assess the impact of these changes and improve sexual health resources at HBCUs and universities with disparate rates of poor sexual outcomes among black and white students. Understanding and eliminating sexual health disparities is critical to ensuring academic success among all students; promoting student health should be a top priority for college administrators. Further, instilling sexual health knowledge and resources for safe sex behavior at the university level may improve disparate rates of STIs and HIV in the general population.

Research Aims

A southeastern HBCU developed a pilot intervention for the 2015-2016 incoming class of males that was conducted at New Student Orientation in August 2015. The sexual health workshop included quantitative data collection from students on various sexual health measures. The data were analyzed to explore the following research aims:

1) What protective and high-risk sexual health behaviors, knowledge, and attitudes exist among incoming males at a historically black college?
2) What factors are predictive of high-risk or protective sexual health behaviors among incoming male students at a historically black college?

Significance of Study

At this time, little research has been conducted on the sexual health of black, male college students, especially those attending HBCUs. Collecting, analyzing, and understanding the existing sexual health knowledge, behaviors, and attitudes of incoming students may elucidate the existing protective and high-risk behaviors and attitudes of incoming HBCU men. By illuminating the existing sexual health profiles of incoming students at A southeastern HBCU, future initiatives and services can be tailored to fit the needs of incoming men during their collegiate experience, and potentially influence the health programming and interventions of other HBCUs. Addressing the sexual health challenges and assets of incoming students brings the opportunity to reinforce protective behaviors, intervene on high-risk behaviors, and potentially eliminate the sexual health disparities faced by young black men. Eliminating the burden of negative sexual health outcomes on black males at the collegiate level may consequently narrow disparities of HIV and STI burden in the greater black community.

Theoretical Perspectives

Emerging adulthood.

Arnett (2000) coined the developmental period between ages 18-25 as "emerging adulthood." Key constructs of emerging adulthood include: identity exploration, increased autonomy, experimentation, romantic relationship formation, and career

preparation (Arnett, 2000). Constant change and exploration are of particular prominence among emerging adults as they often seek diverse experiences in work, travel, and relationships before accepting the perceived limitations of adulthood (Arnett, 2000; Jensen, 2011). Emerging adulthood is typically specific to industrialized cultures where emerging adults often have more opportunity to prolong identity exploration and delay responsibilities typical of young adulthood, such as full-time employment, marriage, and parenthood (Arnett, 2000; Lam & Kefkowitz, 2013).

Arnett (2000) argues that emerging adulthood diverges from traditional theories of development in that emerging adults have more freedoms than people in adolescence, but also less responsibilities representative of people in young-adulthood. Jensen (2011) further describes emerging adulthood as the most "self-focused" development stage, as emerging adults tend to have minimal obligations to others and are highly focused on expanding their experiences and achieving their personal goals for the future. As emerging adults explore their identities and experience new social roles, they often participate in high-risk behaviors that make them susceptible to poor health outcomes (Arnett, 2000; Jensen, 2011; Lam & Kefkowitz; Pascarella & Terenzini, 2005; Younge et al., 2014).

Each year, over 65% of graduating high school students are enrolled in college (National Center for Education Statistics, 2015). Many emerging adults experiment with more high-risk behavior as they transition from living with their families to living more independently on campus (Jensen, 2011; Pascarella & Terenzini, 2005). Furthermore, being submersed in a new environment gives emerging adults more opportunity to explore different lifestyles and identities than non-college attending emerging adults,

which may lead to more high-risk behaviors (Lam & Kefkowitz, 2013; Sly et al., 2011; Sutton et al., 2011). The college setting also tends to have minimal monitoring, increased temptation of alcohol and drugs, and increased sexual partner availability compared to the environment emerging adults were in during high school (Pascarella & Terenzini, 2005; Younge et al., 2014).

Sensation seeking and feelings of invincibility are characteristic of emerging adults (Arnett, 2000; Sutton et al., 2011). These constructs may lead emerging adults to engage in high-risk sexual behaviors, like inconsistent condom use, sex with multiple partners, and sex under the influence of substances (Lam & Lefkowitz, 2013; Younge et al., 2014). Consequently, emerging adults are increasingly vulnerable to STI and HIV acquisition (CDC, 2012b; Lam & Lefkowitz, 2013; Pascarella & Terenzini, 2005; Sutton et al., 2011; Younge et al., 2014). In conjunction with high-risk sexual behaviors, declining rates of accurate sexual health education, feelings of invincibility, low rates of HIV testing and condom use, and perceptions of barriers to sexual health resources are additional challenges to preventing poor sexual health outcomes among emerging adults (CDC, 2015; Healthy People 2020, 2014; Sutton et al., 2011).

Emerging adult black men are disproportionately impacted by the effects of HIV and STIs, yet have been largely neglected from empirical research on emerging adults (Younge et al., 2013). While there have been some interventions for black emerging adults, the majority of studies and preventive programs have focused on mostly uneducated, incarcerated, or high poverty populations that may experience different socio-contextual influences than black emerging adults attending college, especially HBCUs (DiClemente et al., 2005; Washington et al., 2011; Younge et al., 2014).

Targeted research on college-attending, black emerging adults is crucial to inform and implement effective interventions for reducing the health disparities faced by black emerging adult males. Quantitative data collection on HBCU male students will aid in filling a gap in HBCU literature regarding sex and culture at an all-male, historically black institution.

Thesis Overview

Chapter 1 introduced the context, public health problem, and purpose of analyzing sexual health data collected at a southern, all-male HBCU. The background of HBCUs and emerging adulthood are also discussed. Chapter 2 reviews the existing literature on rates of STIs and HIV; sexual health disparities by race, age, and sex; sexual health resources for male youth, the relation between HIV knowledge and risk behaviors, and current data on the sexual health behaviors among males in the "emerging adulthood" stage. Chapter 3 encompasses the methods, participants, procedures, outcome measures, and data analyses used in the study. Chapter 4 reports the results of the study, which include descriptive statistics of outcome measures and the statistically significant predictors of protective and high-risk sexual behaviors among incoming male HBCU students. Chapter 5 draws conclusions from the examination of these results, reports strengths and limitations of the study, explores implications of the findings, and provides recommendations for future research and interventions.

Chapter 2: Literature Review

Sexual Health Disparities

Though African Americans represent 12% of the population in the United States, estimates suggest that they account for 44% of newly acquired HIV infections (Centers for Disease Control and Prevention [CDC], 2015). According to the CDC, 1 of every 16 black men will receive an HIV diagnosis in their lifetime (CDC, 2012a). In 2014, black men accounted for 73% of infections among incidents of HIV in African Americans and 57% of these infections were black men who have sex with men (MSM) (CDC, 2015). While men who have sex with men are at the most risk for HIV-infection, heterosexual black men also bear a disproportionate burden of risk. Approximately 68% of new HIV infections from heterosexual contact occur in black men (CDC, 2013).

Emerging adulthood and sexual health disparities.

While the number of black high school students engaging in high-risk sex behaviors has reduced significantly over the past two decades, black adolescents and emerging adults are still disproportionately impacted by negative sexual health outcomes compared (CDC, 2012a; CDC, 2014b). While approximately one in five HIV-infected Americans are not aware of their status, adolescents represent 26% of all HIV diagnoses and over 50% of HIV infections among adolescents remain undiagnosed (CDC, 2012b).

Despite engaging in comparable rates of high-risk sexual behavior as white adolescents, young black males account for 4 in 5 of HIV infections (CDC, 2012b; CDC 2013). Black adolescents in the southern region of the United States have been particularly impacted by high HIV rates and it has been speculated that black college students may be at higher risk for STI and HIV infection than non-minority students

(Bazargan, Kelly, Stein, Husaini, & Bazargan, 2000; CDC, 2013; KFF, 2013; LeBlanc et al., 2011; Thomas et al., 2008).

National initiatives such as Healthy People 2020 and Healthy Campus 2020 have identified eliminating health disparities among emerging adults as a priority (American College Health Association, 2012; Healthy People 2020, 2014). While the existing literature comparing sexual health behaviors of black and white college students is scarce, existing studies have identified HBCU students reported engaging in more individual protective factors compared to white PWI students (Buhi et al., 2010). For instance, black college and HBCU students reported more protective behaviors in areas including condom use, HIV testing, and abstaining from substance use before sex, but more high-risk indicators such as earlier sexual debut and multiple sex partners (Hou, 2009; Hayes et al., 2009; Buhi et al., 2010; Valentine et al., 2003; Washington et al., 2011). Despite having some more protective behaviors, HBCU students have reported disproportionate rates of HIV and STIs compared to their white peers (Adefuye et al., 2009; Buhi et al., 2010; Hou, 2009).

The "paradox" of disparities in sexual health outcomes and race is demonstrated when black students from HBCUs and PWIs engage in more protective behaviors, but continue to have increased negative health outcomes (Younge et al., 2013). For instance, HBCU students were found to be significantly less likely to use alcohol before any sexual acts, 8.4 times more likely to be tested for HIV, and 3.8 times more likely to ask partners' HIV status than white students (Hou, 2009). Studies reviewing links between HIV knowledge and intention to engage in protective behaviors (e.g. condom use) found higher reports of HBCU women being more knowledgeable about HIV than HBCU

males (Sutton et al., 2011). However, the existing literature is inconsistent regarding the impact of knowledge of HIV and STIs on sexual behaviors (Bazargan et al., 2000; Brown et al., 2012; Payne et al., 2006; Thomas et al., 2008).

Emerging Adulthood and Sexual Health Knowledge

In the United States, 33 states mandate HIV based education in schools, 20 of which also mandate sex education (Guttmacher Institute, 2015). Despite these mandates, comprehensiveness of information, grade levels at which curricula are implemented, as well as accuracy of information taught varies between states, school districts, and instructors (Martinez, Abma, & Copen, 2010). The 2006-2008 results of the National Survey of Family Growth reported 62% of males aged 15-to-19 years old received information about contraceptives in high school; however, 46% of males did not receive this information prior to their first sexual experience (Martinez et al., 2010).

Analyses of the 2010 Youth Risk Behavior Survey (YRBS) found HIV/AIDS education was significantly associated with delayed sexual debut, decreased number of sex partners, less reported substance use before sex, and increased likelihood of using condoms among male students (Ma, Fisher, & Kuller, 2014). Furthermore, Ma and colleagues (2014) found black male students who received HIV/AIDS education in school were 1.5 times more likely to have HIV testing. Adolescents who do not receive formalized health education often seek information from parents, peers, or the Internet; however, these sources may not always disseminate accurate information (Percheski & Hargittai, 2011).

Additionally, research on the communication attitudes of black MSM participants found that over 84% of males felt most comfortable discussing HIV with their friends but

only 14% actually talk about getting tested for HIV (Tobin, Yang, Sun, Spikes, & Latkin, 2014). Lechner, Garcia, Frerich, Lust, & Eisenberg (2013) conducted qualitative research on the responsibility of campus health facilities to provide sexual health information and found student expectations of referrals to resources, available resources on campus, and a supportive community.

In conjunction with late school-based education, approximately 25% of teenage males received no formal sex education and an additional 25% received no sexual health information from a parent (Martinez et al., 2010). Even when parents provided information about sex to adolescents into their college years, Bylund, Imes, & Baxter (2005) found many parents were "over-optimistic" about their children's sex behaviors and conversations between parents and children tended to be inhibited and limited. Studies have identified both the Internet and peers as leading sources for sexual health information among adolescents and college students (Buhi, Daley, Fuhrmann, & Smith, 2009; Percheski & Hargittai, 2011; Tobin et al., 2014). Issues arise, however, when these sources provide inaccurate or misleading information.

Research on first-year university students found that students are most likely to seek health information from social networks including family and friends, and men are significantly less likely to seek health information sources than women (Percheski & Hargittai, 2011). Emerging adults are also very likely to rely on peers in developing their perceptions of sexual norms (Fletcher et al., 2014). Misconceptions about peer norms regarding sexual frequency, number of partners, and risk behaviors such as not using condom use have been found to significantly influence high-risk behaviors among

emerging adults and black males (Hall & Applewhite, 2013; Jones, Salazar, & Crosby, 2015).

Results on the association between knowledge of STIs and HIV and protective behaviors such as condom use have been mixed. Bazargan and colleagues (2000) surveyed both male and female HBCU students and found that more HIV knowledge, more experiences with condoms, and being male predicted increased condom use. For male HBCU students in particular, having more knowledge about sexually transmitted HIV infection and previous positive experiences with condoms led to higher condom use (Bazargan et al., 2000). HBCU students who had knowledge on the rates of STIs and HIV on the community surrounding their campus have also reported increased HIV and STI testing (Younge et al., 2014). However, this knowledge did not necessarily influence condom use, especially when respondents perceived their partner as not having previous partners or within the HBCU sexual network and thus, at low-risk for STIs/HIV (Younge et al., 2014). Most studies have ultimately suggested no correlation between increased HIV knowledge and protective sexual health behaviors of condom use and HIV testing (Brown et al., 2012; Milligan et al., 2014; Sutton et al., 2011).

Age of Sexual Debut and Number of Sex Partners

According to the CDC Youth Risk Behavior Surveillance System (2014a), black males in high school reported engaging in riskier sex behaviors than white males in: 1) earlier sexual debut, 2) increased number of sexual partners, and 3) higher prevalence of males who have had sexual intercourse with more than four people. Studies on HBCU college students have found an average age of sexual debut between 15 and 16 years old (Hayes et al., 2009; Hou, 2009). Browne and colleagues found among male HBCU

students, nearly one-third reported their first sexual experience before the age of 13 (2009).

Suggested indicators of high-risk sex behavior have included increased rates of sex acts with partners of unknown status, multiple sex partners, and having older partners (Adefuye et al., 2009; Bohl, Raymond, Arnold, & McFarland, 2009). When comparing students from PWIs and students attending HBCUs, black male students tended to have earlier reported age of first sexual activity than white students and women, a potential indicator of increased risk behaviors (CDC, 2014b; Hou, 2009; Valentine et al., 2003). Furthermore, HBCU students reported a greater number of sexual partners in the past year compared to students of all other races attending PWIs (Buhi et al., 2010; Hou, 2009). Studies on HBCU students found men were more likely to report multiple sex partners than women and the average number of sex partners among men was three (Hayes et al., 2009; Sutton et al., 2011).

Condom Use and Condom Use Self-Efficacy

Aside from abstaining from sex, correct and consistent latex condom use is the most effective and commonly used method of preventing HIV and STI transmission (CDC, 2012b; Crosby et al., 2014a; Diclemente, Salazar, Crosby, & Rosenthal, 2005). Emerging adults who reported confidence in their ability to use condoms and discuss sexual health topics with sex partners have reported more consistent condom use and less history of STIs (Bazargan et al., 2000; DiClemente et al., 2005). Additionally, emerging adults who perceive themselves at increased risk for HIV and STIs or who have multiple sex partners are more likely to use condoms (Milligan et al., 2014). Among high school students, 73% of black males reported using a condom at last sexual encounter compared

to only 62% of white males (CDC, 2014a). Previous studies have identified no differences between white and black college students on perceptions of condom negotiation self-efficacy or frequency (Holland & French, 2012).

Compared to women at HBCUs, men were significantly more likely to perceive themselves to be at higher risk for HIV in comparison with women, yet are often less likely to report using condoms than those who reported themselves as low risk for HIV (Milligan et al., 2014; Thomas et al., 2008). Condom use has been found to be higher and more consistent in younger male students compared to older males, and older students have reported less social support for condom use (Adefuye et al., 2009; Warren-Jeanpiere, Jones, & Sutton, 2011;Washington et al., 2009). The type of sexual activity (e.g. oral, vaginal, or anal) and relationship status have also been found to influence condom use. For instance, students who reported engaging in oral sex and anal sex more than once were less likely to use condoms (Hou, 2009; Washington et al., 2010). However, in a comparison between HBCU and PWI students, HBCU black students were more likely to use condoms during oral sex than PWI white students (Hou, 2009). Moreover, black respondents have reported more frequent condom use, as well as indicated stronger intentions to use condoms regularly in the future than white students (Davis et al., 2007).

Condom use among emerging adults may also vary depending on relationship status and other contraceptive and protective methods such as female-controlled birth control or regular STI testing (Bailey, Haggerty, White, & Catalano, 2011; Masters et al., 2015). Barriers to condom use among HBCU students have included: negative perceptions of condoms, invincibility beliefs, fear of condom use as an implication of

distrust in a relationship, perceiving a sex partner as a virgin and therefore not at risk for an STI, and reliance on other birth control methods such as the pill, pulling out, or Plan B (Buhi et al., 2010; Duncan et al., 2002; Hayes et al., 2009; Geter & Crosby, 2014; Younge et al., 2014). Quantitative meta-analyses have reported attitudes regarding the perceived impact of condom use on sexual sensation and trust in relationships are significantly reliable predictors of condom use (Sheeran, Abraham, & Orbell, 1999; Geter & Crosby, 2014).

One study found that significant predictors of condom use include greater HIV knowledge, male gender, non-monogamous relationships, more experiences with condoms, and greater behavioral skills (Bazargan et al., 2000). Several studies of sexual patterns among minority college students found a high prevalence of students reporting multiple partnerships and low rates of condom use; however, multiple partnerships were found to decline with age (Adefuye et al., 2009; Bazargan et al., 2000). Multiple partnerships were more prevalent among younger college students than older, as well as students who reside on campus in residence halls rather than commuting students (Adefuye et al., 2009). Though unmarried students over 30 years old were more likely to report monogamous sexual relationships, they were significantly less likely to report consistently using condoms in the past 30 days compared to students ages 20-to-29 (Adefuye, 2009). Bazargan et al. (2000) found nearly half of HBCU students perceived condom use as nonessential in a monogamous relationship and only a quarter of students in a mutually monogamous relationship reported consistently using condoms.

Even when students choose to use condoms, the literature suggests condom use errors such as late application, early removal, slippage or breakage, and condom reuse are

common (Crosby et al., 2014b). Crosby and colleagues (2014b) specifically looked into condom use errors among young, black men who had a previous STI diagnosis. Nearly a quarter of this sample reported an occurrence of condom-use error in the 2-month recall period and 99% reported at least one error (Crosby et al., 2014b). Additionally, over 30% of participants reported not discussing condom use before having sex with a partner (Crosby et al., 2014b). In the limited HBCU research including males that is available, condom use was found to be associated with awareness of condom use self-efficacy, perceptions of HIV risk, partner, trust, and spontaneity of sexual interaction (El Bcheraoui, Sutton, Hardnett, & Jones, 2013).

Emerging Adults and HIV Testing Behaviors and Attitudes

According to a survey conducted by the Kaiser Family Foundation, the majority of adolescents and emerging adults in the United States were not concerned about becoming infected with HIV (KFF, 2012). Despite recommendations from the US Preventive Services Task Force (USPSTF) that all adolescents and adults between the ages of 13-to-64 be screened for HIV infection, several studies have identified that only between a quarter and half of emerging adults have had an HIV test (Buhi et al., 2010; Moyer, 2013; Van Handel, Kann, Olsen, & Dietz, 2016). Among emerging adults in college, however, black PWI and HBCU men have reported previous HIV testing significantly more white men (Adefuye et al., 2009; Buhi et al., 2010; Hou et al., 2009; Moore, 2013).

According to Milligan and colleagues, college students who sought HIV testing most frequently reported interest in knowing their status as the reason (2014). Tobin, Yang, Sun, Spikes, & Latkin (2014) found among black MSM, the majority of men

agreed HIV was important to discuss, but only 14% reported having these conversations. Cultural barriers, such as stigma against MSM and MSW/M populations at HBCUs, have been identified as potential barriers to HIV testing and protective behaviors among emerging adults (Hall et al., 2014; Washington et al., 2009).

Bureaucratic barriers to sexual health resources have also been identified (Warren-Jeanpiere et al., 2011). According to a qualitative study interviewing 24 HBCU health administrators, half of HBCUs reported no formal HIV prevention policies or services on campus (Warren-Jeanpiere et al., 2011). The majority of health administrators identified additional obstacles in HIV prevention efforts, including conservative beliefs regarding sex and condom distribution, deficiency of HIV knowledge, issues in effecting policy change, and lack of time and/or money to support new programs (Warren-Jeanpiere et al., 2011).

Among college students, several studies have identified fear of HIV, low perception of risk, and perceived stigma of HIV/AIDS as barriers to HIV testing among black males (Bond et. al., 2015; Hall et al., 2014; KFF, 2012; Washington et al., 2011). The majority of black emerging adults who have never been tested for HIV perceive themselves as at low risk for HIV infection, even men who engage in high-risk sexual behaviors (Buhi et al., 2010; KFF, 2012; Milligan et al., 2014; Payne et al., 2006; Van Handel et al., 2016). Barriers to HIV testing include: negative perceptions about HIV testing and trust in a relationship, not knowing where to get HIV testing, and fears regarding confidentiality of test results (Payne et al., 2006).

Other issues that emerge among emerging adults at HBCUs are perceptions on the availability and trustworthiness of health services (Younge et al., 2013; Younge et al.,

2014). HBCU male perceptions of HIV testing on campus have been mixed. While older students identified knowing about and utilizing HIV testing services on campus, others reported feeling more comfortable using their own doctor (Payne et al., 2006; Younge et al., 2014). Similar to condom use, studies have found no correlation between increased HIV knowledge and HIV testing behaviors (Sutton et al., 2011). Predictors of HIV testing include: higher risk behaviors such as MSM, older age, and identifying as gay or bisexual (Thomas et al., 2008; Washington et al., 2010).

Perceptions of Risk and Safety

Low perceived risk has also been consistently identified as a reason for not getting tested for STIs and HIV (Moore, 2013; Sutton et al., 2011). Studies have found that even among students with increased risk behaviors, most college students have a little interest in receiving an HIV test and low perceived vulnerability of risk of becoming infected with HIV (Adefuye et al., 2009; Bazargan et al., 2000; Masters et al., 2015; Sutton et al., 2011). One study of college students found 58% of students under 20 years old and 48% of students between 20-to-29 years old reported having no chance of being infected with HIV, despite engaging in high-risk behaviors (Adefuye et al., 2009). HBCU students who perceived themselves as average or high risk were less likely to have used a condom during last sexual encounter (El Bcheraoui, 2013).

Taking all of this information into consideration, it is important for HBCUs to have an understanding of the existing sexual health behaviors, attitudes, and knowledge among incoming students. Collecting and analyzing data on men attending HBCUs will add to the existing body of literature and identify what assets and challenges exist among the incoming class before they begin coursework. Findings from this study can be used to

influence sexual health interventions and resources offered at HBCUs and potentially, contribute to minimizing the disproportionate burden of negative sexual health outcomes faced by black emerging adults.

Search Methods

Articles compiled in this review were found using search terms in PubMed and the Journal of American College Health. Relevant articles were also found in the references of resulting articles. The database was searched using varying combinations of the following terms: "African American* + student + male + HBCU + sexual health + HIV + condom + negotiation + college + intervention + adolescent* + emerging adult + risk behavior + race". Resulting articles were excluded if they did not meet the following inclusion criteria: (1) written in the past 20 years, (2) written in English, (3) included black, male emerging adults, (4) related to culture in the United States. Hand searches drawn from relevant articles references lists were also included.

Statistics and studies were also drawn from surveys and large, multi-site datasets conducted by the Centers for Disease Control and Prevention, Kaiser Family Foundation, United Negro College Fund Special Programs Corporation (UNCF-SP), U.S. Department of Education, Morehouse College, Healthy People 2020, and the American College Association.

Chapter 3: Methods

Design

Findings are from a cross-sectional survey distributed to incoming male students at a southeastern HBCU.

Procedures

A sexual health pilot intervention, Healthy Brothers, was conducted during the summer 2015 New Student Orientation activities. A confidential, electronic health survey was available to participating students. The HBCUs Institutional Review Board approved of survey questions and survey administration prior to the pilot. Consenting students took a 69-question, confidential health survey using the software program Qualtrics.

The health survey was facilitated by trained resident assistants and distributed prior to the Healthy Brothers intervention modules. Participants accessed the survey using either a personal, electronic device or one of five computers provided by the HBCU. All data responses were stored anonymously in a limited-access SPSS database. Data was only accessible by principle investigators and assistants on password protected computers.

Participants

Participants were recruited utilizing a sampling frame of approximately 700 incoming male students attending New Student Orientation in August 2015. Convenience sampling was used to provide survey access to consenting students prior to a sexual health intervention. Students were provided with an informed consent statement giving permission to include them as a research participant (Appendix C). A total of 211 males completed the cross-sectional survey and all participants were incoming, first year male

students (Appendix A). Further demographic data was not collected to minimize random error due to respondent fatigue and to protect participant confidentiality.

Measures

Sexual history and behaviors.

"Sexually experienced" was defined as ever engaging in oral, vaginal, and/or anal sex. Participants were asked to report their number of lifetime partners for each sexual act using open-ended response. If a participant input "0" lifetime sexual partners, they were redirected to the STD Knowledge Questionnaire (Jaworski & Carey, 2007) and not prompted with further sexual history or sex partner communication questions. For participants who indicated being sexually experienced, additional sexual history questions were asked. Participants indicated the ages when they first willingly engaged in oral, vaginal, and/or anal sex. The earliest age of any sexual experience was defined as each participant's "sexual debut." Sexually experienced participants were also asked if they engaged in any sexual act in the past 30 days and to recall their number of sexual partners in the past 30 days. These responses were recorded using open-ended response. Participants responded to the question, "Did you use a condom or other barrier the last time you had sex (oral, vaginal, or anal)?" with either (1) Yes, (2) No, or (3) Don't Remember. Condom use at last sex was recoded with responses of "No" and "Don't Remember" collapsed together into one category as no condom used at last sex.

Partner communication scale.

The Partner Communication Scale (PCS) was administered to assess how often participants discussed several health topics with a sex partner in the past 6 months (Milhausen et al., 2007). Milhausen and colleagues (2007) revised the PCS to include

five highly correlated items from the original 36 questions. The PCS was validated with African American females; however, the authors note that the items could be used for other groups, including African American males (Milhausen et. al, 2007). Questions on the PCS are prefaced with: "During the last six months, how many times have you and a sex partner discussed…" and question topics include: (a) pregnancy; (b) STIs; (c) HIV/AIDS; (d) condom use; and (e) partner's sex history (Milhausen et al., 2007). Respondents had options of: (1) Never, (2) Sometimes/1-3 times, (3) Often/4-6 times, or (4) A lot/7 or more times. Questions assessing frequency of discussing pregnancy prevention had the above response options, as well as: (5) Not applicable- my partner(s) is a male.

A partner communication skills score was computed by summing the responses to the related questions; no questions were reverse coded. Scores could range from 5 to 20, with higher scores suggesting more frequent communication among participants and sexual partners. Cronbach's alpha reliability for this scale was .83, indicating good internal consistency of scale items.

Adolescent and young adult condom self-efficacy scale.

Condom use self-efficacy was assessed using the Adolescent and Young Adult Condom Self-Efficacy Scale developed by Kathleen Hanna (1999). The scale initially included 19 questions based on a literature review on adolescent and young adult condom use (Hanna, 1999). All questions were written at a 7th or 8th grade reading level. Following expert assessment of content validity and item analysis, five questions were eliminated leaving a 14-item scale. Questions assessed self-efficacy in areas of condom negotiation, consistent condom use, and correct condom use. All questions were written

using correct anatomic words and terminology appropriate for participants regardless of ethnicity or sexual orientation (Hanna, 1999).

Sample items on the condom self-efficacy scale include: “I could say no to sex if my partner refused to use a condom,” “I could use a new condom each time I and my partner had sex,” and “I could stop to put a condom on myself or my partner.” Each question asked participants to respond to “how sure” they were by using a five-item Likert scale, including (1) Very Unsure, (2) Unsure, (3) Somewhat Sure, (4) Sure, and (5) Very Sure. The condom use self-efficacy score was computed by summing the responses to the items. Scores ranged from 5 to 70, with higher scores suggesting higher self-efficacy in using condoms during sexual activity. The Cronbach’s alpha for the overall scale was .90, suggesting high internal consistency of scale items.

STD-Knowledge Questionnaire.

The STD-Knowledge Questionnaire (STD-KQ) was used to assess college-student knowledge of STIs including chlamydia, genital herpes, gonorrhea, hepatitis B, HIV, and HPV (Jaworski & Carey, 2007). Jaworski and Carey (2007) developed the STD-KQ to fill a gap of comprehensive and updated STI knowledge questionnaires. The authors initially developed a 93-item scale and utilized expert ratings, focus groups, pilot testing on college students, and data analysis to narrow the number of STD-KQ questions to 27 true or false statements (Jaworksi & Carey, 2007). Items were deleted if they were too simple or technical, interpreted differently by participants, or not clearly categorized as true or false. The final scale was used in a test-retest study among participants in a sexual health intervention to assess the reliability and sensitivity to change. Pre-test scores were compared to a post-test conducted two weeks later. The test-retest reliability

was r=.88, p<.01. The STD-KQ also had good internal consistency with a Cronbach's alpha of .86.

Participants responded to statements with "True," "False," or "Don't Know." Each correct response was awarded one point and incorrect or "Don't Know" responses were scored with zero. The total STD-KQ score was computed by summing the correct responses to all 27 questions. Scores ranged from 0 to 27 with higher scores indicating higher knowledge of STIs and HIV.

HIV testing history and attitudes.

Men were asked to select either (1) No or (2) Yes regarding ever having an HIV test. Participants who ever had an HIV test were asked, "Did you return to get your HIV test results?" Response options were: (1) No, (2) Yes, or (3) Received Same Day Test. HIV testing attitudes were further assessed by asking men the following questions: "I should get tested for HIV," "I think everyone needs to know his/her HIV status," and "I have no interest in finding out whether I am HIV infected." Response options ranged from (1) Strongly Disagree to (5) Strongly Agree. Responses were collapsed into 2 categories: (0) Disagree and (1) Agree. Participants who responded "unsure" were recoded as (0) Disagree. The question, "I have no interest in finding out whether I am HIV infected," was reverse coded. All responses were collapsed into two categories: (0) Disagree, which included responses of "Unsure," or (1) Agree.

Participants rated their perceived level of safety by responding to one question, "How safe do you think your current behavior is in terms of avoiding HIV and other STIs?" Response options were in a Likert scale from 1 to 5 representing: (1) Very Safe, (2) Safe, (3) Unsure, (4) Not Very Safe, or (5) Not Safe At All. Perceived level of safety

responses were collapsed into two groups, with those who reported being unsure, not very safe, or not at safe recoded as (0) Unsafe and those who reported safe or very safe behavior recoded as (1) Safe.

A four-item scale was used to assess anxiety about HIV testing. Response options ranged from (1) Strongly disagree to (5) Strongly agree. Scale items included: "It would be stressful to have an HIV test," "I am scared to find out if I am HIV infected," "I would rather not know if I am HIV infected," and "Knowing my HIV status would make my life more complicated." The HIV test fear score was computed by summing participants' responses. Scores reflecting anxiety about HIV testing could range from 4 to 20, with higher scores suggesting more anxiety about HIV testing. Cronbach's alpha reliability for this scale was .68, indicating adequate internal consistency of scale items.

Perceived barriers to HIV testing.

Perceived barriers to HIV testing were assessed using a 6-item scale with response options ranging from (1) Strongly disagree to (5) Strongly agree. Sample items included: "It is difficult for me to obtain an HIV test" and "I feel the availability of HIV testing is very limited." The perceived barriers to HIV testing score was computed by summing the responses to six items. Scores ranged from 6 to 30. Higher scores indicated participants perceived more barriers to HIV testing. The following question was reverse coded: "I am confident that I can obtain an HIV test." Cronbach's alpha reliability for this scale was .85, indicating high internal consistency of scale items. Men were also asked to indicate if they knew where to get an HIV test with response options ranging from (1) Strongly disagree to (5) Strongly agree. Participants who selected (4) Agree or (5) Strongly agree were collapsed into one category indicating knowing where to receive an

HIV test, and all other responses were recoded as not knowing where to access an HIV test.

Data Analysis

Data were cleaned and analyzed using the IBM Statistical Package for Social Sciences (SPSS) version 23. Descriptive statistics were used to describe sexual behaviors, STD-KQ scores, condom use self-efficacy scores, HIV testing history and attitudes, and perceived barriers of HIV testing resources. The reliability of scales assessing knowledge, attitudes, and behaviors were assessed using Cronbach's alpha analyses.

Based on findings on college students and HBCU students in the literature, bivariate and multivariate analyses were conducted to explore significant associations with condom use at last sexual encounter, as well as history of HIV testing. Previous studies indicated that having high perceived risk, engaging in sex with fewer partners, and history of HIV test were associated with increased condom use. Further, engaging in more frequent partner communication, having increased STD Knowledge, and having high condom use self-efficacy have had mixed results regarding the association with condom use at last sex.

This study examined the association between the dependent variable, condom use at last sex, and the following independent variables: number of partners in the past 30 days, perceived level of safety, history of having an HIV test, partner communication, condom use self-efficacy, and STD knowledge. Analyses were also conducted regarding the association between the dependent variable, ever having an HIV test, and the following independent variables: number of lifetime sex partners, perceived level of safety, interest in knowing HIV status, believing that everyone needs to know their HIV

status, perceived barriers to HIV testing, HIV testing anxiety, and STD knowledge. The prevalence and predictors of condom use at last sex and HIV testing among incoming HBCU students were analyzed using bivariate and multivariate analyses.

Bivariate analyses were conducted to examine the associations between independent variables and the protective behaviors of reporting using a condom at last sex and ever having an HIV test. Two-tailed, two-proportion independent t-tests were used to analyze continuous variables and Pearson's chi-square tests of independence were used for categorical variables. Characteristics significantly associated ($p<.05$) with each outcome were included in a multivariate logistic regression model. Multivariate logistic regressions were used to determine which independent variables were independently associated with protective behaviors of condom use and ever having an HIV test when controlling for the effects of other independent variables. Adjusted odds ratios (AOR) and 95% confidence intervals (CIs) were calculated to assess the magnitude of association between significant independent variables and protective sexual behaviors.

Chapter 4: Results

Sexual History and Behaviors

A total of 211 participants provided consent for inclusion in the data analysis. The majority of participants (n=134; 63.5%) identified as sexually experienced. Number of lifetime sex partners was split based on the sample median of 3 lifetime sex partners, as well as previous findings from national datasets that split groups with one to three lifetime partners in one category and men with four or more lifetime partners in another (Hayes et al., 2009; CDC, 2014b). The mean age of sexual debut was 15.4 years (SD=1.8) and the average number of lifetime sex partners was 6.5 (SD=17.9). The mean partner communication score was 11.4 (SD=4.3) and the mean STD knowledge score was 14 (SD=5.4). The breakdown of what sex act, number of sexual partners, and age of sexual debut is presented in Table 1.

Of sexually experienced participants, 57% (n=76) had sex in the past 30 days. The mean number of recent sex partners was 1.4 partners (SD=1.1) and almost a quarter of men reported having multiple sex partners in the past 30 days (n=18; 23.7%). Among a total of 18 men who reported more than one sexual partner in the past 30 days, 45% (n=8) reported not using a condom, or being unsure of whether or not they used a condom, at their last sexual encounter. The majority of men who had sex in the past 30 days reported using a condom at their last sexual encounter (n=49, 64%) (Table 2).

While perception of safety was significantly associated with condom use at last sex, over 89% of sexually experienced men (n=107) reported their behavior as safe, regardless of high-risk sex behaviors like sex without a condom and multiple sex partners in the past 30 days. Of participants who perceived their behavior as safe, 29% (n=16)

reported that they did not use a condom at last sex and 60% (n=64) never had an HIV test (Table 2).

Table 1. Characteristics of Sexual Behaviors and Attitudes

Categorical variables	n	%
Sexually experienced	134	63.5
Oral sex	121	57.3
Vaginal sex	113	53.6
Anal sex	18	8.5
Life partners		
1-3 partners	69	51.5
≥4 partners	65	48.5
Condom use at last sex		
No condom	34	26.2
Don't Remember	3	2.3
Condom used	93	71.5
Perceived level of safety		
Not safe at all	2	1.2
Not very safe	6	3.5
Unsure	7	4.1
Safe	39	22.7
Very safe	118	68.6
History of HIV Test		
No	119	69.2
Yes	53	30.8

Continuous variables	Mean	Median	Mode	SD	Range (min-max)
Sex partners					
Lifetime partners	6.5	3.0	1.0	17.9	(1-200)
Partners past 30 days	1.4	1.0	1.2	1.1	(1-9)
Sexual debut	15.4	16.0	16.0	1.8	(6-19)
Oral sex	15.6	16.0	16.0	1.7	(12-19)
Vaginal sex	15.9	16.0	17.0	1.9	(6-21)
Anal sex	16.7	17.0	18.0	2.7	(11-21)
STD-KQ Score	14.0	14.0	13.0	5.4	(0-24)
Partner Communication	11.4	11.0	10.0	4.3	(5-20)
Condom Use Self-Efficacy	59.1	61.0	70.0	9.8	(22-70)
HIV Testing Anxiety	8.9	8.0	8.0	3.7	(4-20)
Perceived HIV Test Barriers	13.1	13	6.0	4.6	(6-29)

Table 2. Characteristics Associated with Perceived Level of Safety

Categorical variables	Perceived as Unsafe		Perceived as Safe		Bivariate analysis	
	No condom	Condom	No condom	Condom	χ^2	*p*
	n (%)		n (%)			
Partners past 30 days					3.38	.06
Multiple partners	4 (50)	1 (33.3)	3 (18.8)	8 (20)		
1 partner	4 (50)	2 (66.7)	13 (81.2)	32 (80)		
History HIV Test					3.04	.08
Never tested	8 (88.9)	3 (75)	17 (68)	47 (57.3)		
Tested	1 (11.1)	1 (25)	8 (32)	35 (42.7)		

**=$p<0.5$*

HIV Testing History and Attitudes

The mean HIV anxiety score was 8.9 (SD=3.7), which indicated participants were not fearful of getting an HIV test; however, the majority of participants reported never having an HIV test (n=119; 69.2%). Of the 53 participants who had taken an HIV test (30.8%), 51 (96.2%) either returned to retrieve their results or received a same-day test. While the majority of participants strongly agreed or agreed that everyone should know his/her HIV status (N=151, 88.8%), nearly half of men either disagreed or were unsure if they should get an HIV test (N=79, 46.4%). Furthermore, over a quarter of participants indicated they had little to no interest in finding out their HIV status (N=48, 28.2%). Of sexually experienced emerging adults, 87% (n=103) agreed everyone should know their HIV status, but only 56% (n=66) agreed that they personally should be tested for HIV.

The mean perceived barriers to HIV testing score was 13.1 (SD=4.5), which suggests most participants perceived few barriers to HIV testing resources. However, 44% of participants reported being unsure or not knowing where to go to get an HIV test (N=74). There was a significant effect for HIV test anxiety, with those who had not had an HIV test reporting higher mean HIV test anxiety scores ($t(168)=3.19$, $p=.002$).

Condom Use at Last Sexual Encounter

A total of 169 participants responded to condom self-efficacy scale questions and the mean score was 59.1 (SD=9.8). Scores ranged from 22 to 70 and 14% (n=24) of participants reported the highest condom use self-efficacy score possible (Table 1). There was no significant association between condom use at last sex and the following independent variables: number of partners in the past 30 days (p=0.37), history of having

an HIV test (p=0.15), partner communication (p=0.12), and STD knowledge (p=0.83). Bivariate analyses, however, did find significant associations between condom use at last sex and perceived level of safety, ($\chi^2(1)=12.0$; $p<.001$), and condom use self-efficacy, ($t(116)= -2.16$; $p =0.03$).

Variables significant at the bivariate level were included in a subsequent multivariate logistic regression model using the Enter method. The full model containing all predictors was statistically significant, (χ^2 (8, N=118) =15.6; $p<.001$), indicating that the model was able to distinguish between respondents who reported using a condom at last sex and those who did not. The model as a whole explained between 12.4% (Cox and Snell R squared) and 17.8% (Nagelkerke R squared) of the variance in condom use at last sex, and correctly classified 74.6% of cases. Both of the independent variables were statistically significant predictors of condom use at last sex. Men who perceived their sex behaviors as "safe" or "very safe" were over 8 times more likely to have reported using a condom at their last sexual experience (AOR=8.1; 95% CI=2.2, 29.5; $p<.001$). Additionally, for each unit increase in condom use-self efficacy scores, men were 1.1 times more likely to report using a condom at last sex while controlling for other factors in the model (AOR=1.1; 95%CI=1.0, 29.5; p=.03). (Table 3).

History of HIV Testing

Bivariate analyses conducted for history of HIV testing revealed that the following predictors were independently, significantly associated with ever having an HIV test: number of lifetime partners, χ^2 (1, N=120) =10.6; $p<.001$, agreeing they should get an HIV test, χ^2 (1, N=170) =12.5; $p<.001$, having interest in their HIV status, χ^2 (1, N=170) =13.4; $p<.001$, HIV testing anxiety, $t(170)= 2.8$; $p =.005$, and perceiving barriers

to HIV testing, t(170)= 3.2; p =.002. There was no significant association between history of HIV testing and condom use at last sex (p=0.15), the number of sex partners in the past 30 days (p=1.0), perceived level of safety (p=0.56), and agreeing everyone must know their HIV status (p=0.19) (Table 4).

The variables significant at the bivariate level were included in a multivariate logistic regression model using the Enter method. The full model containing all predictors was statistically significant, (χ^2 (5, N=170) =32.8, p<.001), indicating that the model was able to distinguish between respondents who indicated whether or not they had ever received an HIV test. The model as a whole explained between 17.5% (Cox and Snell R squared) and 24.6% (Nagelkerke R squared) of the variance in HIV testing history, and correctly classified 77.6% of cases.

Emerging adults who reported four or more lifetime sex partners were nearly 5 times more likely to have had an HIV test than men with less life-time partners when controlling for other variables (AOR=4.7; 95% CI=1.9, 12.0; p<.001). Additionally, for each unit increase on perceived barriers to HIV testing scores, respondents were 13% less likely to have reported having an HIV test (AOR=0.87; 95% CI=0.77, 0.97; p=.02). For every unit increase in anxiety about HIV testing, respondents were 14% less likely to have had an HIV test (AOR=0.86; 95% CI=.075, 0.99; p=.04). Once other factors were accounted for, interest in HIV status and believing they should get an HIV test were not significant factors in respondents' history of HIV testing (Table 4).

Table 3. Characteristics Associated with Condom Use at Last Sex

	No Condom Used at Last Sex	Condom Used at Last Sex	Bivariate analysis		Multivariate analysis		
Categorical variables	n (%)	n (%)	χ^2	*p*	*AOR*	*95% CI*	*p*
Partners past 30 days			0.82	0.37		--	
Multiple partners	8 (29.6)	10 (20.4)					
1 partner	19 (70.4)	39 (79.6)					
Perceived level of safety			12.0	.001*	8.1*	[2.2, 29.5]	.001
Not Safe	9 (26.5)	4 (4.7)					
Safe	25 (73.5)	82 (95.3)					
History HIV Test			2.2	0.15		--	
Never tested	25 (73.5)	50 (58.1)					
Tested	9 (26.5)	36 (41.9)					
Continuous variables	*M (±SD)*	*M (±SD)*	*t(df)*	*p*	*AOR*	*95% CI*	*p*
Partner Communication	10.5 (3.8)	11.8 (4.4)	-1.59 (126)	0.12		--	
Condom Use S.E.	57.2 (9.5)	61.1 (8.6)	-2.16 (116)	.033*	1.1*	[1.0, 29.5]	.03
STD Knowledge	13.8 (4.8)	13.5 (5.7)	0.22 (83)	0.83		--	

*$p<.05$.

Table 4. Characteristics Associated with Ever Having an HIV Test

	Never HIV Test	Have had HIV test	Bivariate analysis		Multivariate analysis		
	n (%)	n (%)	χ^2	*p*	*AOR*	*95% CI*	*p*
Lifetime partners			10.6	.001*	4.7	[1.9, 12.0]	<.001*
≥4 partners	27 (36)	30 (66.7)					
1-3 partners	48 (64)	15 (33.3)					
Condom use at last sex			2.5	0.15			
No	25 (33.3)	9 (20)					
Yes	50 (66.7)	36 (80)					
Partners past 30 days			0	1.0			
Multiple partners	9 (23.7)	7 (24.1)					
1 partner	29 (76.3)	22 (75.9)					
Perceived Safety			0.90	0.56			
Not Safe	12 (10.1)	3 (5.7)					
Safe	107 (89.9)	50 (94.3)					
Everyone should know			2.4	0.19			
Disagree	16 (13.7)	3 (5.7)					
Agree	101 (86.3)	50 (94.3)					
I should get HIV test			12.5	<.001*	1.9	[1.1, 5.2]	.20
Disagree	65 (55.6)	14 (26.4)					
Agree	52 (44.4)	39 (73.6)					
Interest in HIV status			13.4	<.001*	3.4	[0.83, 13.8]	.08
Disagree	43 (36.8)	5 (9.4)					
Agree	74 (63.2)	48 (90.6)					
Continuous variables	*M (±SD)*	*M (±SD)*	*t(df)*	*p*	*AOR*	*95% CI*	*p*
STD Knowledge	13.8 (5.1)	14.4 (6.1)	-.58 (121)	0.56			
Perceived Barriers	13.8 (4.3)	11.7 (4.8)	2.8 (168)	.005*	0.87	[0.77, 0.97]	.02*
HIV Test Anxiety	9.5 (3.8)	7.6 (3.1)	3.2 (168)	.002*	0.86	[0.75, 0.99]	.04*

**p<.05*

Chapter 5: Discussion

According to previous research, data collected on HBCUs is limited, and there is a dearth of literature specifically on black, male emerging adults. Quantitative data collection during new student orientation allowed for convenient collection of existing behaviors, knowledge, and attitudes among a sample of incoming HBCU students. Furthermore, conducting the study prior to the 2015-2016 academic year provided the additional strength of assessing males during the transitional period between high school and college, a developmental phase with increased risk for poor sexual health outcomes, particularly for young black men. Collection and analysis of this data contributes valuable information regarding the sexual health knowledge, behavior, and attitudes among incoming male, HBCU students.

The results of this study illuminate several assets and challenges among incoming male students at a southeastern HBCU. Consistent with previous findings among men at HBCUs, the majority of recently sexually active students reported using condoms at last sexual encounter (Davis et al., 2007; Sutton et al., 2011). Further, the mean number of sex partners reported in this sample was lower than previous studies of HBCU men and average age of sexual debut was consistent with previous findings (Hayes et al., 2009; Sutton et al., 2011). Incoming students also had relatively low HIV testing anxiety, low perceived barriers to HIV testing, and high reported condom use self-efficacy.

However, it is notable that of sexually experienced students, 89% perceived their current sexual behavior as safe despite reporting high-risk sexual behaviors. For example, 68% of students neither used a condom at last sex, nor ever had an HIV test, and still

perceived their sexual behaviors as safe or very safe. Additionally, 87% of sexually experienced adults agreed everyone should know their HIV status, but only 56% (n=66) agreed that they personally should be tested for HIV. These findings are consistent with the literature and support previous findings that emerging adults report low-perceived personal risk and feelings of invincibility about acquiring HIV and STIs, despite high-risk behaviors (Adefuye et al., 2009; El Bcheraoui et al., 2013; Sutton et al., 2011; Younge et al., 2013; Zak-Place & Stern, 2004).

While condom use at last sex was relatively high among this sample, the literature suggests that condom use at last sex and high scores of condom use self-efficacy do not necessarily predict consistent or correct condom application (Crosby et al., 2014b). Even when students choose to use condoms, the literature has suggested that inconsistent condom use and condom use errors in young black men are exceedingly high and future interventions should focus on providing free condoms, as well as education for proper use (Crosby et al., 2014a; DiClemente et al., 2005; Younge et al., 2014).

Approximately one-third of men who reported only one partner in the past 30 days indicated they did not use a condom. The literature consistently reports findings of emerging adults using condoms use more consistently with casual partners and less so upon entering relationships (Bazargan et al., 2000; Crosby et al., 2014a; Masters et al., 2014). Given findings in the literature that emerging adults with steady sex partners tend to decrease condom use, it is crucial that students know the importance of getting tested with partners when beginning a new relationship (Moore, 2013).

Men who reported having more than three lifetime sex partners were 4.7 times more likely to have had an HIV test than men with fewer partners which was consistent

with previous studies on college campuses (Milligan et al., 2014; Moore, 2013). Also consistent with previous literature findings, STD and HIV knowledge was not predictive of testing or condom use or history of HIV testing (Brown et al., 2012; Sutton et al., 2011). Emerging adults in this sample also reflected previous findings that anxiety and perceived barriers to HIV testing significantly reduce the likelihood of HIV testing (Milligan et al., 2014). Also consistent with previous studies on HBCU students, almost half of students reported being unsure where to access testing resources (Payne et al., 2006).

Implications and Recommendations

Filling gaps in the literature.

Results from this study have major implications for potential interventions and student health outreach at HBCUs and institutions around the country. Because research on HBCUs is limited, particularly information on HBCU males, findings from this research enhance the body of literature and improve existing knowledge about HBCU students' sexual behavior, sexual health knowledge, and attitudes regarding partner communication, condom use, and HIV testing. Findings from this survey can be used in comparison to incoming students at other HBCUs and PWIs (Buhi et al., 2010; Hou et al., 2009). Furthermore, because there is a dearth of evidence-based interventions for black men in college, results from this study provide evidence for development and implementation of evidence-based programs specifically targeting this population. Evidence-based interventions have the potential to improve sexual health outreach and education for black males in the emerging adulthood transitional stage.

Recommendations for future research.

While the data collected in this survey provided a wealth of information about incoming HBCU male students, additional questions could be added to broaden the depth of data collected. Future data collection may be improved with the inclusion of general demographic and sexual behavior questions. For instance, previous research indicates that students report varying levels of condom use depending on sexual acts (e.g. oral, vagina, or anal) (Buhi et al., 2010). The existing survey did not distinguish between condom use for oral, vaginal, and anal sex, and only assessed condom use at last sex in general. Furthermore, previous studies have found that though condoms were used at last sex, condom use is not always consistent so assessment of condom use frequency may also be warranted (Crosby et al., 2014a). The survey could also be improved by collecting information on history of STI testing, as well as previous experience with STI acquisition.

High-risk sexual behaviors tend to increase during college as students have more freedom and may engage in other predictors of high-risk sexual behavior, such as drug or alcohol use (Hou, 2009; Lam & Lefkowitz, 2013). Furthermore, the literature identifies that high-risk and protective behaviors tend to evolve as emerging adults age. For example, younger emerging adults (e.g. 18-to-20 year olds) are more likely to have multiple partners but also use condoms more consistently, whereas older emerging adults (e.g. 21-to-24 year olds) are more likely to be monogamous, yet less likely to consistently use condoms (Hou, 2009; Sly et al., 2011; Washington et al., 2010). A longitudinal, repeated measures test design would allow for comparisons of high-risk and protective behavior indicators within-groups at different time points across the collegiate

experience, as well as to make in-between group comparisons to assess differences among younger and older emerging adults. This data could elucidate emerging risk behaviors, protective behaviors, and evolving needs of students to inform student health services and important sexual health intervention topics.

Future quantitative and qualitative studies could also assess HBCU-specific barriers to student health access and condom use, including religiosity, fears, and myths or misconceptions about student health and available sexual health resources. Furthermore, once students decide to use student health services, future studies could assess maintenance of healthy sexual health practices or cessation of risk behaviors in HBCU students over time.

Recommendations for future interventions.

Most large studies and interventions working to minimize the disparate rates of STIs and HIV among the black community have targeted women, low-income, intravenous drug using, or MSM populations and may not be appropriate for targeting emerging adults at an HBCU (Adefuye et al., 2009; Tobin et al., 2014; Younge et al., 2014). Male first year students have been also been identified as significantly less likely to seek health information as women, indicating the need for more active approaches to get information to male students (Percheski & Hargittai, 2011). Targeted, campus-based sexual health interventions for HBCU male emerging adults may aid in the elimination of disparate rates of negative sexual health outcomes among black males.

Future interventions and campus priorities should address sexuality and prioritize making sexual health resources available at the campus level. Furthermore, findings on student HIV testing practices and beliefs can be used to target student outreach

messaging on the accessibility of HIV testing services at the Student Health Center (SHC). Findings suggest the SHC and future interventions should place emphasis on where to access HIV testing, what constitutes high-risk sexual behavior, and the value of knowing every person know his HIV and STI status, regardless of his perceived level of risk.

The bulk of the literature supports the use of peer-led, discussion based interventions for the most impact on emerging adults (Calloway et al., 2014; El Bcheraoui et al., 2013; Moore, 2013). Because peers and role models have been identified as prominent positive influencers on protective sexual health behaviors among HBCU men, peer-led interventions are likely to have the most impact on HBCU campuses (El Bcheraoui et al., 2013; Sutton et al., 2011; Younge et al., 2014). Peer-led education has been found to increase condom use self-efficacy, STD knowledge, and partner communication skills among HBCU students and young black men (Calloway, Long-White, & Corbin, 2014; Jones et al., 2015).

The use of respected peers to endorse positive sex behaviors has been successful in influencing emerging adults' perceptions of peer norms and high-risk sex behaviors (Hall & Applewhite, 2013; Jones et al., 2015). Trained, slightly older peer educators may be particularly efficacious in the promotion of protective sex behaviors based on the cultural ideologies at many HBCUs (Jones et al., 2015; Younge et al., 2014). Previous findings suggest peer-based interventions be founded on theory-based constructs such as self-efficacy, perceived susceptibility, perceived severity, and cues to action for the most influence (Calloway et al., 2014).

The US Prevention Services Task Force recommends single session interventions as effective for improved sexual health outcomes, as well as time, cost, and resource-efficient (Lin, Whitlock, O'Connor, & Bauer, 2008). Other studies have identified that sex positive interventions, such as those that offer condom demonstrations and open discussion, are successful at preventing high-risk sex behaviors (Crosby et al., 2014a; Milligan et al., 2014). In order to encourage HIV and STI testing, resources should be well advertised and offered during routine visits to student health services (Moore, 2013; Payne et al., 2006). Furthermore, improved access to resources, such as free condoms and immediate options for HIV or STI testing following an intervention, have been supported in the literature (DiClemente et al., 2005; Milligan et al., 2014).

Findings that almost half of participants do not know where to get an HIV test and do not think they need to be tested for HIV are consistent with the literature on college students (Milligan et al., 2014; Hall et al., 2014). This suggests that HIV resources should be addressed by student health and in future interventions. Ideally, increasing student health knowledge regarding sexual health and available services on campus would decrease adverse health outcomes on HBCU campuses and in turn, reduce sexual health disparities among black college students. Crosby and colleagues (2014b) suggest that rather than promoting partner reduction to minimize sexual health risks, future interventions should focus on providing condoms and education for proper application to improve health outcomes. Recommendations from the literature identified a need for increased on-campus prevention efforts, enhanced access to condoms, ensured confidentiality for HIV-testing, and facilitations for near-peer discussions about sexual health (DiClemente et al., 2015; Hall et al., 2014; Sutton et al, 2011).

Findings that the majority of incoming men agree everyone must know their status, yet have not been tested for HIV are analogous with existing studies (Adefuye et al., 2009; Milligan et al., 2014; Tobin et al., 2014). Moreover, perceived barriers to HIV testing to sexual health resources are also consistent with studies on HBCU students (Hall et al., 2014; Hayes et al., 2009; Van Handel et al., 2015). These results implicate an increased need for minimized stigma of diverse sexual behaviors, increased accessibility to resources to prevent negative health outcomes, and peer-led, discussion based approaches to specifically target emerging adults in college.

Previous studies have developed successful HIV and other sexual risk behavior interventions using technology geared towards high-risk adolescents including computer programs, social networks, and mobile texting (Giorgio, Kantor, Levine, & Arons, 2013; LeGrand, Muessig, Pike, Baltierra, & Hightow-Weidman, 2014; Noar, Black, & Pierce, 2009; Valente & Fosados, 2006; Young & Jaganath, 2013). However, other studies have identified discussion based interventions as having the most success, as well as being more preferred by college students, compared to web-based interventions (Noar, Black & Pierces, 2009; Moore, Smith, & Folsom, 2012). Increased research, targeted interventions in HBCUs, and incorporation of multiple socio-ecological levels have been recommended to reduce the disparity of negative health outcomes among black HBCU students, and African Americans in general (DiClemente et al., 2005; El Bcheraoui et al., 2013; Sutton et al., 2011; Younge et al., 2013).

Interventions targeting HBCU students.

A meta-analysis of existing HBCU risk behavior research suggested additional research on uniting improvements to sexual health promotion on campus, utilization of

HBCU "community" environment, and technology to improve reach and health outcomes of HBCU students and potentially, the African American community in general (Younge et al., 2013; Warren-Jeanpiere et al., 2011). Younge et al. (2013) also highlighted the importance of developing interventions with cogent understanding of both environmental assets and challenges among students attending HBCUs and PWIs. For instance, HBCUs tend to highlight character building, leadership traits, and goal setting; traits that may be framed to encourage protective sexual behaviors (Whitehouse Initiatives on HBCUs, 2013; Warren-Jeanpiere et al., 2011; Younge et al., 2013). Several studies have recommended utilizing these assets in conjunction with evidence-based campus sexual health interventions. In particular, the use of peer model education, increased research on the role of parental communication, and reducing barriers to contraceptives on campus have been suggested (El Bcheraoui et al., 2013; Younge et al., 2013).

Another recommendation was the incorporation of increased social support and community among HBCU males. Increased discussion is warranted, especially of MSM behaviors, as many black males identified as not being open about their sexual identity due to perceived racism or homophobia (LeGrand et al., 2014; Tobin et al., 2014; Warren-Jeanpiere et al., 2011). Discussion groups in this population suggested increased education on MSM behaviors and prevention messages that focus on sexual risk reduction and community building be developed to include black MSM (LeGrand et al., 2014).

Several theory-based interventions for college students and African Americans exist in the literature; however, a gap exists in interventions specific for HBCU males. A pilot study conducted by Planned Parenthood reviewed the potential of using instant

messaging and text messaging for adolescents to receive accurate, confidential, immediate answers to urgent sexual health questions (Giorgio et al., 2013). Findings of this study suggest Internet messaging and texting services could potentially serve as a bridge between users and follow-up as health services centers. Despite the pilot study success, among the 26,250 users of this service, only 16.87% identified as black (Giorgio et al., 2013). Success of this program in the age group could be indicative of success in a more targeted advertising service geared towards HBCU students.

Additionally, LeGrand et al. (2014) conducted a qualitative analysis bolstering support for increasing social support and enhancing social networks for black MSM to influence risk behavior changes. Further recommendations included social network facilitators, moderators of Internet based support systems to ensure appropriate context, and community influence to normalize healthy sex behaviors (LeGrand, 2014).

Though the above interventions do not focus specifically on male HBCU students from diverse sexual orientations, they provide a substantial foundation in potential intervention development. Sexual health outcome disparities among black emerging adults in college, and the black population in general, have been identified, and evidence-based HBCU-targeted interventions could potentially minimize these effects. In order to guide these interventions, more information is needed about male-specific, HBCU student experiences with sexual health education, methods of obtaining sexual health information, and social networks. Collecting this information may provide HBCU campus health centers and health educators with information on individual factors that contribute to increased HIV outcomes in black students.

Limitations

While the proposed study is bridging gaps in the literature on HBCU males, this study has several limitations. As a cross-sectional study design, the data were assessed at one time point and causation between variables and health outcomes cannot be presumed. Data were also collected from a small subset of incoming HBCU males and may not be generalizable to older HBCU students further along in their education, co-ed HBCUs, black men who attend PWIs, or emerging adults who do not attend college at all. Moreover, time restraints led to convenience sampling of students and data was only collected from 211 students. As a result, collected data may not be sufficiently representative of the entire incoming HBCU class.

Only 134 students reported being sexually experienced which led to small sample sizes for analyses of sexual behaviors and attitudes. The small sample size of sexually experienced participants made it difficult to determine true predictors from random variation. Increasing the number of survey responses would likely increase the number of sexually active students and in turn, allow for greater power to detect differences among incoming students. Additionally, the bivariate and multivariate values may have changed or been inaccurate due to the number of cells with missing data.

While important sexual health behaviors such as condom use at last sex and history of HIV testing were assessed, participants were not asked to report history of STI testing, context of sexual relationships in the past 30 days, or sexual orientation. The survey also did not specify between condom use during different sexual acts (e.g. oral, vaginal, anal) and whether anal sex was insertive or receptive. Demographic information such as age, race, and socioeconomic status (SES) was also not collected and could not

be used to make comparisons between participants. Collecting this information in future assessments could be beneficial in assessing predictors of condom use and HIV testing based on other findings in the literature.

Though validated scales with high reliability among college students were utilized in assessment of condom use self-efficacy, partner communication, and STD/HIV knowledge in survey development, criterion-related validity may be an issue for scales measuring HIV attitudes and perceived inaccessibility of HIV testing resources. Furthermore, it is possible that operational definitions of variables used did not completely or accurately measure constructs of interest, affecting the study validity.

Reliability may have also been compromised due to random or systematic errors in self-reported measures. To combat limitations in temporality, participants were asked to recall recent sexual experiences in the past 30 days; however, measurement error is still a limitation. Retrospective recall is consistent in many sexual health studies, but respondents may have experienced recall bias such as telescoping when reporting information about lifetime sexual partners and age of sexual debut. Additional potential random errors include participant fatigue and skipping responses, participants misreading Likert scales, responses influenced by social desirability bias (e.g. reporting higher condom use self-efficacy or higher numbers of lifetime sexual partners), or inaccurately reporting beliefs or attitudes. Moreover, situational factors, including the environment at new student orientation, may have influenced participant responses and led to additional errors.

While using Internet surveys increases the likelihood of participation, the survey method has flaws in limiting participation to incoming students. Additionally, students

who did not have access to the Internet on personal devices may have been excluded from data collection depending on availability of the 5 computer provided by the HBCU for survey administration. Computer glitches or instrument errors such as survey question order, phrasing, or design may have also led to inaccurate data collection. For example, if participants entered “0” for lifetime sexual partners, they were redirected and unable to provide responses to additional sexual health experience questions. This may be problematic in the event of participant random error or technology error.

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Appendix

A. Cross-sectional Survey

Sexual behaviors.

1. In your entire life, how many people have you had sex with (oral, vaginal, and/or anal sex)?
    - Enters number. If "0," skip to #12

2. How old were you the first time you willingly had oral sex?
    - Enters age
    - Or selects "I have never willingly had oral sex."

3. How old were you the first time you willingly had vaginal sex?
    - Enters age
    - Or selects "I have never willingly had vaginal sex."

4. How old were you the first time you willingly had anal sex?
    - Enters age
    - Or selects "I have never willingly had anal sex."

5. In the past 30 days, how many people have you had sex with (oral, vaginal, and/or anal)?
    - Enters number

6. Did you use a condom or other barrier the last time you had sex (oral, vaginal, or anal)?
    - Yes
    - No
    - Don't remember

Partner Communication Scale (PCS) (Milhausen et al., 2007).

During the last six months, how many times have you and a sex partner discussed:

7. . …how to prevent pregnancy?

☐ Never

☐ Sometimes/1-3 times

☐ Often/4-6 times

☐ A lot/7 or more times

☐ Not applicable- my partner(s) is a male

8. …how to use condoms?

☐ Never

☐ Sometimes/1-3 times

☐ Often/4-6 times

☐ A lot/7 or more times

9. …how to prevent human immunodeficiency virus (HIV)?

☐ Never

☐ Sometimes/1-3 times

☐ Often/4-6 times

☐ A lot/7 or more times

10. . …how to prevent sexually transmitted infections (STIs)?

☐ Never

☐ Sometimes/1-3 times

☐ Often/4-6 times

☐ A lot/7 or more times

11. …your partner's sex history?

☐ Never

☐ Sometimes/1-3 times

☐ Often/4-6 times

☐ A lot/7 or more times

STD-Knowledge Questionnaire (STD-KQ) (Jaworski & Carey, 2007).

12. . Genital Herpes is caused by the same virus as HIV. True False Don't Know

13. Frequent urinary infections can cause Chlamydia. T F DK

14. There is a cure for Gonorrhea. T F DK

15. It is easier to get HIV if a person has another STI. T F DK

16. Human Papillomavirus (HPV) is caused by the same virus that causes HIV. T F DK

17. Having anal sex increases a person's risk of getting Hepatitis B. T F DK

18. Soon after infection with HIV a person develops open sores on his or her genitals (penis or vagina). T F DK

19. There is a cure for Chlamydia. T F DK

20. A woman who has Genital Herpes can pass the infection to her baby during childbirth. T F DK

21. A woman can look at her body and tell if she has Gonorrhea. T F DK

22. The same virus causes all of the STIs. T F DK

23. Human Papillomavirus (HPV) can cause Genital Warts. T F DK

24. Using a natural skin (lambskin) condom can protect a person from getting HIV. T F DK

25. Human Papillomavirus (HPV) can lead to cancer in women. T F DK

26. A man must have vaginal sex to get Genital Warts. T F DK

27. STIs can lead to health problems that are usually more serious for men than women. T F DK

28. A woman can tell that she has Chlamydia if she has a bad smelling odor from her vagina.
T F DK

29. If a person tests positive for HIV the test can tell how sick the person will become. T F DK

30. There is a vaccine available to prevent a person from getting Gonorrhea. T F DK

31. A woman can tell by the way her body feels if she has a STI. T F DK

32. A person who has Genital Herpes must have open sores to give the infection to his or her sexual partner. T F DK

33. There is a vaccine that prevents a person from getting Chlamydia. T F DK

34. A man can tell by the way his body feels if he has Hepatitis B. T F DK

35. If a person had Gonorrhea in the past he or she is immune (protected) from getting it

again.
T F DK

36. Human Papillomavirus (HPV) can cause HIV. T F DK

37. A man can protect himself from getting Genital Warts by washing his genitals after sex.
T F DK

38. There is a vaccine that can protect a person from getting Hepatitis B. T F DK

39. How safe do you think your current behavior is in terms of avoiding HIV and other STIs?
    - 1=very safe, 2=safe, 3=unsure, 4=not very safe, 5=not safe at all

40. Have you taken an HIV test?
    - 0=no, 1=yes
    - If "no," skip to Question #42.

41. Did you return to get your HIV test results?
    - 0=no, 1=yes, 2=received same day test

42. I should get tested for HIV.
- 1=strongly disagree, 2=disagree, 3=not sure, 4=agree, 5=strongly agree

43. I think everyone needs to know his/her HIV status.
- 1=strongly disagree, 2=disagree, 3=not sure, 4=agree, 5=strongly agree

44. I have no interest in finding out whether I am HIV infected.
- 1=strongly disagree, 2=disagree, 3=not sure, 4=agree, 5=strongly agree

45. I would rather not know if I am HIV infected.
- 1=strongly disagree, 2=disagree, 3=not sure, 4=agree, 5=strongly agree

46. Knowing my HIV status would make my life more complicated.
- 1=strongly disagree, 2=disagree, 3=not sure, 4=agree, 5=strongly agree

47. I am scared to find out if I am infected with HIV.
- 1=strongly disagree, 2=disagree, 3=not sure, 4=agree, 5=strongly agree

48. It would be stressful to have an HIV test.
- 1=strongly disagree, 2=disagree, 3=not sure, 4=agree, 5=strongly agree

49. I know where I can get an HIV test.
- 1=strongly disagree, 2=disagree, 3=not sure, 4=agree, 5=strongly agree

50. It is difficult for me to obtain an HIV test.
- 1=strongly disagree, 2=disagree, 3=not sure, 4=agree, 5=strongly agree

51. I am confident that I can obtain an HIV test.
- 1=strongly disagree, 2=disagree, 3=not sure, 4=agree, 5=strongly agree

52. I feel HIV testing is not accessible to young adults.
- 1=strongly disagree, 2=disagree, 3=not sure, 4=agree, 5=strongly agree

53. I think that are only limited places to get an HIV test.
- 1=strongly disagree, 2=disagree, 3=not sure, 4=agree, 5=strongly agree

54. I feel the availability of HIV testing is very limited.
- 1=strongly disagree, 2=disagree, 3=not sure, 4=agree, 5=strongly agree

55. The monetary cost of HIV testing makes it difficult for me to get tested.
- 1=strongly disagree, 2=disagree, 3=not sure, 4=agree, 5=strongly agree

Adolescent and Young Adult Condom Use Self-Efficacy Scale (Hanna, 1999).

56. I could carry a condom with me in case I needed one.
- 1= very unsure, 2=unsure, 3=somewhat sure, 4= sure, 5= very sure

57. I could use a condom each time I and my partner had sex.
- 1= very unsure, 2=unsure, 3=somewhat sure, 4= sure, 5= very sure

58. I could use a new condom each time I and my partner had sex.
- 1= very unsure, 2=unsure, 3=somewhat sure, 4= sure, 5= very sure

59. I could stop to put a condom on myself or my partner.
- 1= very unsure, 2=unsure, 3=somewhat sure, 4= sure, 5= very sure

60. I or my partner could unroll a condom all the way to the base of the penis.
- 1= very unsure, 2=unsure, 3=somewhat sure, 4= sure, 5= very sure

61. I could use a condom without it slipping
- 1= very unsure, 2=unsure, 3=somewhat sure, 4= sure, 5= very sure

62. I or my partner could get rid of a condom in the garbage after sex.
- 1= very unsure, 2=unsure, 3=somewhat sure, 4= sure, 5= very sure

63. I or my partner could hold the condom at the base of the penis while withdrawing after sex.
- 1= very unsure, 2=unsure, 3=somewhat sure, 4= sure, 5= very sure

64. I could use a condom if drinking beer, wine or other liquor.

- 1= very unsure, 2=unsure, 3=somewhat sure, 4= sure, 5= very sure

65. I could talk about using condoms with any sexual partner.
- 1= very unsure, 2=unsure, 3=somewhat sure, 4= sure, 5= very sure

66. I could talk about using a condom if I were unsure of my partner's feelings about condoms.
- 1= very unsure, 2=unsure, 3=somewhat sure, 4= sure, 5= very sure

67. I could talk about using condoms with a potential sexual partner before we started to hug and kiss.
- 1= very unsure, 2=unsure, 3=somewhat sure, 4= sure, 5= very sure

68. I could talk a partner into using a condom when we have sexual intercourse.
- 1= very unsure, 2=unsure, 3=somewhat sure, 4= sure, 5= very sure

69. I could say no to sex if my partner refused to use a condom.
- 1= very unsure, 2=unsure, 3=somewhat sure, 4= sure, 5= very sure

B: STD Knowledge Questionnaire Codebook

Scoring for the STD Knowledge Questionnaire:

Score 1 for each correct response.

False is the correct response for these items:
1, 2, 5, 7, 10, 11, 13, 15, 16, 17, 18, 19, 20, 21, 22, 23, 24, 25, 26.

True is the correct response for the remaining items:
3, 4, 6, 8, 9, 12, 14, 27.

Total scores range from 0—27.

If you use this scale, please cite:

Jaworski, B. C., & Carey, M. P. (2007). Development and Psychometric Evaluation of a Self-administered Questionnaire to Measure Knowledge of Sexually Transmitted Diseases. *AIDS and Behavior*, 11, 557-574.

C: Informed Consent Form

Informed Consent Form

Morehouse College
Consent to be a Research Subject

Title: Morehouse College New Student Orientation Healthy Brothers Program (*Implementation Phase Study*)

Principal Investigator: Tina Davis, PhD
Psychology Department
Morehouse College

Funding Source: Not Applicable.

Introduction
You are being asked to be in a research study. This form is designed to tell you everything you need to think about before you decide to consent (agree) to be in the study or not to be in the study. **It is entirely your choice. If you decide to take part, you can change your mind later on and withdraw from the research study. You can skip any interview questions that you do not wish to answer.**

Before making your decision:
- Please carefully read this form or have it read to you
- Please ask questions about anything that is not clear

You can take a copy of this consent form, to keep. Feel free to take your time thinking about whether you would like to participate. By signing this form you will not give up any legal rights.

Study Overview
The purpose of this study is to determine whether the Health Brothers Program for Morehouse College New Student Orientation (2015) can increase communication about healthy relationships and knowledge about reducing risk for sexually transmitted diseases among students at Morehouse College.

Procedures
You will be asked to complete the following:
- A pre-test before the program begins (15 minutes)
- The Health Brothers Program (6.25 hours total over a 5-day period)
- A post-test at the end of the final Health Brothers Program session (15 minutes)

The study procedures outlined above will take place at Morehouse College.

Risks and Discomforts
We do not think there are any serious risks to being in this study. The risks in this project are due talking about personal behaviors and sexual health education in a group setting. You may feel embarrassed discussing these topics. You can refuse to answer any questions. If you become upset during the interview, we have counselors at Counseling Center (404) 215-2636 at Morehouse College who will talk with you.

Benefits
This study is not designed to benefit you directly. This study is designed to learn more about sexual health communication with your partner. The study results may be used to help others in the future.

Compensation
There is no compensation for participating in this research.

Confidentiality
Certain offices and people other than the researchers may look at study records. Morehouse employees overseeing proper study conduct may look at your study records. These offices include the Morehouse Institutional Review Board and the Morehouse Office of Research Compliance. Morehouse will keep any research records we create private to the extent we are required to do so by law. A study number rather than your name will be used on study records. Your name and other facts that might point to you will not appear when we present this study or publish its results.

Study records can be opened by court order. They may also be produced in response to a subpoena or a request for production of documents.

Voluntary Participation and Withdrawal from the Study
You have the right to leave a study at any time without penalty. You may refuse to do any procedures you do not feel comfortable with, or answer any questions that you do not wish to answer. If you withdraw from the study, you can choose to withdraw your study data.

Contact Information
Contact Tina Davis at: 404-653-7734

- if you have any questions about this study or your part in it, or
- if you have questions, concerns or complaints about the research

Contact the Morehouse Institutional Review Board, Doris Coleman, IRB Human Subject Administrator, 404-681-7589 or Doris.Coleman@morehouse.edu

- if you have questions about your rights as a research participant.
- if you have questions, concerns or complaints about the research.

Consent
Please, print your name and sign below if you agree to be in this study. By signing this consent form, you will not give up any of your legal rights. We will give you a copy of the signed consent, to keep.

_____
Name of Subject

_____ _____
Signature of Subject Date Time

_____ _____
Signature of Person Conducting Informed Consent Discussion Date Time