2022

Factors Associated with the Uptake of HIV Testing Among African American Male College Students

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Walden University
2021

Abstract

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MPH, Walden University, 2011

BSBA, Auburn University, 2008

Doctoral Study Submitted in Partial Fulfillment

of the Requirements for the Degree of

Doctor of Public Health

Walden University

February 2022

Abstract

HIV testing rates are much lower among African American male college students than male college students of other racial groups. Routine HIV testing on college campuses can decrease HIV rates among African Americans and increase students' awareness of their HIV status. This study was an investigation of factors associated with HIV testing among a sample of 140 African American male college students. The health belief model guided the research study and served as the theoretical framework to examine the influence of factors such as the location of testing, STD status, number of sexual partners, insurance coverage, health information, and alcohol consumption on the uptake of HIV testing among the study population. The study was a quantitative cross-sectional design that used secondary data from the Behavioral Risk Factor Surveillance Systems collected between 2016 and 2017. The study findings revealed that testing location, alcohol use, number of sexual partners, and insurance coverage were not statistically significant factors in African American male college students' participation in HIV testing. Thus, health interventions on college campuses can promote societal change by offering tailored messaging, campaigns, and educational materials to the target audience. Based on the study findings, there is an opportunity for future researchers to explore how public health practitioners can design culturally tailored interventions to have a more significant impact on African American males. In addition, the health belief model can offer insights into risk factors that can help explain HIV testing practices in disproportionately affected people resulting in positive social change.

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Dedication

This dissertation is dedicated to a few remarkable individuals in my life, Jackie Washington, Waive Washington, Late Earnest Washington. Growing up, you set an incredible example for me always to follow my dreams while teaching me the recipe for life. I am who I am today because of you all. You have always supported me since birth and motivated me to be the best I could be. Papa, I miss you so much. From the beginning, you knew this was what I wanted and would always ask me, “RED, how is it going, and are you finished yet. Papa, I have accomplished it, and I am finished. I hate you are not here to witness my greatness, but I know you are smiling down on me from heaven. Lastly, to my wonderful husband Jeremiah Ball and amazing daughter Parker, thank you both for pushing me, staying up with me in the late nights of the hour, seeing me cry, and wiping my tears. You two also pushed me to my max and always reassured me that giving up was not an option. Finally, to the rest of my village that encouraged me and helped me along the way, I will always remain humble and be forever grateful. I want to thank you all again for your support and offer my sincere gratitude. I dedicate this to you all.

Acknowledgments

First and foremost, I would like to think of one of the best, Dr. Kai Stewart, for her expertise, assistance, guidance, patience, and motivation. Without your help, this research would not have been possible. From the beginning, thanks for being my cheerleader. Thank you to my committee members Dr. Kai Stewart, Dr. Cornelia White, Dr. Gwendolyn Francavillo, Dr. Patrick Dunn and University Review Board for their support, suggestions, and encouragement. Thank you to my HOPE crew for many generous and helpful pieces of advice from the beginning of this process. I want to give special thanks to my aunt/cousins (Dianne, Trista, and Mckenna) for their continuous support in helping with my daughter so I could spend countless hours doing my work. Finally, I want to extend my deepest gratitude to the members of my academic community at Walden University, my mentors, family, friends, and other professional colleagues.

Thanks to my number one fan, my mother (Jackie). Thanks to my Father (Derrick) for giving me life and making me who I am today. Darling and Papa, I am forever grateful, just thank you. My brother (Deonte') thanks for believing in me. My husband Jeremiah, thanks for always believing in me, being patient, and supporting me in whatever my dreams are. Parker, this one is for us. We did it! I am forever grateful for my village. Finally, and most importantly, I would like to think my heavenly father for bestowing your grace and mercy upon me as I pursued my dissertation to help accomplish another goal. I will always trust you and put you first. Papa, please continue to be my guardian angel. I did it, we did it!

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Section 1: Foundation of the Study and Literature Review

Introduction

The human immunodeficiency virus (HIV) infects and destroys CD_4 +T-cells, reducing the functionality and effectiveness of the host's immune response (Centers for Disease Control and Prevention [CDC], 2017. The CD_4 or T-cells are cells of the immune system destroyed by HIV (U.S. Department of Health & Human Services, 2018). CD_4 cells (also known as CDR+T cells) are white blood cells found in the blood (U.S. Department of Health & Human Services, 2018). When an individual's CD_4 cell count is above 200, their HIV is more manageable. HIV is transmitted by blood, semen, breast milk, spinal fluids, and vaginal secretions (CDC, 2018). The CDC (2010) reported that approximately one-third of new cases of HIV are transmitted through heterosexual activity, more than 50% of new cases are from male-to-male sexual contact, and more than 10% of new cases are due to injection drug use. In addition, approximately 40% of new HIV infections are transmitted by people living with undiagnosed HIV (CDC, 2018). In 2016, CDC researchers found 8,451 youth received an HIV diagnosis in the United States. Among this population, more than 75% were between the ages of 20 and 24 (CDC, 2018).

HIV rates continue to be transmitted among the at-risk population if they are not aware of their HIV status (CDC, 2017). According to the CDC, approximately 19 million new sexually transmitted infections (STDs) occur each year, almost half of them among young people aged 15 to 24 because of multiple sex partner. Although sexual health is vital in preventing HIV and other STDs, it is often neglected among college-age adults.

Moreover, African American (AA) young adults, specifically AA men, are disproportionately affected by HIV/AIDS and are often unaware of their risk for HIV (Sutton et al., 2011). Springer (2018), who conducted a 10-year study, concluded that the number of cases of people with HIV has increased in some populations. In 2016, AA men and women were 8 times more likely to be diagnosed with HIV when compared to their counterparts (Springer, 2018). In 2005, HIV impacted 9,969 AA males, and by 2016, approximately 12,890 AA males had HIV, reflecting a 29% increase (Springer, 2018). One-third of all new HIV infections occur among people under 30 (CDC, 2019b). In 2017, AA men accounted for 13% of the U.S. population, but 43% (16,694) of the 39,739 newly diagnosed HIV cases in the United States (CDC, 2019a). Unexplained high HIV prevalence and incidence rates for AA men who have sex with men (MSM) continue to be reported 17 years after the first published report in the scientific literature (Millett et al., 2006).

HIV among the AA gay male population has been found to have higher rates of HIV infections than any other group (Millett et al.,2006). According to (Millett et al., 2006), AA MSM have a high prevalence of sexually transmitted diseases (STDs) that facilitate HIV transmission due to undetected or late diagnoses of HIV infection. AA MSM are a subgroup that experience higher rates of HIV (CDC, 2010). According to Sun et al. (2018), AA MSM have the highest HIV infection and prevalence rates in the United States and are often diagnosed with HIV later, significantly delaying receiving HIV treatment and care. The death rate among AA MSM with HIV (15.3 per 1,000 persons living with HIV) is higher than the rate among their European American and Latino

MSM peers, 15.1 and 9.4 per 1,000 persons living with HIV, respectively (Sun et al., 2018). Evidence has shown that AA MSM are more likely to test less frequently or at a later stage of HIV infection than European American MSM or other racial/ ethnic groups (Fullilove, 2006). Therefore, AA MSM are at a higher risk of death, STDs, or HIV than any other racial group.

According to the CDC (2018), of the young adult college students infected with HIV through male-to-male sexual contact, AA men accounted for over 50%. Study data showed that 20% of AA men, including college-age students, are HIV positive (Doshi et al., 2013). Due to low participation in HIV testing among males, a significant number of men are unaware of their HIV status (Doshi et al.,2013). There is a limited amount of literature that addresses HIV testing practices among AA male college-aged students. Therefore, this study addressed this gap by examining the relationship between selected independent variables (insurance coverage, alcohol consumption, number of sexual partners, STD status) and the dependent variable of uptake of HIV testing among AA male college students.

Problem Statement

In 2002, the CDC reported that the "epicenter of the HIV/AIDS epidemic is college students" (CDC, 2018). College campuses are well-suited settings to engage AA young adult males and implement prevention strategies, including HIV testing (Patel et al., 2013). Students who do not consider themselves part of high-risk groups tend to show relatively low interest in participating in HIV testing (Lin et al., 2017). Lin et al. (2017) found that college students were a severe health threat to each other because they

perceived themselves to be invincible and less at risk for contracting HIV. AA men are 9 times more likely to be infected with HIV when compared with European American men, and public health researchers should give more attention to this disparity (Acheampong, 2011).

Risky behaviors that are most common in AA male college students include sexual contact with other men, injection drug use, and high-risk heterosexual sex behaviors (Acheampong, 2011). Acheampong (2011) noted that 76 % of all new HIV cases are AA MSM and men who have sex with men and women (MSMW). MSM and MSMW may experience stigma associated with religious beliefs, cultural practices, and geographic/regional differences if they are open about their sexual orientation. These could potentially be barriers to HIV decision-making for AA male college students. Factors such as lack of sex education, poverty, and social inequities have increased the prevalence of HIV in specific populations. Due to gender differences and cultural beliefs, there is a concern with risky sexual practices such as failing to use condoms correctly and consistently and having sex while under the influence of alcohol or other drugs (Caldeira et al., 2012; Rucker, 2005). Alcohol is currently the most widely distributed and commonly used recreational drug in most rural areas (Fatch et al., 2012). Adults (age 15 and over) in the United States consume 11.9 liters per year of pure alcohol (Fatch et al., 2012). Past research has associated poor sexual behaviors with alcohol consumption (Fatch et al., 2012). Other barriers contributing to fewer AA male college students participating in testing might include a lack of awareness and education. According to Lin et al. (2017), previous research indicated that anticipated emotions (e.g., fear,

anxiety) play a role in individuals' decisions to get tested. Despite health education efforts, college students, including AA male students, continually report risky sexual behaviors, including multiple sexual partners (Lin et al., 2017). Among individuals who are not HIV positive, few studies have examined how health literacy influences HIV knowledge, risk, and behaviors (Hicks et al., 2006). Misconceptions about HIV transmission are associated with individuals with low health literacy levels (Hicks et al., 2006). One study found that participating in HIV testing can be influenced by a person's level of health literacy. Other research involving patients with chronic diseases such as hypertension, diabetes, asthma, and congestive heart failure found a direct correlation between patients' health literacy and knowledge of their chronic disease (Hicks et al.,2006). According to the CDC's National Health Interview Survey data, there has been no change in HIV testing rates among young adults from 2000 to 2010 (Handel et al., 2016).

Based on the increasing rates of HIV among young AA males, greater knowledge of factors that influence the uptake of HIV testing among AA college students is critical. More current research is needed to understand what factors are associated with the uptake of HIV testing among AA male college students.

Purpose of the Study

The college environment offers vital opportunities to reach students and provide HIV prevention interventions. Routine HIV testing on college campuses is a crucial public health intervention in reducing the spread of HIV. Specifically, on-campus testing provides ready access, particularly for AA male students and other students who may be

less likely to seek or receive HIV testing through traditional medical settings (Payne et al., 2006). Researchers have described previous work with HIV and AA males as insufficient and inadequate (Sam et al., 2018). Through this quantitative study I examined the relationship between the selected independent and the dependent variables.

Independent variables for this study were insurance coverage, alcohol consumption, number of sexual partners, and STD status, and the dependent variable was the uptake of HIV testing. The Behavioral Risk Factor Surveillance System (BRFSS) dataset defines the independent variables selected. First, the variable insurance coverage indicates health insurance status. Next, the variable testing location was defined as the type of facility offering HIV testing, such as private practice, local health department, or community-based health organizations. Another variable was the participants' number of sexual partners, precisely four or more within the last year. The final variable was participants' pre-existing STD (chlamydia, gonorrhea, syphilis, trichomonas, etc.) status or history. The analysis included the confounding variable age to determine if the student's age impacted the dependent variable. To understand better the lived experience of AA males can contribute to attitudes and beliefs about HIV testing among AA male college students. The health belief model (HBM) provided the theoretical framework to examine the association between location, STD status, sexual partners, insurance coverage, and uptake of HIV testing among AA male college students.

Research Question and Hypotheses

RQ1: Is there a statistically significant relationship between (a) the number of sexual partners, (b) STD status, (c) insurance coverage, and (d) risky sex and the uptake of HIV testing among AA male college students?

$H_0$1: There is not a statistically significant relationship between (a) the number of sexual partners, (b) STD status, (c) insurance coverage, and (d) risky sex and the uptake of HIV testing among AA male college students.

H_a1): There is a statistically significant relationship between (a) the number of sexual partners, (b) STD status, (c) insurance coverage, and (d) risky sex and the uptake of HIV testing among AA male college students.

RQ2: Is there a statistically significant relationship between alcohol consumption and the uptake of HIV testing among AA male college students?

$H_0$2: There is not a statistically significant relationship between alcohol consumption and the uptake of HIV testing among AA male college students

H_a2): There is a statistically significant relationship between alcohol consumption and the uptake of HIV testing among AA male college students.

RQ3: Is there a statistically significant relationship between understanding health information the doctors, nurses, and other health professions provide on the uptake of HIV testing Among AA male college students?

$H_0$3: There is no statistically significant relationship between understanding health information the doctors, nurses, and other health professions provide on the uptake of HIV testing Among AA male college students?

H_a3: There is a statistically significant relationship between understanding health information the doctors, nurses, and other health professions provide on the uptake of HIV testing Among AA male college students?

Theoretical Foundation for the Study

Rosenstock-Hochbaum developed the health belief model (HBM) in the 1950s; the goal was to explain the lack of participation in programs to prevent and detect disease (Glanz et al., 2015). According to Rosenstock-Hochbaum's theory, a person's belief in the effectiveness of certain recommended health behaviors or actions will predict the likelihood the person will adopt a particular behavior (Glanz et al., 2015).

Pace et al. (2015) acknowledged that the HBM helps individuals recognize they can successfully make positive changes by taking the proper preventative measures. The HBM served as the theoretical foundation used to guide this study. Firstly, it helped me better understand college students and their prevention behaviors, specifically HIV testing. College students' HIV-testing behavior could be a result of (a) perceived vulnerability to, and perceived severity of the threat (i.e., contracting HIV); (b) perceived benefits of and perceived barriers to adopting the recommended action (i.e., HIV testing); and (c) exposure to cues for and perceived self-efficacy in adopting the recommended action (Lin et al., 2017). Secondly, the HBM helped explain the uptake of HIV testing among the study population. Thirdly, the HBM was be used to determine if factors such as access to testing and availability of HIV testing information serve as barriers to AA male college students' understanding of the HIV testing process.

HBM posits that messages will achieve optimal behavior change if they successfully target perceived barriers, benefits, self-efficacy, and threats (Jones et al., 2014). While the model seems to be an ideal explanatory framework for communication research, theoretical limitations have limited its use in the field (Jones et al., 2014).

In rural Cameroon, the HBM was used to investigate factors associated with consistent condom use to prevent HIV/AIDS among senior secondary school female learners (Tarkang & Zotor, 2015). The HBM helped researchers with the explanation and process of behaviors on condom usage to prevent HIV. Practitioners may develop assessment data about clients' ability and motivation to change their health status to fit their needs better (Tarkang & Zotor, 2015). Individuals' perception of HIV testing could be based on a belief that they are invincible, perceived stigma of others, and perceived severity knowing that they have contracted HIV from past partners or believe they are at risk. In healthcare research, the HBM is one of the most applied theories (Jones et al., 2015). Four constructs underpin the HBM: perceived seriousness, perceived susceptibility, perceived benefits, and perceived barriers (Jones et al., 2015). The constructs assist in explaining health behaviors as well as motivational factors. Jones et al. (2015) utilized perceived susceptibility to risk in regard to an individual becoming HIV positive.

In contrast, perceived severity explains the consequences of risk conditions and how serious it is to become infected with HIV/AIDS (Tarkang & Zotor, 2015). Perceived benefits and barriers is focused more on condom usage and the benefits of using them as well as obstacles to usage (Tarkang & Zotor, 2015). Cues to action were about motivation

and encouraging individuals to use condoms as a prevention strategy and reduce their risk of contracting HIV/AIDS (Tarkang & Zotor, 2015). Cues to action were identified as crucial factors in the Tarkang & Zotor (2015) article; however, the motivation for condom usage is essential for protecting individuals from HIV/AIDS and STDs.

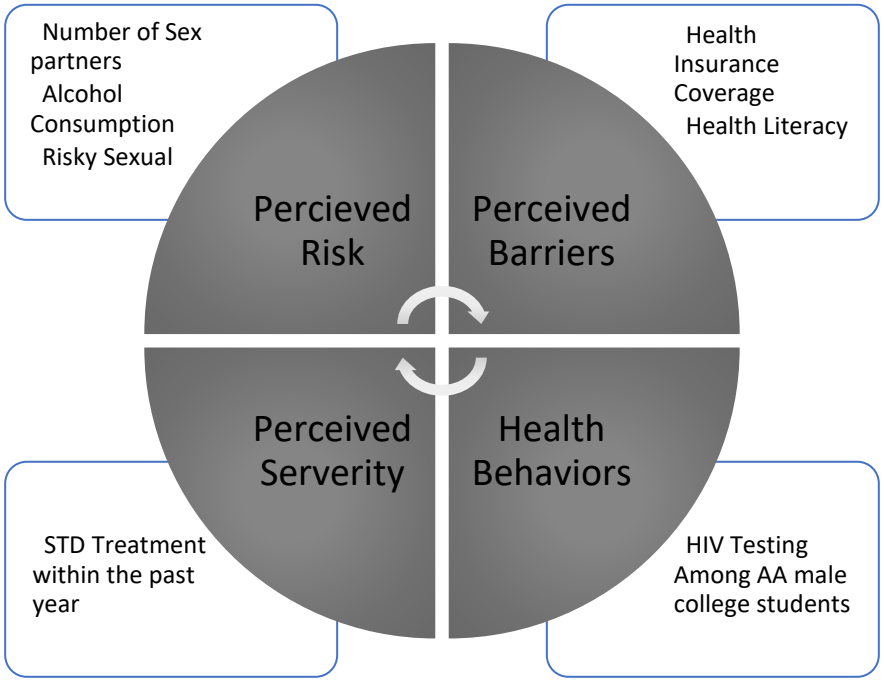
The lack of condom usage, STD history, knowledge about HIV, and age can play significant roles in college students' perception of the uptake of HIV testing. This framework demonstrates the potential influences on the health literacy of individuals in the education system and healthcare systems, as well as social and cultural factors that can contribute to different health outcomes and healthcare costs (DA;, N.-B. L. P. A. M. K., 2004). It may require AA male college students to secure social support from family and peers and more HIV education to drive HIV testing. Social support is essential when testing patients for STDs. The HBM is focused more on individual behaviors and intentions than other behavioral theories. For example, in 1970, Stone found that the HBM theorizes that individuals were prompted to act according to the value placed on illness, susceptibility, and ability to avoid the sickness.

Health behavior theories have been used to inform health intervention designs. Specifically, the HBM developed in the 1950s was used to investigate why people fail to undertake preventive health measures, and it remains one of the most applied theories of health behaviors (Orji et al., 2012). Walker (2014) conducted a descriptive study that assessed the self-protective behaviors of obtaining an HIV antibody test by utilizing the HBM. More specifically, the study was designed to determine the perception of the susceptibility of HIV infections, the severity of the disease, benefits and barriers of HIV

tests, and personal self-efficacy for engaging in protective behaviors among both testers and nontesters. This study involved two phases in helping determine the significant difference between testers and nontesters based on age, education level, drug or alcohol use, sexual activity, knowledge of self-protective behaviors, and perception of personal susceptibility (Walker, 2014). The HBM framework can positively influence the health literacy of individuals in educational and healthcare systems and social and cultural factors, which may contribute to different health outcomes and healthcare costs (Nielsen-Bohlman et al., 2004). AA male college students may need to secure social support from family and peers and receive more HIV education to drive HIV testing. Social support is essential when testing patients for STDs. Nielsen-Bohlman et al. (2004) indicated that AA males experience psychological distress, such as a feeling of sadness, hopelessness, and unworthiness from racial discrimination when it comes to health care. AA adverse health and mental health outcomes are high compared to other ethnic groups (Chung et al.,2014). AA men are less likely to have health insurance that allows them to use health services, placing them at a higher risk of receiving a lower quality of healthcare or not seeking healthcare (Chung et al.,2014). Factors in regard to mortality are that AAs are disproportionately stressed from experience in their daily lives from social determinants of health such as unemployment, poverty, and discrimination (Chung et al.,2014). In this study, the HBM framework explained potential barriers for AA male college students to engage in HIV testing.

Figure 1

Conceptual Model



Nature of the Study

The study was a quantitative correlation design using cross-sectional surveys to analyze variables from the BRFSS. The independent variables consisted of insurance coverage, alcohol consumption, STD status, and the number of sexual partners. The dependent variable was the uptake of HIV testing, with age as a confounding variable. Using secondary data shows that results are reliable and valid with original data already being collected (Cheng & Phillip, 2014).

Literature Search Strategy

I conducted a comprehensive literature review to identify current and available peer-reviewed literature related to the uptake of HIV testing among AA male college

students. The following key terms were used to yield results from multiple databases and search engines: *HIV, HIV stigma, AA males, college students, HIV testing, risky sex, sexually transmitted infections, AIDS, health behaviors, health literacy, condoms, MSM, factors influencing testing, HIV communication,* and *health belief model*. These search terms served as the basis of this literature review. The databases and search engines used for the literature search included Google Scholar, Pub Med, CDC, EBSCO ProQuest, Data USA, HHS Public Access, and PubMed Central (PMC). In addition, I filtered databases to provide literature published or available between 2012 and 2019 to ensure that the results were no older than 7 years.

Literature Review

With this literature review I aimed to examine each variable that may illuminate AA male college students' decision about HIV testing. This review provided an overview of current and past research on HIV, HIV prevention strategies, and HIV testing to help better understand belief patterns among AA male college students and factors that may influence their decision to get tested. Knowledge of HIV status is vital to HIV prevention and treatment efforts. Effective HIV prevention has led to a significant improvement in reducing HIV transmission (Office of Disease Prevention and Health Promotion [ODPHP], 2014). The CDC (2006) recommended that HIV testing should be a routine step in preventative health regimens as early diagnoses improve treatment outcomes (Rikard et al., 2016). Rikard et al. (2016) found that individuals did not take an HIV test to avoid possible rejection from relatives and friends. These individuals fear an HIV-positive test result and the associated stigma. Additional challenges facing HIV service

delivery are many who get tested for HIV never return for their results (Payne et al., 2006). The target population of this study was AA male college students between the ages of 18-23. One-third of all new HIV infections occur among people under the age of 30. (Caldeira et al.,2012). The CDC (2019a) found after analyzing a decade of HIV testing data that most AA men are at a high risk of contracting HIV; they are not getting tested as frequently as recommended.

Racial and ethnic disparities in health insurance coverage rates account for a large share of the difference in healthcare access (Sohn, 2017). According to Sohn (2017), AA and Hispanic individuals in the United States are more likely to be uninsured throughout adulthood than non-Hispanic individuals. Without insurance coverage, individuals face many barriers to receiving and obtaining health services and treatment (Sohn, 2017). Sohn (2017) stated that inconsistent or unstable insurance coverage also negatively affects maintaining good health. Lack of awareness, distrust, and fear contribute to why many AAs who are HIV positive do not know it because they are afraid to get tested. Prior studies found that the following factors were associated with not having an HIV test: fear of learning their status, risk level, perceived negative consequences of testing, lack of awareness about HIV treatment, testing availability, and cost of testing (St. Lawrence et al., 2015). The harmful use of alcohol is also a major public health concern and social problem causing increased HIV rates and not getting tested for HIV (Musuka et al.,2018). Increased mortality and morbidity rates are associated with alcohol use among males in the United States (Musuka et al.,2018).). Alcohol consumption before sex or being intoxicated during sex relates to risky sexual behaviors and acquiring STDs,

HIV included (Musuka et al.,2018). Alcohol use decreases the cognitive capacity of an individual to correctly assess risk and increases attention to sexual stimulation (Musuka et al.,2018). A pivotal question for this research was whether testing efforts adequately reach AA men, and if so, are they taking advantage of the benefits (see St. Lawrence et al.,2015).

HIV Burden

The HIV epidemic continues to be a major public health crisis in the United States (NIH, 2019) HIV is the most significant new pathogen that emerged during the twentieth century, approaching nearly 60 million infections by the end of 2000 (NIH, 2016). HIV continues to spread with thousands of new infections each year. According to the CDC, one in eight individuals are affected by HIV and do not even know it (NIH, 2016). HIV can affect many individuals regardless of race, gender, or ethnicity; however, minorities are more profoundly affected compared to other races. HIV does not discriminate against race, age, or gender; it can infect anyone whose blood encounters an infected person's blood, breast milk, or sexual fluids. Risky factors such as sex without condoms and multiple sex partners can put an individual at a higher risk of contracting the virus. HIV rates tend to be higher in men than women, and minority rates are much higher when compared to nonminority's (CDC, 2019a). According to Healthy People 2020, in 2015, 81% of HIV diagnoses occurred in men, and half of those men were gay or bisexual (ODPHP, 2014. Improving access to better care for this population disproportionately affected by HIV is a fundamental public health need for HIV prevention (ODPHP, 2019). Participating in risky behaviors negatively affects gay and bisexual men (ODPHP, 2019).

Furthermore, individuals with other STDs such as chlamydia, gonorrhea, syphilis, bacterial vaginosis, and herpes are at higher risk of getting HIV because they are exposed to the virus through sex or blood exposure (NIH, 2016). Individuals who inject drugs also put themselves at higher risk of contracting HIV via needle sharing or syringes. According to Przybyla (2013), nearly 40% of new HIV infections in the United States occurred amongst adolescents and young adults under 29, and the majority of these infections were from sexual activities. In recent years, college students have not been traditionally viewed as a population at risk for HIV transmission. However, this subpopulation has recently experienced increased incident rates (Przybyla, 2013). Between 2000-2003, the first HIV outbreak was among approximately 84 college students, primarily AA MSM or MSMW (Przybyla, 2013). According to the literature, these cases spread across 37 institutions, and a sexual partner network investigated 21 colleges, 61 students, and eight partners of students (Przybyla, 2013).

Etiology of HIV

HIV is a virus transmitted from humans to humans known as the human immunodeficiency virus (CDC, 2019a). When HIV is left untreated, it can lead to acquired immunodeficiency syndrome (AIDS; CDC, 2019a). Once someone acquires HIV, it attaches to and enters the human cell, also known as the immune defense cells or (CD_4 T-cells, macrophages, and dendritic cells). The number of HIV cases continued to grow, and by 1995 about 50,000 Americans between the ages of 25-44 (Nall, 2019) had died. AAs made up 49% of these deaths (Nalls, 2019). HIV belongs to a family of viruses known as retroviruses. These viruses are infections that use RNA as their genetic material

(NIH, 2020). Once these viruses infect a cell, the retrovirus then integrates into the DNA host of cells that allow replication to HIV, the virus that causes AIDS (NIH, 2020).

Risk factors and HIV Transmission

HIV is a disease passed through bodily fluids. HIV gets passed from person to person through blood, semen, pre-seminal fluid (pre-cum), rectal fluids from the vagina, rectum, and breast milk (CDC, 2019c). Therefore, if an uninfected person encounters any of these bodily fluids, they are at risk of contracting HIV. The virus must meet its mucous membrane or damaged tissue to become infected with HIV (CDC, 2019c). According to the CDC (2019c), mucous membranes are found inside the rectum, vagina, penis, and mouth.

Additionally, HIV transmission may occur if an individual uses a contaminated syringe and needle and directly injects it into their bloodstream (CDC, 2019c). Needle sharing serves as another risk when individuals reuse contaminated or infected needles and syringes. Having an STD increases an individual's risk of contracting HIV and transmitting it to others (CDC, 2019c). The only way that a person's status is known is through testing. Many of these STDs, including HIV, can be asymptomatic.

HIV Prevention Strategies

Primary Prevention Strategies

HIV treatment is a powerful tool for preventing sexual transmission of HIV. According to the CDC (2019), treatment is useful if the individual with an HIV-positive partner obtains and keeps an undetectable viral load. A viral load is the amount of HIV in the blood of someone who is HIV positive (HIV +; CDC, 2019c). Peer educators are

essential when educating the public about HIV prevention. Peer educators visit local bars, beer gardens, hotels, STD clinics, and worksites to provide AIDS prevention education and distribute free condoms (Cohen & Trussell, 1996). Getting people to change their behaviors, such as choosing sexual partners, is not impossible, yet getting people to modify their behaviors such as sexual practices is more challenging (Cohen& Trussell, 1996). National HIV awareness and education campaigns have reached high-risk individuals, such as men (Healthy People, 2019). Campaigns such as "Doing It" has targeted this population. "Doing It" provides information about where to get tested, what if you are HIV+, what is PrEP, and what is the risk of getting HIV (CDC, 2019c). These messages were disseminated through leaflets, badges, stickers broadcasted on radios and television, published in newspapers, and displayed on billboards (Healthy People, 2019). Pre-exposure prophylaxis (PrEP) is a prescription drug that can help decrease the risk of getting HIV through sexual contact when taken daily and used together with safe sex practices (Gilead Science, 2020). Pre-exposure prophylaxis (PrEP) is a way for individuals who do not have HIV yet and are at high risk of contracting HIV to prevent becoming infected (CDC, 2019). Individuals can use PrEP as a means of primary prevention by taking one pill every day. The PrEP pill Truvada contains two medications (Tenofovir and Emtricitabine) that are used in combination to treat HIV (CDC, 2019). When individuals are exposed to HIV through sex, injectable drug use, or other risky behaviors, medications work to keep the virus from establishing a permanent infection (CDC, 2019). PrEP is a highly effective prevention strategy. According to the CDC (2019), studies have shown that PrEP reduces the risk of contracting HIV from sex, about

99% if taken daily. Furthermore, injectable drug users who take PrEP have shown a 74% risk reduced when taken daily (CDC, 2019).

Secondary Prevention Strategies

According to Healthy People (2020), recent scientific advances of antiretroviral therapy (ART) can help reduce the risk of transmitting HIV to others by about 93%. ART can help control the virus from progressing. ART is used as an HIV medication to treat HIV infections, and this therapy has been recommended for everyone who has HIV (NIH, 2019). Through this treatment, ART helps people live longer, healthier lives and helps to reduce the spread of HIV transmission. (NIH, 2019). People with HIV should start ART immediately, especially if pregnant or have other HIV-related illnesses and coinfections. Before starting ART, people with HIV should talk with their healthcare providers about medication adherence (NIH, 2019). Taking ART as prescribed facilitates a low viral load that the test cannot detect, which is known as an undetectable viral load (CDC, 2019). Studies have shown that PrEP reduces the risk of contracting HIV from sex by about 99% when taken daily (CDC, 2019). In 2010, the National Institute of Allergy and Infectious Disease (NIAID) conducted a clinical trial on PrEP using a randomized controlled trial of daily Truvada usage. The study consisted of 2,500 men; however, since many participants did not take the medication daily as prescribed, the reduced risk in the total population was 44%. (NIH, 2019) Men who had detectable drugs in their blood indicated that they were taking Truvada regularly and had a 92% lower risk of acquiring HIV infections than those who received a placebo (NIH, 2019). Supporting individuals that are HIV + with adherence to their HIV medication and facilitating the maintenance

of viral suppression is the more effective way to reduce the risk of HIV transmission (CDC, 2019). Furthermore, counseling on issues such as how to negotiate safer sex and to use condoms with other partners may also decrease the spread of HIV (CDC, 2019).

Health Literacy

Patients' literacy directly influences their access to crucial health information about their rights on their health care. Literacy could consist of following instructions for care, taking medicine, comprehending disease-related information, or learning about disease prevention and health promotion (Rudd, Colton, & Moeykens, 1999). Research shows that health literacy is a strong predictor of health outcomes based on age, race, or income (Kuczmarski, 2016). According to Kuczmarski (2016), substantial evidence supports the link between low health literacy and poor management of chronic diseases. In addition, evidence has shown that unpleasant health consequences may result from inadequate health literacy (Jayasinghe et al., 2016).

According to Thompson et al. (2007), AA men also noted that they did not feel welcome to doctor offices, community clinics, hospitals, and health fairs to receive health information where it was available. In addition, AAs may lack of trust due to a legacy of mistreatment at the hand of medical professionals such as the Tuskegee syphilis experiment helps exacerbate current health disparities (Jacobs et al., 2006). However, these issues aren't well understood, and that this plays a massive role in their attitude toward their health and health information-seeking behaviors.

The validity of health literacy tools used amongst AAs is vital given the potential introduction of biases; researchers use instruments that haven't been validated for this

population (Nyguyen et al., 2015). For example, according to Nyguyen et al. (2015), measurements developed using methods associated with test theories result in reliability estimation that is highly dependent on the sample and requires extensive validation before use in other populations (Nyguyen et al., 2015). HIV testing behaviors among AAs vary based on the different populations (Rikard, R. K., Head, R., & Thompson, M. (2016). Lower education attainment is the potential barrier for AA Males relating to HIV testing; these individuals at higher risk of HIV may not request or consent to being tested because they may not understand the information presented to them (Barragan et al., 2005).

Cultural beliefs and perceived barriers are significant challenges related to HIV testing among AAs (Rikard, Head, & Thompson,2016). Cultural beliefs, trust, fear of HIV-positive status, stigma, and misinformation are significant barriers to HIV testing among AAs (Rikard, Head, & Thompson,2016).

The practice of culturally and linguistically appropriate, clear communications that empower clients in the decision-making process can enable more effective adherence to health recommendations, promote healthful choices, reduce medical errors, and heighten client safety and well-being (Mark, 2009). According to Palumbo (2015), health literacy is an individual trait that concerns obtaining, processing, and understanding necessary health information to navigate the health system (Palumbo 2015) effectively. Low literacy patients are usually lower-income individuals living in rural areas. Low-income individuals are perceived as unwilling to seek care; they have a higher hospitalization rate, higher disease rates such as obesity, heart disease, and HIV/AIDS.

According to the Institution of Medicine and the federal government, health literacy is where individuals obtain and understand health information needed to make health decisions for quality healthcare (Fernandez et al., 2016). Limited health literacy has consistently been a strong predictor of poor health outcomes (Fernandez et al., 2016). Individuals with low health literacy underuse preventive services and have higher rates of emergency use and hospitalization (Kluwer, 2014).

History of HIV Testing

In the late 1980s and early 1990s, HIV swept across the United States and the world. A primary concern during this epidemic was the lack of a test to effectively identify who carried the virus (Alexander, 2016). In the 1980s, the face of HIV was European American and male; however, in the 2000s, the beginning of HIV became AA (Alexander, 2016). In 1981, the first AIDS case was reported; yet HIV was not discovered until 1984, and ELISA, the first HIV test, did not become available until 1985 (Kramer, 2019). The ELISA blood test looked at HIV antibodies; testing for antibodies meant that an individual had already been infected with HIV for three to twelve weeks (Kramer, 2019). In 1987, the Western Blot was discovered through advancement and technology and proved to be more accurate. (Kramer, 2019). The Western Blot test consisted of a blood draw which would confirm a positive test result depending on the individual's antibodies (Kramer, 2019). Later in the 1980s, the second and third-generation HIV tests were implemented. These tests were faster, more accurate, and had greater reliability. Additionally, the third-generation test looks at the antibodies as well as

for HIV-1(which is most common in the United States) and HIV-2 (more common in West Africa) (Kramer, 2019).

HIV remains a major public health concern worldwide, especially in young people who are not tested because of perceived invincibility. According to Alexander (2016), no discussion about the evolution of HIV testing can be completed without examining the social stigma associated with HIV infection and testing, the issue of mandatory versus voluntary testing, and legal restrictions concerning the release of HIV testing-related information. CDC recommends routine HIV screening for all ages 13 to 64 years and repeated screening for higher risk levels (KFF, 2019). OraQuick is a test that lets an individual know their HIV status on the same day. Although HIV is no longer a death sentence, many individuals are still afraid to get tested because of their fear and stigma.

HIV Testing

HIV Testing in Community and Private Settings

Community-based health organizations are familiar places where some individuals go to get free HIV testing. Community-based health organizations serve populations at high risk for HIV infection and other infections, and they are well-positioned to offer HIV counseling and testing tailored to a member of these high-risk groups (Clark et al., 2008). For example, AA male college students face barriers to access testing in a clinical setting, such as lack of transportation, the reluctance of visiting HIV and STD clinics, and some lack of knowledge and lack of access to a clinic outside of regular business hours (Clark, Bowles, et al., 2008). Studies have shown that offering

HIV counseling and testing in community and outreach settings is an effective strategy for identifying people unaware of their HIV status (Clark et al.,2008). In the early 2000s, in the 50 states and territories that reported HIV testing data to the CDC, nearly 2% of people tested in the outreach settings were positive for HIV (Clark et al.).

Furthermore, some studies of HIV testing among high-risk individuals in a non-clinical setting found that higher rates of HIV seroprevalence range from 4% up to 25% (Clark et al.). In 2010, the State of New York passed a law that requires HIV testing to be done by primary care providers to routinely offer HIV testing to patients aged 13-64 years, regardless of risk (Ortega- Peluso et al., 2015). Private health care providers have a significant influence on the decision of HIV testing by engaging with their patients about HIV testing (Ortega-Peluso et al., 2015). However, a considerable gap in using these models identified that HIV risk had been observed, including low perceived sexual risk and lack of experience discussing HIV (Ortega- Peluso et al., 2015).

Insurance Coverage

Lack of insurance is a barrier to testing for HIV in private practices. Coverage and income levels are disparities in health care for AA youth, and they are less likely to have access to healthcare services than adults (Schnall, Rojas, & Travers, 2015). Racial and ethnic disparities in health insurance coverage rates account for a large share of the difference in access to health care (Sohn, 2017). AA and Hispanic individuals in the US are more likely to be uninsured throughout adulthood, according to Shon (2017), than non-Hispanic individuals.

Without insurance coverage, individuals face barriers to receiving health services and treatment. Sohn (2017) states that inconsistent or unstable insurance coverage also has negative consequences. Socioeconomic characteristics such as income, employment, citizenship, and language barriers are associated with non-insurance that are more prevalent in minority populations (Sohn, 2017). A prior study finds that AAs and Hispanics are more likely to lose their existing insurance coverage; however, the disparities could not wholly explain the difference in educational attainment, income, and employment (Sohn, 2017). Lack of knowledge of insurance coverage could cause college students not to get tested because of fear of their testing results being on their parent's insurance. Uninsured students and graduates face high and enduring education-related costs due to having minimal budgets for health insurance coverage (Pennamon, 2018). Research has shown that if medical insurance is not under $100 per month, most students were forgoing health coverage and be uninsured (Pennamon, 2018). However, many students have little knowledge of health. Without insurance, they may feel as if they cannot get tested for HIV. The burden of risk factors for chronic disease is substantially higher in AA men than their European American counterparts (Elsevier, 2018). The study identified barriers of not getting tested, including lack of terminology understanding, healthcare system distrust, reluctance to seek medical care, and unfavorable attitudes towards research (Elsevier, 2018). According to Elsevier (2018), healthcare system distrust and concerns about misuse of personal health information were some main barriers.

HIV Testing on a College Campus

HIV testing on college campuses can be challenging due to the location of testing sites, stigma, and lack of knowledge about testing. Approximately 40% of all new HIV infections in the United States occur among adolescents and young adults under 29; most are from sexual activities (Przybyla, 2013). Adolescents and young adults are the fastest-growing groups living with HIV in the United States (Schnall, Rojas, & Travers, 2015). Two main factors could contribute to this: a lack of awareness, never being tested, or failure to get results after an HIV test (Praybyla, 2013). A study in New England studied why students did not get tested for HIV in the academic year (2010-2011). The school survey found that less than five percent of students tested at their local health center. According to Patel et al. (2013), a significant barrier to HIV testing was the cost and availability of rapid antibody testing. One-third of the college health medical directors reported that their practitioners might not feel comfortable recognizing acute HIV infections (Patel et al., 2013). The study also found that no schools had a clear guideline that indicated where and which students should or should not be offered HIV antibody testing (Patel et al., 2013). Patel et al. (2013) stated that no school routinely tested all students or provided an opt-out testing method (where all incoming students are tested for HIV unless explicitly decline). Many public health advocates argue that rapid HIV testing was continuing to revolutionize. It is crucial to have availability for HIV testing to those at risk; it is essential to increase the proportion of HIV-positive individuals who are aware of their status (Praybyla, 2013).

Barriers to HIV Testing

Early treatment and proper HIV education can help prevent individuals from contracting HIV (CDC, 2019). It also can help prevent the spread of other diseases. HIV diagnoses among gay and bisexual men have increased over the past decade (Clark, Bowles, Song, and Heffelfinger, 2008). HIV infection remains a major global health issue among men (gay and bisexual) (Clark, Bowles, Song, and Heffelfinger, 2008). Clark, Bowles, Song, and Heffelfinger (2008) found in 2012, there were an estimated 1.6 million AIDS-related deaths and 35.3 million people living with HIV infection worldwide. According to a study conducted by Clark, Bowles, Song, and Heffelfinger (2008), barriers to HIV testing commonly reported by community-based organizations are psychological barriers (e,g., lack of perceived risk, fear of positive results, and concern about confidentiality) and structural barriers (e.g., finding time to test, having to return for results and the cost as well as the location of testing. Przyblya (2013) states, to increase HIV testing rates and reduce the fear associated with testing, practitioners must work to normalize the testing process, which in turn should decrease the stigma associated with testing-seeking behaviors. HIV disproportionately affects minorities and males more than women in the United States (Schnall, Rojas, & Travers, 2015). Early detection of HIV is vital in avoiding the increase of transmission and linkage to patient care to help decrease morbidity and mortality (Schnall, Rojas, & Travers, 2015). According to Schnall, Rojas, & Travers (2015), AA youth between the ages of 13-24 are particularly affected, accounting for nearly one-third of new infections, higher rates of infections than other races and ethnicities.

Understanding Health Information

A growing amount of literature documenting the gap between expectations and the actual performance of behaviors related to participation in health care and prevention (Adams 2010). Encouraging patients to ask questions has impacted clinical decision-making. This approach is based on three goals: eliciting the patient's perspective on their illness, understanding the patient's psychological context, and reaching shared treatment goals based on their values (Hashim, 2017). For example, having open-ended questions will help understand the patient's perspective of their illness. In addition, expressing empathy, concerns, and feeling is the key to great communication between patient and provider (Hashim, 2017).

According to the literature, there is a clear presumption that low literacy and numeracy limits health communication between doctors, nurses, and other health professionals (Adams, 2010). Understanding health information also impacts social determinants of health (as functional literacy) due to the influence of socioeconomic status, employment, and ability to access services (Adams,2010). Functional health literacy has been identified as a predictor of self-efficacy in diabetes and HIV self-care and is linked to positive health outcomes. According to Adams, (2010), 45% of adults are at risk for limited health literacy, which means that people with adequate general literacy may also have difficulty applying specific health contexts. `There is evidence that adults with limited health literacy are less likely to ask a clinician a question (Adams, 2010). According to Adams (2010), men with lower health literacy skills are four times more

likely to refuse preventive screenings, even if recommended by their physicians (Adams,2010).

Definition of Terms

Health Insurance coverage: Legal entitlement to payment or reimbursement for your health care costs, generally under a contract with a health insurance company, a group health plan offered in connection with employment, or a government program like Medicare, Medicaid, or the Children's Health Insurance Program (CHIP) (U.S. Centers for Medicare & Medicaid, 2019).

Sexually transmitted disease (STD) status: a person's history of infectious disease contracted during sexual contacts such as gonorrhea, syphilis, trichomonas, herpes, and HIV, any bacteria, parasite, or viral disease (NIH,2019).

Health literacy: The degree to which individuals can obtain, process, and understand necessary health information and services needed to make appropriate health decisions (UCMMS,2019).

Acquired immunodeficiency syndrome (AIDS): AIDS is the most advanced stage of HIV. Persons with AIDS have a CD_4 count of fewer than 200 cells/mm3 (NIH, 2019).

Human immunodeficiency virus (HIV): A virus spread through certain body fluids that attacks the body's immune system, specifically the CD_4 cells, often called T cells (CDC, 2019).

Pre-exposure prophylaxis (PrEP): Treatment for people who do not have HIV but are at very high risk of getting HIV to prevent HIV infections. The pill (brand name

Truvada) contains two medicines (tenofovir and emtricitabine) that are used in combination with other drugs to treat HIV (CDC, 2019)

Antiretroviral therapy (ART): The daily use of a combination of HIV medicines (called an HIV regimen) to treat HIV infection. A person's initial HIV regimen generally includes three antiretroviral (ARV) drugs from at least two different HIV drug classes. (CDC, 2019)

Men who have sex with men: MSM is a term introduced in 1992 to attempt to capture a range of male-male sexual behaviors and avoid characterization of the men engaging in these behaviors by sexual orientation (bisexual, heterosexual, or gay) or gender identity (male, female, transgender, queer). (Beyrer, &Baral, 2012).

Primary prevention: the process of intervening before health effects occur, through measures such as vaccinations, altering risky behaviors (poor eating habits, tobacco use), and banning substances known to be associated with a disease or health condition (CDC, 2019).

Secondary prevention: the process of screening to identify diseases in the earliest stages, before the onset of signs and symptoms, through measures such as mammography and regular blood pressure testing (CDC, 2019).

Stigma: the negative beliefs and attitudes associated with a specific situation, characteristic, condition, or person. HIV stigma can negatively affect the health and well-being of people with HIV (NIH, 2019).

Medication adherence: Taking medication (or other treatment) precisely as instructed by a health care provider. The benefits of strict adherence to an HIV regimen

include sustained viral suppression, reduced risk of drug resistance, improved overall health and quality of life, and decreased risk of HIV transmission (NIH, 2019).

Assumptions

People living with HIV/AIDS experience enacted stigma and are subjected to a plethora of unpleasant treatment that includes discrimination, social ostracism, and violence (Campbell et al., 2005; Herek, Capitanio & Wiadman, 2002; Judgeo, &Moalusi, 2014). Individuals who are HIV positive are more likely to experience stigma from their health care providers, their family friends, and their communities (Campbell et al., 2005; Herek, Capitanio & Wiadman, 2002; Judgeo, &Moalusi, 2014). HIV discrimination is often fueled by myths of casual transmission of HIV and pre-existing biases against certain groups, certain sexual behaviors, drug use, and fear of illness and death (CDC, 2019). The study is based on data collected through BRFSS, a national cross-sectional telephone survey. It is assumed that respondents were open and honest about their health practices.

Scope and Delimitations

In this study, the researcher was examining the uptake of HIV testing among AA male college students. The study only investigated AA males in college between the ages of 18-23. There is a concern that the findings are limited in that the analysis only includes secondary data with predetermined items.

Significance

In summary, HIV interventions are essential in the younger populations; college and university settings offer excellent opportunities to reach this targeted group.

Unfortunately, the spread of HIV seems to increase in this age group continuously. From 2011 through 2015, the number of HIV diagnoses among AA women seem to decrease a little; however, HIV diagnoses amongst AA men represented the majority of newly diagnosed (Wolitski, 2018). In 2016, over half (58%) of AAs diagnosed with HIV were young men (Wolitski,2018). The challenge is improving trust efforts to connect us better with the AA male population at high risk of HIV.

Summary and Conclusion

The literature review provided evidence that many students are not getting tested on college campuses because of perceived invincibility and the perception that it can never happen to them. Patel et al. (2013) found no opt-in, opt-out testing method for new and transfer students. Barriers to HIV and STD testing, such as cost and availability, should be addressed. The following section provides a detailed description of the research questions, research design, and methodology.

Section 2: Research Design and Data Collection

Introduction

The purpose of the study was to examine variables that may influence the uptake of HIV testing among AA male college students. HIV testing is the primary tool for HIV prevention. According to the CDC, approximately 19 million new STDs occur each year, almost half of them among young people aged 15 to 24 because of multiple sex partners (Woolston, 2019). While sexual health information is vital in preventing HIV and STDs, it is often neglected among college-age adults. As a result, AA young adults and specifically AA men are disproportionately affected by HIV/AIDS and often unaware of their risk for HIV (Sutton et al., 2011). This section provides an overview of the study research design, rationale of data collection, and data analysis. In addition, the methodology, population, sampling, sampling procedures, and summary of key points are discussed.

Research Design and Rationale

For this quantitative study, I used a cross-sectional study design to test the relationship between the independent variable's location of the testing site, insurance coverage, number of sexual partners, and number of STDs and the dependent variable of uptake of HIV testing among AA male college students. The design was used because it is well-suited to determine the relationship between the dependent and independent variables. For this study, data from BRFSS) for 2016 and 2017 was collected using telephone surveys. The questionnaire collected different information from the respondents, such as sociodemographic, HIV-related questions, sexual behaviors,

insurance-related questions, and so forth. In this questionnaire, the participants described their attitudes, opinions, behaviors, and experiences, which characterized the population related to STD and HIV.

Methodology

Population

BRFSS collects data in all 50 states, including the District of Columbia and three U.S. territories (CDC, 2019). BRFSS completed more than 500,000 interviews each year with health survey systems in the world (CDC, 2019). The telephone surveys collected information from adults 18 years or older.

Sampling and Sampling Procedures

BRFSS used a disproportionate stratified sample (DSS) for landline phones and a single stratified sample for a cellular telephone. There were three types of calculated variables used in the telephone survey data: variables used to stratify and weigh the data, intermediate variables derived from the response to a question, and variables used to categorize or classify respondents (CDC, 2019b). The researchers used a combination of landline telephone and cellular phone data from 2016-2017, split into three versions to have a wide range of questions in each module (CDC, 2019b). The split version was used as a subset of telephone numbers from the data collection that followed the sample design and administrators of the state BRFSS sample (CDC, 2019b). In the telephone survey, samples were one telephone number in a list of all telephone numbers the system randomly selected for dialing (CDC, 2019b). According to the BRFSS, 51% of projects used a disproportionate stratified sample design for their landline samples.

BRFSS divided the telephone number into two strata that were sampled separately. The high-density and medium-density strata contained telephone numbers expected to belong to most households (CDC, 2019b). The telephone number was in sets of 100 with the same area, codes, prefix, and first two digits of the suffix and possibly the last two digits (CDC, 2019b). Cellular telephone sampling frames were commercially available through random sampling of phone numbers known as the Telcordia database of telephone exchanges (CDC, 2019b).

The sampling used dedicated cellular, 1,000 banks sorted based on area code and exchange within a state (CDC, 2019b). The survey questions lasted an average of 17 minutes. The questionnaire has three parts: (a) the core competencies, consisting of the fixed core, rotating core, and emerging core; (b) optional modules; and (c) state-added questions (CDC, 2019b).

Missing and unanswered responses in the study were possible because of telephone surveys. In research, missing data is a rule rather than an exception (Dong & Peng, 2013). According to Dong & Peng (2013), the missing rated of 15% to 20% are very common; it was found that 36% of the study had no missing data, 48% had missing data, and about 16% could not be determined or insufficient. I performed a power analysis to determine the sample size needed to conduct the appropriate statistical test. Running a power analysis helps to support the relevant effects of inferential statistics (Hunt, 2020). The purpose of the power analysis was to determine the smallest sample size suitable to detect the levels of significance of HIV testing on college campuses (Statistics Solutions, 2019b). The sample size estimation was based on data from the

BRFSS. The projected sample size was approximately $N = 100$ between-group comparison (Hunt, 2020). However, if there are 100 in the sample size (power of .80) and 50 more subjects are added per group, there would be a power of .95, increasing the power by .15 (University of California, Los Angeles Institute for Digital Research and Education, 2020). Using the power analysis was necessary for this study because it comprised the level of statistical significance or alpha level, the power level, and the effect size. The power analysis precisely helped to identify the statistical outcomes of this study. If the sample size is too small, the study will be underpowered, leading to a potential error (Salkind, 2010). The power analysis is relevant in interpreting data and showing associations between each variable. This study had a high chance of detecting a difference between each variable.

Experience has shown that the larger the sample size, the easier it is to achieve the .05 level of significance (Statistics Solutions, 2019a). Having a .05 significance level helps reduce the possibility of a Type 1 error, rejecting the null hypothesis when it is true (Statistics solutions 2019a). However, if the sample size is too small, that can lead to Type II error due to insufficient power (Statistics Solutions, 2019a). Having a Type II error could lead to failing to reject the null hypothesis when it is false (Creswell, 2009). However, if the null hypothesis is true, a given sample result is not expected to mirror the fact precisely (Cohen, 2009). For example, a true null hypothesis probability is to say that the results are statistically significant, and if too small, then it is said to reject the null hypothesis. The power of a statistical test depends on three parameters: (a) the significance criterion, (b) the reliability of the sample results, and (c) the effect size, that

is, the degree to which the phenomenon exists (Cohen, 2009). The sample size in this data set is assumed to provide sufficient power to investigate the research questions. Therefore, the alpha level was set at 0.05 (Type I error) to reject the null hypothesis when it is true and set at a beta of 0.20 (Type II error) to accept the null hypothesis when it is false. However, I could not obtain the correct sample size for AA males or conduct a power calculation without access to the BFRSS dataset (2016-2017) and Institutional Review Board (IRB) approval.

Instrumentation and Operationalization of Constructs

Through the application of the HBM, key variables were used to identify the relationship between uptake of HIV testing on college campuses among AA male college students. The following variables were explored:

Table 1

Operationalization of Constructs

Variables of interest	BRFSS questionnaire item	Health belief model constructs	Research question
Uptake of HIV testing (dependent variable)	Have you ever been tested for HIV	Health behavior	Is there a statistically significant relationship between (a) the number of sexual partners, (b) STD status, (c) insurance coverage, and (d) risky sex and the uptake of HIV testing among AA male college students?
Alcohol consumption (independent variable)	During the past 30 days, how many days per week or per month did you have at least one drink of any alcoholic beverage such as beer, wine, a malt beverage, or liquor?	Perceived risk	Is there a statistically significant relationship between alcohol consumption and the uptake of HIV testing among AA male college students?
STD treatment (independent variable)	Have you have been treated for a sexually transmitted (STD) or venereal disease in the past year.	Perceived severity	Is there a statistically significant relationship between (a) number of sexual partners, (b) STD status, (c) insurance coverage, and (d) risky sex and the uptake of HIV testing among AA male college students?
Risky sex (without a condom independent variable)	You had anal sex without a condom in the past year.	Perceived risk	Is there a statistically significant relationship between (a) number of sexual partners, (b) STD status, (c) insurance coverage, and (d) risky sex and the uptake of HIV testing among AA male college students?
Number of sexual partners (independent variable	You had four or more sex partners in the past year. Do any of these situations apply to you?	Perceived risk	Is there a statistically significant relationship between (1) number of sexual partners, (2) STD status, (3) insurance coverage, (4) risky sex, and the uptake of HIV testing among AA male college students?
Health literacy (independent variable)	How difficult is it for you to get advice or information about health or medical topics if you need it?	Perceived barrier	Is there a statistically significant relationship between health literacy, and the uptake of HIV testing among AA male college students

Data Analysis Plan

The researcher gained access to the dataset by submitting an IRB application to the Walden University Research Office. Once approved, the researcher sent a request to the Alabama Department of Public Health to the Health Promotion and Chronic Disease Coordinator for data from the health promotion and chronic disease department. Chi-square and logistical regression tests were used to answer the research question. In addition, the Statistical Package for the Social Science (SPSS)software was used to conduct descriptive statistics using the BFRSS data.

Research Questions and Hypothesis

The research questions helped define the study's scope and influence the appropriate research design (see Burkholder et al., 2016).

RQ1: Is there a statistically significant relationship between (a) the number of sexual partners, (b) STD status, (c) insurance coverage, and (d) risky sex and the uptake of HIV testing among AA male college students?

$H_0$1: There is not a statistically significant relationship between (a) the number of sexual partners, (b) STD status, (c) insurance coverage, and (d) risky sex and the uptake of HIV testing among AA male college students

H_a1: There is a statistically significant relationship between (a) number of sexual partners, (b) STD status, (c) insurance coverage, and (d) risky sex and the uptake of HIV testing among AA male college students.

The research questions listed above represent multiple variables. It is necessary to use multiple regression analysis to determine if the uptake of HIV testing is affected by

any of the variables. Using multivariate analysis shows that these variables may be correlated, and their statistical dependence is often considered when analyzing such data (Sampson, 2018). These research questions were designed to assess the relationship between the dependent and independent variables. Logistic regression is an appropriate statistical test because the dependent variable is dichotomous. Variables 1-4 are predictor variables to explain the uptake of HIV testing. Using a statistical test helped to see if the predictor has a relationship with the uptake of HIV testing. By running the logistic regression, shows there is a significant difference between the four variables. There is a probability of a relationship between logistic regression and chi-square analysis. The 2X2 contingency analysis with chi-square is a special case of logistic regression, which is analogous to the relationship between ANOVA and linear regression (Jason, 2020). To determine the findings, I used SPSS version 25.

RQ2. Is there a statistically significant relationship between alcohol consumption and the uptake of HIV testing among AA male college students?

$H_0$2: There is not a statistically significant relationship between alcohol consumption and the uptake of HIV testing among AA male college students

H_a2: There is a statistically significant relationship between alcohol consumption and the uptake of HIV testing among AA male college students

Descriptive and inferential statistics were used to explore the variables. Alcohol consumption, which is dichotomous, is defined as heavy drinkers and those who are not. Those who consumed alcohol 1-5 years are more likely to have never been tested for HIV than those who don't drink and abstainers (Fatch et al., 2012). Once data were analyzed,

there was a significant difference between the dependent and the study's independent variables.

RQ3: Is there a statistically significant relationship between understanding health information and the uptake of HIV testing Among AA male college students?

$H_0$3: There is no statistically significant relationship between understanding health information and uptake of HIV testing Among AA male college students?

H_a3: There is a statistically significant relationship between understanding health information and the uptake of HIV testing Among AA male college students?

Descriptive and inferential statistics were used to examine the relationship between understanding of health information and the uptake of HIV testing. In addition, a logistic regression test was conducted to determine the association between health literacy and the uptake of HIV testing.

G-Power

According to Creswell (2009), a power analysis must be calculated to determine the sample size and identify the study findings precisely. A power analysis includes the level of statistical significance or the alpha level, the power level, and the effect size. Frankfort-Nachmias and Leon-Guerrero (2015) suggest that the rationale for choosing the statistical significance or alpha level at 0.05 was to reduce the Type 1 error, which is the probability of rejecting the null hypothesis wrongly or when it is true (false positive). The power level is required to determine the true effect and using the power level at medium was to reduce the Type 2 error. This means that there is a probability of failing to reject

the null hypothesis or accepting the null hypothesis when it is false (false negative) (Creswell, 2009).

I calculated the power using the G*Power software 3.1 to determine that the sample size for the study was adequate to detect an effect. The G *Power calculates that the given sample size for multiple linear regression is n= 85. The required minimum for this research study with a parameter effect size of 0.15, alpha at 0.05, and beta power at 0.08 with several predictors of 5 predicators. The total sample size of n= 140 has an achieved power of 0.94

The minimum sample size that would confidently power the study was 140 participants.

Threats to Validity

Internal Validity

Threats to validity can be internal as well as external. Threats to internal validity mean that there is more certainty that the intervention or program did cause the effect observed, and the effect is not due to other causes. External validity can mean that generalizing a finding may be wrong but deals with the approximate truth of the conclusion (University of Minnesota, 2019). This study uses secondary data; this data is not an experimental or quasi-experimental design concern of external validity. This study uses multiple measures to reduce the possible effects of validity by using both landline phones and cellular phones. The study applies sufficient statistical power to measure the significant difference between the study and random control groups from landlines and cellular phones. Internal validity indicated legitimate results because of how groups were chosen and how data was recorded and analyzed (Monhanjan, 2017). Standard reporting

from this study will be using comparable evaluation measures from each study group of phone surveys that used appropriate control groups (Monhanjan, 2017). More than 350,000 adults are interviewed each year with a response ranging between 39% and 67%; unadjusted response rates ranged between 19% and 62%, depending on the state and survey year (Healthy People, 2014). Measures included data collected separately by each state, and the design used state-level random digit dialed probability samples of adults age 18 years or older (Healthy People, 2014). The researchers used a disproportionate stratified sample design consisting of three parts using computer-assisted telephone interviewing systems to administer the surveys (Healthy People, 2014).

Additionally, data were weighted for no coverage and nonresponse (Healthy People, 2014). In this study, confounding variables threaten internal validity affecting the cause and effect between uptake of HIV testing on college campuses amongst AA male students, which helps eliminate alternative explanations of the findings. In conclusion, this was not a considerable threat to validity.

External Validity

External validity shows whether the results given by the study are transferable to other groups of interest (Monhanjan, 2017). However, the validity of this study depended on the choice of the population and on the extent to which the study sample mirrored the given population, for example, testing the hypothesis that AA males could not represent the whole population of AA male students at university. Therefore, the findings can only reasonably be generalized to a population that shares characteristics of the participants, e.g., AA college male students (Bhandari, 2020). Threat to external validity can seriously

threaten the study if biases or other limitations exist in the accessible population (Monhanjan, 2017).

Construct Validity

The construct of validity is about making sure the methods of measurements match the construct that is being measured (Middleton, 2020). For example, asking AA male college students their behaviors to get a test for HIV, does the questionnaire measure the construct of measurements of the hypothesis. The construct should involve testing a scale in terms of theoretically derived hypotheses concerning the nature of the underlying variable of a construct (Monhanjan, 2017). The operationalization of the construct develops a series of measurable behaviors that are hypothesized the relationship between the construct of interest (uptake of HIV testing) and related behaviors (Monhanjan, 2017). The purpose of establishing reliability and validity in research is essential to ensure that data are sound and replicable, and the results are accurate (Monhanjan, 2017).

Ethical Procedures

Telephone surveys can allow respondents and interviewers to feel more relaxed and able to disclose sensitive information freely. BRFSS data is protected and encrypts. The only way to obtain this data was by completing an application and getting Walden University IRB approval. Once approved by IRB (approval number 01-15-21-0177497), the researcher requested access to the dataset by contacting the Alabama Department of Public Health, and data was made available within 5 to 7 days of the request. The researcher used SPSS V25 to analyze the dataset. Data were kept safe in a confidential

place, and all data were to be password protected. Although these data were publicly available, participants are anonymous and identified by unique identifiers. I used an external hard drive to save data regularly, and I stored the USB external drive in a locked box.

Summary

In this section, I described the data collection methodology and data analysis plan. The analysis includes BRFSS data collected between 2016 and 2017 to address the research questions and hypotheses. In the next section, I will describe the results of the analysis and study findings.

Section 3: Presentation of the Results and Findings Section

Introduction

The purpose of the quantitative study was to investigate the relationship between the uptake of HIV testing among AA male college students and factors such as the number of sexual partners, STD status, insurance coverage, risky sex, alcohol consumption, and health information. The research questions of interest hypotheses were:

RQ. 1. Is there a statistically significant relationship between (a) the number of sexual partners, (b) STD status, (c) insurance coverage, and (d) risky sex and the uptake of HIV testing among AA male college students?

$H_0$1: There is not a statistically significant relationship between (a) the number of sexual partners, (b) STD status, (c) insurance coverage, and (d) risky sex, and the uptake of HIV testing among AA male college students.

H_a1: There is a statistically significant relationship between (a) number of sexual partners, (b) STD status, (c) insurance coverage, and (d) risky sex, and the uptake of HIV testing among AA male college students.

RQ2. Is there a statistically significant relationship between alcohol consumption and the uptake of HIV testing among AA male college students?

*H*02: There is not a statistically significant relationship between alcohol consumption and the uptake of HIV testing among AA male college students

H_a2: There is a statistically significant relationship between alcohol consumption and the uptake of HIV testing among AA male college students

RQ3: Is there a statistically significant relationship between understanding health information and the uptake of HIV testing Among AA male college students?

$H_0$3: There is no statistically significant relationship between understanding health information and uptake of HIV testing Among AA male college students?

H_a3: There is a statistically significant relationship between understanding health information and the uptake of HIV testing Among AA male college students?

In Section 2 I detail the data collection process for the BRFSS dataset. The actual research results and findings were obtained from the data analysis and summarization. The initial analysis was descriptive using inferential statistics to examine the relationship between understanding health information and the uptake of HIV testing. Next, a logistic regression test was conducted to determine the association between health information and the uptake of HIV testing.

Data Collection of Secondary Dataset

The power analysis was calculated using the G*Power software 3.1 to determine the sample size for this study before receiving the actual data from BRFSS. The G*Power calculation revealed that the sample size for multiple linear regression was $N = 85$. According to BRFSS, the questionnaire has three parts: (a) core component consisting of the fixed core, rotation core, and emerging core; (b) optional modules; and (c) state-added questions (CDC, 2019b). BRFSS collects data in all 50 states, the District of Columbia, and the three U.S. territories. BRFSS completes more than 400,000 adult telephone interviews annually. Participants must be 18 years or older to participate in the

questionnaire. The questionnaire and sample responses were rated by year. The G*Power and actual data sample size differed. This information was detailed in Section 2.

An advantage of using secondary data is that data is already collected and available for use. However, a disadvantage is that the data may not answer the researcher's exact research questions or contain specific data elements that the researcher needs. In addition, despite the number of adults surveyed, the sample size was small. For example, four questions were related to the dependent variable “uptake of HIV testing” among AA male college students.

1. Have you ever been tested for HIV?
2. Do you have any health insurance coverage?
3. During the past 30 days, how many days per week or month did you have at least one drink of any alcoholic beverage such as beer, wine, a malt beverage, or liquor?
4. Have you ever been treated for an STD?

Table 2 shows the variables of interest, survey item, theoretical construct, and research question to understand the independent and dependent variables. The goal of using these variables was to determine the relationship between the independent variable and dependent variable to determine what factors influence the dependent variable.

Table 2

Study Variables

Variables of interest	BRFSS questionnaire item	Health belief model constructs	Research question
Uptake of HIV testing (dependent variable)	Have you ever been tested for HIV	Health behavior	Is there a statistically significant relationship between (a) The number of sexual partners, (b) STD status, (c) Insurance coverage, and (d) risky sex and the uptake of HIV testing among AA male college students?
Insurance coverage (independent variable)	Do you have any kind of health care coverage, including health insurance, prepaid plans such as HMOs, government plans such as Medicare, or Indian Health Service?	Perceived barrier	Is there a statistically significant relationship between (a) number of sexual partners, (b) STD status, (c) insurance coverage, and (d) risky sex, and the uptake of HIV testing among AA male college students?
Alcohol Consumption (independent variable)	During the past 30 days, how many days per week or per month did you have at least one drink of any alcoholic beverage such as beer, wine, a malt beverage, or liquor?	Perceived risk	Is there a statistically significant relationship between alcohol consumption and the uptake of HIV testing among AA male college students?
STD treatment (independent variable)	Have you have been treated for a sexually transmitted (STD) or venereal disease in the past year.	Perceived severity	Is there a statistically significant relationship between (a) number of sexual partners, (b) STD status, (c) insurance coverage, (d) risky sex and the uptake of HIV testing among AA male college students?
Risky sex (without a condom independent variable)	You had anal sex without a condom in the past year.	Perceived risk	Is there a statistically significant relationship between (a) number of sexual partners, (b) STD status, (c) insurance coverage, and (d) risky sex and the uptake of HIV testing among AA male college students?
Number of sexual partners (independent variable	You had four or more sex partners in the past year. Do any of these situations apply to you?	Perceived risk	Is there a statistically significant relationship between (a) number of sexual partners, (b) STD status, (c) insurance coverage, and (d) risky sex and the uptake of HIV testing among AA male college students?
Health literacy (independent variable)	How difficult is it for you to get advice or information about health or medical topics if you need it?	Perceived barrier	Is there a statistically significant relationship between health literacy, and the uptake of HIV testing among AA male college students

Results

The secondary data analysis findings addressed the following research questions.

RQ1: Is there a statistically significant relationship between (a) The number of sexual partners, (b) STD status, (c) insurance coverage, and (d) risky sex and the uptake of HIV testing among AA male college students?

$H_0$1: There is not a statistically significant relationship between (a) the number of sexual partners, (b) STD status, (c) insurance coverage, and (d) risky sex and the uptake of HIV testing among AA male college students

H_a1: There is a statistically significant relationship between (a) number of sexual partners, (b) STD status, (c) insurance coverage, and (d) risky sex and the uptake of HIV testing among AA male college students.

A bivariate, chi-square categorical variable was used to determine the outcome to the relationship between the independent and dependent variables. The chi-square test of contingency was used to answer the research questions based on the available data in the 2017 BRFSS dataset. Respondents did not answer some of the research question, which lead to some data not being available. The sample included AA (non-Hispanic) men between the ages of 18 and 29 years old. Approximately 75 men met the demographic criteria and were included in the analysis. The relationship between health insurance coverage and HIV testing among AA males between 18 to 29 years was not statistically significant, 2 (1) = 0.06, p = .81. Among the 75 men who met the demographic criteria, 43 males had health insurance, and most were tested for HIV (57.3%). The pattern was

similar among the 32 males who did not have health insurance; 42.7% were tested for HIV.

Table 3 below shows the frequencies for each category of the independent and dependent variables.

Table 3

Health Insurance and HIV/AIDS Testing

Case processing summary

	Cases					
	Valid		Missing		Total	
	N	Percent	N	Percent	N	Percent
Do you have health insurance coverage? * Ever been tested for AIDS	75	80.6%	18	19.4%	93	100.0%

Do you have health insurance coverage? * Ever been tested for AIDS Crosstabulation

			Ever been tested for AIDS		Total
			Yes	No	
Do you have health insurance coverage?	Yes	Count	32_a	23_a	55
		% within Do you have health insurance coverage?	58.2%	41.8%	100.0%
		% within Ever been tested for AIDS	74.4%	71.9%	73.3%
	No	Count	11_a	9_a	20
			55.0%	45.0%	100.0%

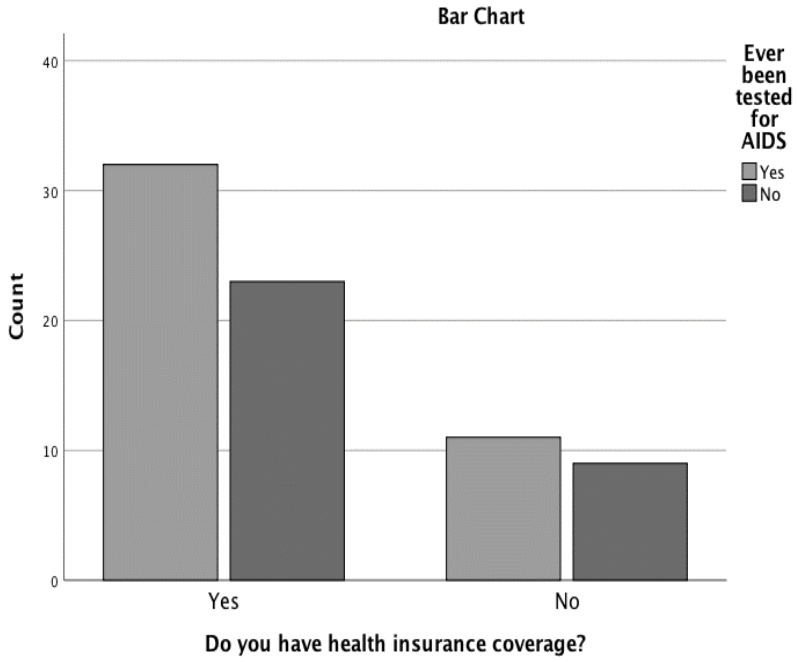
Symmetric measures

		Value		Approximate Significance
Nominal by nominal	Contingency Coefficient	0.028		0.805
N of valid cases		75		
		25.6%	28.1%	26.7%
Total		43	32	75
		57.3%	42.7%	100.0%
		100.0%	100.0%	100.0%

Note. **Each subscript letter denotes a subset of Ever been tested for AIDS categories whose column proportions do not differ significantly from each other at the .05 level.**

Figure 2

Health Insurance Coverage



In Figure 2, the categories are the number of respondents having health insurance coverage and ever getting tested for HIV in the above image. The separate bar represents each subgroup ever being tested. For example, approximately 32 males had insurance and were tested, and 11 males had insurance coverage and were not tested. Twenty-three respondents indicated no insurance and got tested, and nine respondents didn't have insurance and did not get tested. Thus, more individuals seem to get tested with insurance compared to those who have no insurance.

Having HIV/AIDS risk factors (injected non-prescribed drugs, treated for STDs, or given or received money or drugs in exchange for sex) are not significantly related to HIV/AIDS testing among African American men, χ^2 (1) = 0.76, p = .38. Among the 75

respondents who met the criteria, 42 males had HIV/AIDS risk factors; the majority were tested for HIV (56.8%). The pattern was similar among the 32 males who did not have HIV/AIDS risk factors, such that 43.2% were not tested for HIV. Table 3 shows the frequencies for each category of the independent and dependent variables.

Table 4

HIV/AIDS Risk Factors and HIV/AIDS Testing

Case Processing Summary

	Cases valid		Missing		Total	
	N	Percent	*N*	Percent	N	Percent
You have injected any drug other than those prescribed for you in the past year. You have been treated for a sexually transmitted disease or STD in the past year. You have given or received money or drugs in exchange for sex in the past year. * Ever been tested for AIDS	74	79.6%	19	20.4%	93	100.0 %

Chi-square tests

	Value	df	Asymptotic significance (2-sided)	Exact sig. (2-sided)	Exact sig. (1-sided)
Pearson chi-square	.759[a]	1	0.384		
Continuity correction[b]	0.368	1	0.544		
Likelihood ratio	0.769	1	0.380		
N of valid cases	74				

a. 0 cells (0.0%) have an expected count less than 5. Thus, the minimum expected count is 8.65.
b. Computed only for a 2x2 table

Symmetric measures

		Value	Approximate Significance
Nominal by nominal	Contingency Coefficient	0.101	0.384
N of valid cases		74	

You have injected any drug other than those prescribed for you in the past year. You have been treated for a sexually transmitted disease or STD in the past year. You have given or received money or drugs in exchange for sex in the past year. * Ever been tested for AIDS Crosstabulation

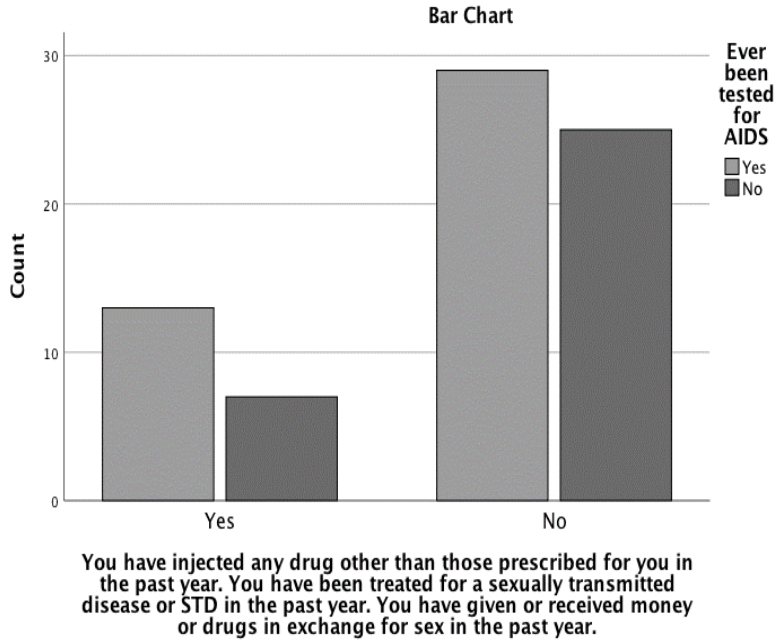
	Ever been tested for AIDS		Total
	Yes	No	

You have injected any drug other than those prescribed for you in the past year. You have been treated for a sexually transmitted disease or STD in the past year. You have given or received money or drugs in exchange for sex in the past year.	Yes	Count	13_a	7_a	20
		% within You have injected any drug other than those prescribed for you in the past year. You have been treated for a sexually transmitted disease or STD in the past year. You have given or received money or drugs in exchange for sex in the past year.	65.0%	35.0%	100.0%
		% within Ever been tested for AIDS	31.0%	21.9%	27.0%
	No	Count	29_a	25_a	54
			53.7%	46.3%	100.0%
			69.0%	78.1%	73.0%
Total		Count	42	32	74
			56.8%	43.2%	100.0%
			100.0%	100.0%	100.0%

Note. **Each subscript letter denotes a subset of Ever been tested for AIDS categories whose column proportions do not differ significantly from each other at the .05 level.**

Figure 3

Injecting Drugs in the past year, having an STD in the Past Year/receiving money in exchange for drugs



In Figure 3, the categories are the number of respondents injecting any drugs other than those prescribed in the past year, having been tested for an STD in the past year, and receiving money or drugs in exchange for sex in the past year. The separate bar represents each subgroup of injected drugs other than those prescribed in the past year. For example, approximately 13 respondents reported injecting drugs, having an STD or money in exchange for sex in the past year, and getting tested. Seven respondents reported injecting drugs, having an STD or money in exchange for sex in the past year, and getting tested. Approximately 29 respondents said they did not inject drugs, have an STD or money in exchange for sex in the past year, and get tested. Thus, more

individuals seem not to be injecting any drugs other than those prescribed in the past year.

RQ2: Is there a statistically significant relationship between alcohol consumption and the uptake of HIV testing among AA male college students?

$H_0$2: There is no statistically significant relationship between alcohol consumption and the uptake of HIV testing among AA male college students

H_a2: There is a statistically significant relationship between alcohol consumption and the uptake of HIV testing among AA male college students

Approximately 36 men met the demographic criteria and thus were included in the analysis. The relationship between binge drinking and HIV testing among AA males between 18 to 29 years of age was not statistically significant, χ^2 (1) = 0.89, p = .35. However, among the 24 males classified as binge drinkers, most were tested for HIV (66.7%). The pattern was similar among the 12 males classified as non-binge drinkers (i.e., consuming more than five drinks in a row), with 33.3% not being tested for HIV. Table 4 shows the frequencies for each category of the independent and dependent variables.

Table 5

Binge Drinking and HIV/AIDS Testing

Case Processing Summary

	Cases					
	Valid		Missing		Total	
	N	Percent	N	Percent	N	Percent

Whether male is a binge drinker * Ever been tested for AIDS	36	38.7%	57	61.3%	93	100.0 %

Whether male is a binge drinker * Ever been tested for AIDS Crosstabulation

			Ever been tested for AIDS		Total
			Yes	No	
Whether male is a binge drinker	**Non-Binge Drinker**	**Count**	**14**	**5**	**19**
		% within Whether male is a binge drinker	73.7%	26.3%	100.0%
		% within Ever been tested for AIDS	58.3%	41.7%	52.8%
	Binge Drinker	Count	10	7	17
		% within Whether male is a binge drinker	58.8%	41.2%	100.0%
		% within Ever been tested for AIDS	41.7%	58.3%	47.2%
Total		Count	24	12	36
		% within Whether male is a binge drinker	66.7%	33.3%	100.0%
		% within Ever been tested for AIDS	100.0%	100.0%	100.0%

Chi-Square Tests

	Value	df	Asymptotic Significance (2-sided)	Exact Sig. (2-sided)	Exact Sig. (1-sided)
Pearson Chi-Square	.892[a]	1	0.345		
Continuity Correction[b]	0.348	1	0.555		
Likelihood Ratio	0.894	1	0.345		
Fisher's Exact Test				0.483	0.278
Linear-by-Linear Association	0.867	1	0.352		
N of Valid Cases	36				

a. 0 cells (0.0%) have an expected count less than 5. Thus, the minimum expected count is 5.67.

b. Computed only for a 2x2 table

Symmetric Measures

		Value	Approximate Significance
Nominal by Nominal	Contingency Coefficient	0.155	0.345
N of Valid Cases		36	

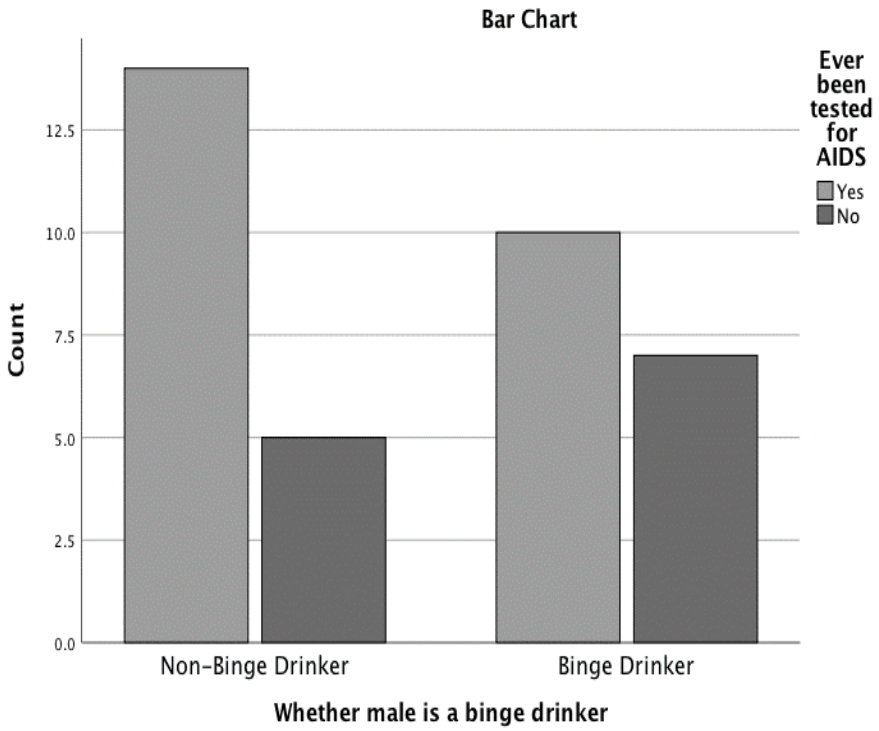
Chi-Square Tests

	Value	df	Asymptotic Significance (2-sided)	Exact Sig. (2-sided)	Exact Sig. (1-sided)
Pearson Chi-Square	.892[a]	1	0.345		
Continuity Correction	0.348	1	0.555		
Likelihood Ratio	0.894	1	0.345		
	36				

		Value	Approximate Significance
Nominal by Nominal	Contingency Coefficient	0.155	0.345
N of Valid Cases		36	

Figure 4

Binge Drinker



In Figure 4, the categories represent respondents binge drinking having 3 or more drinks in one sitting in the above image. Alcoholism and binge drinking can be used interchangeably because both can have a negative impact on day-to-day life of alcohol consumption. The figure shows 14 non-binge drinkers ever getting tested for HIV and 10 binge drinkers ever getting tested for HIV. Thus, more individuals seem to get tested for HIV that were non-binge drinkers.

RQ3: Is there a statistically significant relationship between understanding health information and the uptake of HIV testing Among AA male college students?

$H_0$3: There is no statistically significant relationship between understanding health information and uptake of HIV testing Among AA male college students?

H_a3: There is a statistically significant relationship between understanding health information and the uptake of HIV testing Among AA male college students?

This research demonstrated that the sample size was too small and insufficient to discuss data on the understanding of health information and the uptake of HIV testing among AA male college students. Often an unjustified finding can imply that the same size in quantitative research is often judged when there is an insufficient sample size (Vasileiou et al., 2018). This result can limit the potential for generalization of the study findings.

When considering nonsignificant results, the sample size is essential for subgroup analysis, which may have smaller sample sizes from the overall study (Visentin, Cleary & Hunt, 2019). For example, a well-powered study shows significant increases in HIV testing among AA male college students for the G*Power prediction; however, the smaller number available for the subgroup analysis may reveal non-significant (*Visentin, Cleary & Hunt, 2019*).). According to Visentin, Cleary & Hunt *(2019*), there are other possibilities for non-significant results. The results may reveal that the null hypothesis is true and there is no real effect. The study hypothesis could be accurate; however, there is not enough evidence in this study to support the hypothesis. If there is a chance a Type II error occurred, the null hypothesis should not be true; instead, we must retain it as a possibility that we do not have enough evidence to reject it. For example, Type II errors could result in non- significance because the true effect size is too small.

Further, the variation group may be too large, the sample size is too small, or the study is underpowered (Visentin, Cleary & Hunt, 2019). This study was non-significant because it was underpowered. Therefore, researchers suggest that these findings are not conclusive. The sample size was small, resulting in more research on HIV testing on college campuses. It is difficult to accept the research finding because of the ineffective results. According to (Hewitt, Mitchell & Torgerson, 2008), results that have no statistically significant discoveries have been affected mainly by preconceived notions of the effectiveness of the study. These outcomes can lead to other researchers resulting in interpretive bias.

Acting on evidence bias can produce a non-significant difference in a study; therefore, further research is necessary to determine why AA male college students are not getting tested for HIV on a college campus. The logical interpretation of data collected from BRFSS was limited; however, data suggested that available testing on a college campus is not affecting AA male college students from getting tested on a college campus. Limited data did not allow all proposed research questions to be answered. The lack of data limits the scope of this analysis because the sample size was too small. This proposes a significant obstacle in identifying solutions to address AA male college students not getting tested for HIV on college campuses. No research design is perfect and free from explicit or implicit biases; however, it can utilize more neutral questioning techniques to reduce respondents' discomfort when answering sensitive questions such as HIV testing.

Summary

Section 3 investigated the relationship between the uptake of HIV Testing Among AA male college students on college campuses. The association between sexual partners, insurance coverage, alcohol consumption, and being tested for HIV was all investigated. The data analyzed answered two of the three proposed research questions and hypotheses, and the available data did not allow for the analysis of certain variables. The chi-square analysis suggested no significant difference in insurance coverage, alcohol consumption, and the uptake of HIV testing; therefore, these variables did not serve as barriers to HIV testing among AA male college students according to available data. A summation of the chi-square analysis revealed that the null hypothesis was accurate for all the identified variables.

Section 4: Application to Professional Practice and Implications for Social Change

Introduction

Section 4 details the interpretation of the findings and limitations of this study. Additionally, I discuss recommendations for further research, implications for professional practices, and study conclusions.

Routine HIV testing on college campuses is very significant in reducing the spread of HIV amongst students. The purpose of this quantitative study looked at the relationship between AA male college students and the uptake of HIV testing. The study design was a quantitative correlation design using cross-sectional surveys that included analyzing variables in the BRFSS dataset.

Key Findings

When using G*Power calculation to determine the sample size of this study, I calculated the power analysis. The G*Power calculation revealed that the sample size for the multiple linear regression was $N = 85$. Participants of this study needed to be 18 years or older to answer this questionnaire. The G*Power and actual sample size differed in the actual data calculations. The required minimum from the G*Power prediction had a parameter effect size of 0.15, alpha at 0.05, and beta power of 0.08 with 5 predictors. The total sample size of $N = 40$ had an achieved power of 0.94. The minimum sample size that would confidently power this study was 140 participants. I couldn't reach the predicted sample size in this study because of the lack of participants responding to the research questions.

The statistical analysis answered two of the three proposed research questions and hypotheses. The results revealed that the null hypothesis is true and there is no real effect, or the alternative hypotheses could be true. Still, there was not enough evidence in this study to support the alternative hypotheses of all three research questions.

Number of Sexual Partners, Insurance Coverage, Sexually Transmitted Disease Status, and Risky Sex

For the first research question, the study findings showed no significance for each variable due to the limited number of responses to each variable to the BRFSS survey items. Chi-square was used to answer this research question based on AA (non-Hispanic) men aged 18-29. The results determined that 75 men met the demographic criteria; however, the relationship between health insurance coverage and HIV/AIDS was not statically significant, χ^2 (1) =0.06, p = .81. Of the 75 males who met the criteria, there were only 43 males who had health insurance. Among the 43 males who had health insurance, most were tested for AIDS (57.3%). The pattern was similar among the 32 males who did not have health insurance; 42.7% were tested for HIV. According to the literature, racial and ethnic disparities in health insurance coverage rates account for a large share of the difference in access to health care. Lack of knowledge can increase HIV infections and increase STD rates. AAs fear an HIV-positive test result, and this can be associated with stigma. Additional challenges facing HIV service delivery are that many who get tested for HIV never return for their results (Payne et al., 2006).

Alcohol Consumption

For the second research question, chi-square was used to analyze data on alcohol consumption of having three or more drinks for AA (non-Hispanic) men 18-29 years of age. Having three or more drinks was binge drinking for this study. According to Musuka et al. (2018), the harmful use of alcohol is a significant public health concern and social problem affecting increased HIV rates and not getting tested for HIV. Increased mortality and morbidity rates are associated with alcohol use among males in the United States (Musuka et al.,2018). The results of this study determined that only 36 men met the study's demographic criteria, and the results were not statistically significant χ^2 (1) = 0.89, p = .35. Of the 36 males who met the criteria, only 12 males were classified as binge drinkers. Alcohol consumption before sex or being intoxicated during sex relates to risky sexual behaviors and acquiring STDs, HIV included (Musuka et al.,2018). Alcohol use decreases the cognitive capacity of an individual to correctly assess risk and increases attention to sexual stimulation (Musuka et al.,2018).

Understanding Health Information

For the third research question, I conducted a chi-square test to determine the relationship between understanding health information and the uptake of HIV testing. The sample size was too small, and data were insufficient to determine if understanding health information was associated with the uptake of HIV testing among AA male college students. There were limited responses to the survey item related to understanding health information by eligible participants. Literature shows that the lack of awareness, distrust, and fear explains why many AAs may unknowingly contract HIV

or are afraid to get tested (Mahajan et al., 2008); therefore, understanding why health literacy matters for access to care is still a challenge that remains. Individuals with low health literacy are more likely to delay getting care than their counterparts with adequate health literacy (Levy & Janke, 2016). According to Levy and Janke (2016), these barriers compound any subsequent difficulties patients with low health literacy may face in understanding and acting on health-related information.

Prior studies found that the following factors were associated with not having an HIV test: fear of learning their status, risk level, perceived negative consequences of testing, lack of awareness about HIV treatment, testing availability, and cost of testing (St. Lawrence et al., 2015). The literature shows that the lack of trust and knowledge among AAs can be a valid reason for the lack of response to certain survey items.

The small sample size of this study challenges the external and internal validity of this study. Having a small sample size affects the reliability of the results because it leads to a higher variability that can lead to bias (Faber & Fonseca, 2014). Furthermore, the use of sample size calculation directly influences research findings. As a result of this, researchers can be misguided, which may lead to failure in treatment and testing decisions of students on HIV.

Construct of Theoretical Framework

HBM served as the theoretical framework for the study to explain how constructs such as perceived vulnerability, perceived barriers, and perceived threat severity might influence study participants' uptake of HIV testing. College students' HIV-testing behavior could be a result of (a) perceived vulnerability to and perceived severity of the

threat (i.e., contracting HIV); (b) perceived benefits of and perceived barriers to adopting the recommended action (i.e., HIV testing); and (c) exposure to cues for and perceived self-efficacy in adopting the recommended action (Lin et al., 2017). Secondly, the HBM helped explain the uptake of HIV testing among the study population. Thirdly, the HBM was be used to determine if factors such as access to testing and availability of HIV testing information serve as barriers to AA male college students' understanding of the HIV testing process.

Theoretical limitations have limited the findings in this research because of a lack of participation. According to Levy & Janke (2016), the HBM posits that people will take action to prevent illness if they feel susceptible or believe it would have serious consequences (perceived severity), if they thought that a particular cue of action available to them would reduce the susceptibility or severity that leads to other positive outcomes (perceived benefits), and if they perceive few negative attributes related to the health action (perceived barriers).

The results showed that perceived risk was a strong predictor of the number of sexual partners, alcohol consumption, and risky sex amongst AA college students. However, because of lack of participation, it is possible that there was not enough statistical evidence that shows the difference with students who are not getting tested for HIV. Therefore, it can be concluded that perceived risk can or cannot influence the variable uptake of HIV testing because of the number of sexual partners, alcohol consumption, or risky sex.

The results showed that perceived barriers are often complex in processing HIV information, resulting in high cognitive load for patients. This situation can be challenging for those with low health literacy. In addition, some studies have found that young adult patients with low health literacy report some barriers as less accessibility of care, including less participation in making medical decisions related to their care, which leads to low levels of empowerment (Yin et al., 2012). Therefore, it is not presently known if health literacy or health insurance contributes to the difference in attitudes and perceptions related to access and participation in testing for HIV on college campuses. However, because response rates were low, it was hard to determine if STD treatment had a relationship with the uptake of HIV testing.

HBM posits that college HIV testing will achieve optimal behavior change if programs successfully target perceived barriers, benefits, self-efficacy, and threats (Jones et al., 2014). Limitations for this study, however, were low overall respondent rates. The theoretical model provided a community and public health approach to carefully examine what factors would influence AA male college students to get tested for HIV. The HBM goal was to understand better human behaviors to increase HIV testing amongst college students. The strength of this theoretical framework was to generalize and simplify complex situations that involve HIV testing. However, in the case of HIV prevention interventions for young AA male college students, the dominant theories might oversimplify sexual behavior. While such cognitive-behavioral models can explain the links between intention and behavior, particularly at an intrapersonal level, they are less

able to account for interpersonal and contextual factors related to the complexity of sex, the experience of young adults, and disparities in social realities (Michielsen et al., 2012).

The study shows that AA males could still be at a high risk of contracting HIV because of the lack of data and research. Those survey participants meeting the inclusion criteria didn't respond overwhelmingly to the survey items needed to answer the research questions. This issue made it difficult to identify a representative sample population. Rikard et al. (2016) found that individuals did not take an HIV test to avoid possible rejection from relatives and friends. These individuals fear an HIV-positive test result that could be associated with stigma. A pivotal question for this research was whether testing efforts adequately reach AA men, and if so, do the men take advantage of the benefits (see St. Lawrence et al.,2015). HIV discrimination is often fueled by myths of casual transmission of HIV and pre-existing biases against certain groups, certain sexual behaviors, drug use, and fear of illness and death (CDC, 2019e). These myths and assumptions explain why so many participants did not complete the survey questions on BRFSS that led to a small sample size. As researchers, we may need to develop more nonbiased questions that can make participants feel more comfortable when answering sensitive questions about HIV testing.

Limitations of the Study

This study has many limitations due to the lack of research, the population served, sample size, and the restrictions on using secondary data. HIV discrimination is often fueled by myths of casual transmission of HIV, and pre-existing biases against certain groups, certain sexual behaviors, drug use, and fear of illness and death (CDC, 2019e). In addition, this study is based on data collected through BRFSS, a national cross-sectional

telephone survey, and using secondary data has many restrictions. For example, the assumption is that respondents were open and honest about their health practices, and there was no way to confirm if the respondents answered truthfully. Another limitation is missing variables; insufficient data regarding sexual partners, risky sex behaviors, or understanding health information to adequately respond to the research question. Missing data reduced the statistical power of this study, presented biases, and resulted in invalid conclusions (Khang, 2013). Finally, the data set did not present some of the research variables that were initially proposed for the study. If the goal was to provide reliable evidence on risk factors on the uptake of HIV testing and provide new interventions, the sample size needed to be larger to help determine risk factors to address**.** If there was a larger sample size, then the evidence would be more reliable and researchers would understand the relationship of selected variables larger sample size was larger, the evidence would be more reliable, and researchers would understand the relationship of selected variables, which can validate the relationship or refute arguments.

The lack of data limited the scope of the analysis because of the sample size. When the number of observations is too small, and researchers attempt to adjust for several factors, these methods can fail to produce sensible results, or they produce unreliable results (Hacksaw,2008). In addition, it was difficult to accept these research findings because of the ineffective results that did not allow to see the reason why AA Male college students are not getting tested. However, it should be noted that evidence bias can produce a non-significant difference in a study. Therefore, further research is

necessary to determine why AA male college students are not getting tested for HIV on a college campus and what factors influence their decision-making.

Implications for Professional Practice and Social Change

Sociologists define social change as human interaction and relationships that transform cultures and social institutions (Dunfey,2019). Social changes occur over time and can have long-term consequences for society's social moments (Dunfey, 2019). The implication of professional practice and social change can help public health professionals understand the significance of having HIV testing on college campuses and preventative strategies. Awareness will help decrease the spread of HIV among AA male college students. Professionals should be more aware that culture can play a major role in the lack of testing and the openness to get tested. Lack of findings and lack of research shows that more research is essential. Increasing HIV testing is important to reduce HIV transmission, the quality of life, and mortality rates. Strategies in place may increase rates of HIV testing and decrease HIV infections among AA male college students. The number of people living with HIV in the United States is nearly 1.2 million and continues to grow by tens of thousands each year; this creates more opportunities for HIV transmission (CDC,2017). Some of these risk factors of HIV consist of stigma, discrimination, income, education, and geographic regions. (CDC,2017). To better address, these issues, partnering with CDC and pursuing a higher impact prevention approach may help reduce new HIV transmissions. Having a reliable and cost-effective healthcare system that targets college students can help increase HIV prevention efforts

such as testing and education. These activities could potentially be the key to maximizing getting more AA college males tested.

Conclusion

This quantitative research study investigated the factors associated with HIV testing among AA male college students. The HBM guided this study to address all research variables. The Chi-square test was used to answer the research questions based on the available data in the 2017 BRFSS dataset. The sample includes AA (non-Hispanic) men between the ages of 18 to 29 years old. A total of 75 men met the demographic criteria and were included in the analysis. There was not enough evidence in this study to support the stated hypotheses. The findings in this study were non-significant because it was underpowered. Lack of findings and having a small sample size resulted in the research findings being inconclusive. Public health professionals need to understand the significance of HIV prevention and the importance of early HIV testing. Lack of results may also encourage public health professionals to implement more college campus strategies that enable HIV testing. Public health professionals must consider contextual factors (e.g., environment, stigma) and attitudes and beliefs due to age, race, gender, and sexual orientation in understanding AA males' HIV testing practices. Lastly, historical mistrust of medical and public health providers plays a crucial role in HIV testing and similar interventions.

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