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Predictors of Condom Use Among Middle-Income, African American Women

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Walden University
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Abstract

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MPH Benedictine University, 2009

MA, University of Phoenix, 2004

BS, Tuskegee Institute, 1978

Dissertation Submitted in Partial Fulfillment

of the Requirements for the Degree of

Doctor of Philosophy

Public Health

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Abstract

The human immunodeficiency virus (HIV) and acquired immune deficiency syndrome (AIDS) continue to be a major public health threat, not only within the United States but also on a global scale. Within the U.S. heterosexual population, African Americans (AAs) continue to bear the greatest burden of new HIV infections. Additionally, HIV/AIDS interventions have focused on low-income AA women, virtually ignoring their middle-class counterparts who may be subject to the same sexual risks. The purpose of this quantitative, cross-sectional study was to determine whether if there was an association between the 5 constructs of the Health Belief Model (HBM) and self-efficacy in condom use among middle-income AA women. One hundred and fifty two middle-income AA women were recruited through personal social media accounts and Survey Monkey to participate in this study. Multiple linear regression analyses indicated that 4 of the 5 constructs (i.e. perceived benefits, perceived barriers, cues to action, relationship self-efficacy) were predictors of self-efficacy in condom use, after controlling for age, income, education attainment, and marital status. There was no association between perceived threat and self-efficacy in consistent condom use. The results can inform HIV prevention counseling at the primary care level to reduce the spread of HIV among all AA women. Implications for positive social change include evidence for the need to expand the paradigm for HIV prevention interventions to include middle-income AA women and restructure HIV prevention strategies to address all women of color in the United States.

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Dedication

I wish to dedicate this body of work to my mom for her unwarvering support and finacial assistance, I love you and I could not have done this without you!

Acknowledgments

First, I want to thank Dr. Ferraro for agreeing to be my Chair and Dr. Francavillo for agreeing to be my Committee Member, I could not have chosen a better team! I would like to say a special thank you to Dr. Ferraro for her attention to detail and continual words of encouragement that kept me moving forward and kept me in check during my emotional breakdowns! I would also like to thank Dr. Agha for pushing me to take my research to the next level. Lastly, I want to thank my mentor, Dr. Nathaniel Powell who told me I was going to be 60 anyway so why not be 60 with a PhD!

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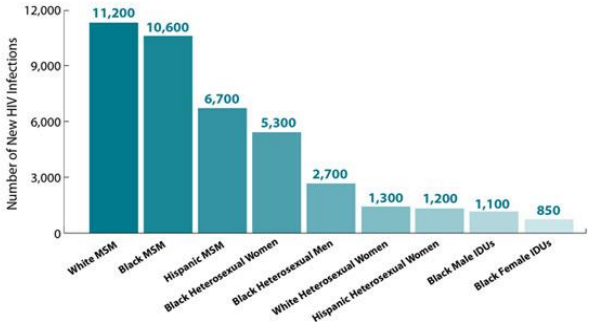
Chapter 1: Introduction to the Study

The human immunodeficiency virus (HIV) and acquired immune deficiency syndrome (AIDS) continue to be a major public health threat not only within the United States but also on a global scale. Among the heterosexual population in the U.S., African Americans (AAs) continue to bear the greatest burden of new HIV infections. In 2010, the incidence rate of new HIV infections among AA women was 9,500, which was a 21% reduction compared to 2008 estimates (Centers for Disease Control & Prevention [CDC], 2010). However, AA females still produced the highest number of new HIV cases per year compared to their European American and Hispanic American counterparts (CDC, 2010). According to current 2010 statistics, while the overall estimate of new HIV cases remained stable when measured by age and racial or ethnic group, the burden of infection still remains disproportionally high among the AA population (CDC, 2013; National Institute on Drug Abuse (NIDA), 2013).

Figure 1: Estimated New HIV Infections in the United States, 2010, for the Most Affected Subpopulations



Source: Centers for Disease Control & Prevention 2010

*Figure 1***.** Estimated new HIV Infections in the United States, 2010

In 2010, the estimated rate of infection (31%) was highest among AAs 25-44 years of age; in the same year, 38% of new HIV infections among AA's were attributed to heterosexual contact (CDC, 2013). At some point within their lifetime, an estimated 1 out of 32 AA women

will received a positive HIV diagnosis compared to 1 in 106 Hispanic American women and 1 in 546 European American women (CDC, 2013). HIV/AIDS infection among AA women is a complex mix of economic, social, cultural, environmental and behavioral factors making it critical for the research community to understand and acknowledge the role that social, gender inequity, and cultural dynamics play in shaping the perception of risk. AA women are more likely to have no prior knowledge of their partner's health condition (Black Women's Health Imperative (BWHI), 2013). AA women are also more likely to experience at least one sexually transmitted disease (STD) that increases vulnerability to the HIV/AIDS virus, and AA women are more likely to engage in unprotected anal and vagina intercourse (BWHI, 2013; CDC, 2007). Among low-income AA women, researchers attributes this persistent trend to the influence of socioeconomic factors such as poverty, lack of education, and the use of injection drugs (Ivy, Miles, Le, & Paz-Bailey, 2013). Research also attributes the HIV/AIDS epidemic among low-income AA women to the high rates of incarceration among AA males (Brown-Marshall, 2012; CDC, 2011; Laurencin, Christensen & Taylor, 2008).

The factors that contribute to unsafe sexual practices among low income AA women is well documented; however, there is considerably less documentation on the factors that contribute to unsafe sexual practices among middle-income AA women (Sharp et al, 2012; Uhrig, 2013; Williams, Wyatt, & Wingood, 2010). Middle-income AA women may experience at least one sexually transmitted disease in their lifetime or may be just as likely to engage in unprotected sex especially within a long-term, non-marital relationship (Foster et al, 2011; Hunter, 2013). Additionally, middle-income AA women may have drug and alcohol issues that contribute to risky behavior (Masters et al, 2013). Middle-income AA women may have or had a

partner imprisoned at one time; and, they are likely to experience financial issues that result in partner dependency at least once in their sexual lifetime (Hunter, 2013; U.S. Department of Health & Human Services (USDHHS), 2009). However, middle-income AA women are seldom addressed in literature and rarely included in discussions on HIV/AIDS prevention strategies specific to AA women (National Alliance of State & Territorial AIDS Directors (NASTAD), 2010; Ragsdale-Hearns, 2012).

Background

Previous and current HIV/AIDS researchers have not focused exclusively on the interconnection of gender, cultural, and social factors that influence sexual behavior among middle-income, AA women; however, high-risk heterosexual contact continues to be the primary mode of HIV/AIDS transmission among AA women (Anaebere et al, 2013; Ivy, Miles, Le, & Paz-Bailey, 2013; Kaljee & Chen, 2011). Several qualitative and quantitative studies on HIV/AIDS intervention successes and HIV/AIDS prevention challenges among AA women in the United States indicated a strong correlation between history, cultural development, and the high rate of infection among AA women (NASTAD, 2010; Newsome & Airhihenbuwa, 2012; Sharpe et al., 2012). AA women who participated in these studies noted the lack of communication between parent and child concerning body image, sex or love that produces an insecurity that influences communication with their sexual partner (NASTAD, 2010; Newsome & Airhihenbuwa, 2012; Sharpe, et al., 2012). The study participants also discussed how relationship models (parents and older adults) influence how AA women define a love relationship (NASTAD, 2010; Newsome & Airhihenbuwa, 2012). For example, growing up within an environment of spousal abuse, women may learn to equate violence with love and will

accept physical and emotional abuse as part of the relationship package (NASTAD, 2010; Newsome & Airhihenbuwa, 2012). The participants noted that many AA women might not have the knowledge base to distinguish between a healthy and unhealthy relationship with an AA male due to their upbringing and observation of community interactions (NASTAD, 2010; Newsome & Airhihenbuwa, 2012; Sharpe et al., 2012). This lack of knowledge decreases AA women's ability to find and maintain a sexual relationship without placing themselves at risk for infection transmission (NASTAD, 2010). Another finding regarding relationship dynamics is that of dependency. Many AA women are dependent on the male to provide financial security, housing, and transportation (NASTAD, 2010; Newsome & Airhihenbuwa, 2012). The participants also noted that single AA women who can provide for themselves often feel like less of a woman. This may be due to the lack of a male sexual partner making them more vulnerable to men who may be involved in more than one sexual relationship or have a history of drug use and/or incarceration (NASTAD, 2010; Newsome & Airhihenbuwa, 2012; Sharpe et al., 2012). Perhaps the most important finding to emerge from these studies was the perception of risk among the targeted population.

According to both quantitative and qualitative research participants, many AA women still viewed HIV/AIDS as a disease affecting homosexual, European American men or women who exchange sex for money and drugs (NASTAD, 2010; Newsome & Airhihenbuwa, 2012). AA women who did not fit these descriptions could not visualize themselves at risk for infection creating a false and dangerous sense of security (NASTAD, 2010; Newsome & Airhihenbuwa, 2012). Additionally, the participants noted that AA women in monogamous relationships for more than one year may not believe their partners are engaging in sexual activity outside of the

relationship and may be less likely to take the necessary precautions during sexual activity (NASTAD, 2010; Newsome & Airhihenbuwa, 2012).). Professional and older single AA women may also view themselves as safe from infection because the current image of high risk populations includes under-educated, poor, urban dwelling AA women.

Newsome & Airhihenbuwa (2012) examined the negative effect of gender-ratio imbalance on sexual relationship power. Many AA women are placed at risk through their partner's sexual and drug induced behavior practices and the female's place within a defined sexual network. This sexual network may be limited by the AA female's unwillingness to seek a partner of a different race. The sexual network is also composed of male partners engaging in simultaneous multiple relationships or overlapping sexual relationships (Morris et al, 2009). Both situations create a very small pool of potential partners so that the risky sexual behavior of one male can present a serious threat to the sexual network (Morris et al., 2009).

Current HIV/AIDS prevention and risk reduction interventions rarely address the cultural or social construction aspects that influence risk perception among middle-income AA women (Wyatt, Williams, Gupta, & Malebranche, 2012). However, gender inequalities in heterosexual relationships, complex social structures and culturally related attitude and beliefs significantly affect how AA women perceive sexual risk (Higgins, Hoffman, & Dworkin, 2010; Wyatt et al, 2012).

Problem Statement

HIV and AIDS pose a serious health threat to women of color around the world. In the United States, public policy and public health interventions targeting HIV/AIDS mainly focus on low-income AA women while virtually ignoring their middle-income counterparts who may be

subject to the same sexual vulnerabilities. Few studies focus on the sexual practices of middle-income AA women or the factors that lead to vulnerable behavior within this specific group (Davidson, 2011, El-Bassel, Calderia, Ruglass, & Gilbert, 2009). Problems such as a growing sex ratio imbalance and the unwillingness of some AA males to commit themselves in monogamous relationships affect the way middle-income AA women respond to the public health HIV/AIDS prevention guidelines for condom use and pre-testing for STIs before entering a new sexual relationship (Moore, 2012; Sharp et al, 2012).

Many middle-income AA women are reluctant to introduce conflict into the relationship by demanding the use of condoms during every sexual encounter or pre-relationship STI testing for fear of alienating their partner (Hodder et al, 2010). The resulting feelings of vulnerability and powerlessness among this group further exacerbate the problem (Hodder et al., 2010). Not all AA women are victims of domestic violence, drug use, or poverty, yet all AA women bear the greater burden of HIV/IDS infection compared to European American (EA) women. Public health policies and practices regarding HIV/AIDS and STIs in general must include all AA women, or there is a risk of creating another sub-group vulnerable to HIV/AIDS infection (Davidson, 2011; E-Bassel et al., 2009).

Purpose of Study

In this quantitative study I explored the association between risk perception and condom use among middle-income AA women using five constructs of the Health Belief Model (HBM) as the independent variables; the perception of threat, perceived benefits, perceived barriers, cues to action, and self-efficacy (Riley & Baah-Odoom, 2010; Wright, Randall & Hayes, 2012). Based on previous research, the five constructs of the HBM are the best predicators of condom

use (Reid & Aiken, 2011; Taylor et al, 2006). The dependent variable in the study was self-efficacy related to condom use; the covariates were the standard variables that denote sociodemographic status (SDS); age, level of education, marital status and income.

Research Questions and Hypotheses

This study included a questionnaire survey to determine if there is an association between the five HBM variables and consistent condom use among, middle-income AA women. The survey contained 41 questions to identify demographical variables (i.e. age, education, income, marital status), individual sexual practices, and relationship self-efficacy requiring "Yes", "No" or Likert scale responses. The research questions and hypotheses were as follows:

RQ1: Is perceived threat a predictor of condom use self-efficacy when controlling for age, yearly income, highest level of education, and marital status?

H_0: Perceived threat is not a predictor of condom use self-efficacy when controlling for age, yearly income, highest level of education, and marital status.

H_1: Perceived threat is a predictor of condom use self-efficacy when controlling for age, yearly income, highest level of education, and marital status.

RQ2: Is perceived benefits a predictor of condom use self-efficacy when controlling for age, yearly income, highest level of education, and marital status?

H_0: Perceived benefits is not a predictor of condom use self-efficacy when controlling for age, yearly income, highest level of education, and marital status.

H_1: Perceived benefits RQ3: Is perceived barriers a predictor of condom use self-efficacy when controlling for age, yearly income, highest level of education, and marital status?

H_0: Perceived barriers is not a predictor of condom use self-efficacy when controlling for age, yearly income, highest level of education, and marital status.

H_1: Perceived barriers is a predictor of condom use self-efficacy when controlling for age, yearly income, highest level of education, and marital status.

RQ4: Is cues to action a predictor of condom use self-efficacy when controlling for age, yearly income, highest level of education, and marital status?

H_0: Cues to action is not a predictor of condom use self-efficacy when controlling for age, yearly income, highest level of education, and marital status.

H_1: Cues to action is a predictor of condom use self-efficacy when controlling for age, yearly income, highest level of education, and marital status.

RQ5: Is relationship self-efficacy a predictor of condom use self-efficacy when controlling for age, yearly income, highest level of education, and marital status?

H_0: Relationship self-efficacy is not a predictor of condom use self-efficacy when controlling for age, yearly income, highest level of education, and marital status.

H_1: Relationship self-efficacy is a predictor of condom use self-efficacy when controlling for age, yearly income, highest level of education, and marital status

Theoretical Framework

The theoretical framework for this study was the Health Belief Model (HBM) developed by the Public Health Service in the 1950s to understand the barriers that prevented individuals from participating in pre-screening and prevention intervention that focuses on individual attitudes and beliefs (Neff & Crawford, 1998; Riley & Baah-Odoom, 2010). The basis for the HBM is the understanding that individuals will adopt appropriate actions if they feels the action

will help them avoid negative consequences (i.e., HIV infection), and if he or she expects that performance of the action will result in avoidance of negative consequences (i.e., condom use self-efficacy will prevent HIV infection). In addition, he or she believes the action can be performed successfully (i.e. he or she has the confidence and the knowledge to use condoms). This psychology-based model consists of five variables.

First, the perception of threat includes perception of susceptibility or the individual's perception of personal risk and the perception of severity (i.e. the medical and social consequences of infection) (Riley & Baah-Odoom, 2010). Second, a perceived benefit refers to the individual's belief that the personal effort will prevent infection and therefore be worthwhile (Neff & Crawford, 1998; Riley & Baah-Odoom, 2010; Wright et al, 2012). Third, perceived barriers refer to the individual's perception of the corporeal and psychological cost of compliance such as the loss of a job or a position in the community (Riley & Baah-Odoom, 2010; Wright et al, 2012).

Fourth, cues to action refer to the individual's willingness to change at-risk behavior based on instructional information, reinforcement, and continual support (Riley & Baah-Odoom, 2010; Wright et al, 2012). Fifth, self-efficacy refers to the individual's belief that he or she can consistently perform the actions necessary to prevent infection or to prevent the transmission of infection to another (Neff & Crawford, 1998; Riley & Baah-Odoom, 2010). The five HBM constructs included within the survey measures the degree of risky behavior and relationship self-efficacy among the targeted population in an effort to determine if this specific population is at risk for infection and if this population should be included in HIV prevention interventions based on the level of risk.

Nature of the Study

The method of inquiry was a quantitative, cross-sectional research design. The research population was composed of middle-income AA women, 25 to 45 years of age. The G*Power3 software was used to determine a minmum sample size of 142 based on the medium effect size of 0.30, alpha of 0.05, and 95% power. I used a snowball sampling technique involving word-of-mouth to solicit participants who fit the criteria of age, income, citizenship, and marital status (never married, married, separated, divorced, widowed). The survey was conducted through Survey Monkey*;* particpants were directed to the Web site through an online solicitation using my personal social media accounts (i.e. Facebook,YouTube,Twitter, and LinkedIn). The use of social media outlets provides access to a large diverse pool of participants because the survey could be accessed from anywhere in the country. Partiticpants were asked to notify others of the survey and encourage them to participate in the process.

A frequency analysis was conducted to explore the extent of perceived susceptibility, perceived severity, perceived barriers, perceived self-efficacy, and cues to action among the targeted population. A multiple linear regression analysis was conducted to examine the relationship between self- efficacy condom use (dependent variable) and each HBM constructs (independent variables) previously identified as predictors of condom use self-efficacy use. This type of analysis is appropriate when using quantitative variables to explore a possible relationship with predictor variables (Simon, 2003). The analysis also included a test of statistical significance for the correlation coefficients, *R*; the absence of statistical significance would indicate that the correlations were obtained by chance (Abrams, 2007). The correlation

coefficients indicated the degree to which condom use could be predicted from the set of independent variables.

Definitions

Health Belief Model (HBM): The HBM addresses the association between personal beliefs and behavioral practices (see Table 1) It is used to predict how a person will behave in regards to personal health and the degree of compliance to health directives (Rosenstock, Strecher & Becker, 1994).

Table 1

Operational Definitions of the HBM in Relation to Study Measures

HBM Constructs	Definitions	Variable relationship
Perceptions of Threat	Personal belief of risk	Determine the perception of threat and condom use to prevent infection
Perceived Benefits	Personal belief that condom use will reduce risk	Positive aspect of condom use
Perceived Barriers	Personal belief of the social and psychological cost associated with condom use	Relationship issues and emotional stress related to condom use
Self-Efficacy	Personal belief in one's ability to use condoms to reduce risk	Confidence in one's ability to insist partner use condoms
Cues to Action	Internal and external influences that may affect behavior	Social network influences

Human immunodeficiency virus (HIV): HIV is a retrovirus that affects specific cells (T-cells and the CD4 cells) of the immune system (CDC, 2013).

Socio-demographic variables: Variables are used to describe an element of a group within a society (CDC, 2007). For this study, the socio-demographic variables included age, education, income level, and marital status.

Assumptions

In this study, I assumed that the targeted population consisted of willing participants who would answer each survey question honestly and to the best of their ability. I also assumed that participant recall might be biased but that participants would not intend to misdirect or mislead. Additional assumptions critical to this study were that the survey instrument would effectively measure the HBM constructs and that the HBM construct would effectively identify behaviors associated with self-efficacy related to consistent and inconsistent condom use.

Scope and Delimitations

I focused on the possible association between HBM variables related to sexual practices within a specific population. I measured current attitudes, beliefs, and self-efficacy among the participants; the study did not seek to obtain historical information. For example, variables such as childhood abuse; relationship self-efficacy during elementary, high school, or college; or previous drug/alcohol use were not included in this study. This study was delimited to middle-income AA women across the United States. The participants were 25-45 years of age with a minimum income of $40,000 per year. The age requirement for participation was based upon the lack of information concerning middle-income AA women 25-45 years of age and the growing number of older AA women testing positive for HIV/AIDS, which is further discussed in Chapter 2. The minimum/maximum income requirement was based on information obtained from the U.S. Census Bureau that identifies low, middle, and high-income parameters in addition to the average salaries for all occupations. Women belonging to other racial/ethnic groups that may also be at high risk for HIV (e.g., women of Hispanic/Latina descent Pacific Islanders, or Native Americans) were excluded from this study.

Limitations

Due to the narrow scope of race, age, income and education level, the study results cannot be generalized to women in general or all AA women. However, the results of this study may provide insight into sexual and self-efficacy issues that are applicable to a broader cross-section of AA women. Additional study limitations are due to the potential for change in confounding variables such as level of income, which may change according to employment trends; therefore, this study only captures data at one specific point in time. Lastly, the study was not designed to determine causality; it was designed to determine possible associations and therefore should be interpreted with due prudence.

Study Significance

This study was significant because it targeted a sub population rarely addressed in HIV/AIDS prevention practices that mainly focus on AA high school students, AA college students, drug and alcohol dependent AA young adults, and low income AA women in urban and rural areas (Davidson, 2011; Diallo et al, 2010; El-Bassel et al., 2011; Fleming, Lansky, Lee & Nakahima, 2006; Ford, Whetten, Hall, Kaufman & Thrasher, 2007: Jackson & Cummings, 2011; Mallory, 2008). The results of this study may fill a significant knowledge gap that exists and may promote additional research by highlighting sub-groups outside of the standard description of those vulnerable to acquiring HIV. Additionally, this study may identify the HBM construct that has the strongest association with risky sexual behavior, thereby indicating which construct should be the focus of future intervention development. The potential social change implications of this study include illustratation of the need for public health practitioners to expand the scope of public health interventions and policies beyond the standard and widely accepted definition of populations at risk for HIV/AIDS infection. By expanding the scope of HIV interventions, the

public health community reduces the risk of creating another sub-population at high risk for infection.

Summary

I explored the potential relationship between sociodemographic status (SDS), relationship self-efficacy and sexual risk behavior among middle-income AA women as it relates to condom use self-efficacy as a means of reducing the spread of HIV infection. The background information provided in this chapter included a discussion on the burden of HIV infection within African American communities and specifically among AA women living in the United States. I also described the HBM as a theoretical framework for the study; the scope that defined the boundaries of the study, and the delimitations and limitations that may affect one's ability to extrapolate study results across the general population.

Chapter 2 includes a review of literature on HIV risk behavior among AA women relevant to this study and an in-depth review of theoretic frameworks including the HBM. I also examine the cultural and social aspects of AA life that may contribute to the incidence and prevalence of HIV infection within the AA population.

Chapter 2: Literature Review

The human immunodeficiency virus (HIV) and acquired immunodeficiency syndrome (AIDS) pose a serious health threat to women of color around the world. In the United States, HIV/AIDS interventions focus mainly on low-income AA women virtually ignoring their middle-class counterparts who may be subject to the same sexual risks. The first section of this chapter presents a review of literature on the HIV/AIDS epidemic among low income and middle-class AA women. The second section presents literature on the socioeconomic determinants of health that may influence perceptions of risk among low-income and middle-income AA women and the effect of these influences on the decision-making process to self-protect. The third section of this chapter presents three intervention paradigms and the effectiveness of various interventions designs in shifting psychological paradigms that effect the perception of risk and empowerment. The final section of this chapter presents available literature on the effectiveness of four theoretical frameworks in addressing the HIV/AIDS epidemic among AA women as well as the methods used to measure this phenomenon.

Search Strategy

The criteria for review inclusion were studies published between 2008 and 2014 concerning the social and economic variables that influence the perception of risk for HIV/AIDS among low-income and middle-income AA women between the ages of 24 and 60 including intervention paradigms developed for both sub groups and the theoretical models used to develop the interventions. The databases used for the search included; Walden University Library, Centers for Disease Control Library, PubMed Central, Science Direct, Wiley Online Library, Taylor Francis Online, and HIV/AIDS Surveillance Database. The keywords used for the search

included: *African American, black, women, low income, middle-class, middle-income, HIV/AIDS, STIs, quantitative, socioeconomic, determinates, perception, risk, interventions, paradigms, theories, indicators, strategy, stigma, social network, education, equality, power, sexuality, discrimination, poverty.*

Initially, I conducted a systematic review of peer-reviewed articles published between 2008 and 2012 in the United States pertaining to HIV/AIDS prevention interventions for middle-income AA women. The search yielded three qualitative studies found in the Walden University library. There were numerous articles pertaining to AA women - 55 and older - who were HIV positive undergoing some type of intervention (n = 15). There were also a number of articles pertaining to risk perception among AA women in colleges and universities (n = 42). The search was expanded to include the HBM, 2014, non – infectious, adult African American women, and HIV/AIDS prevention strategies. I also expanded the search to articles published as early as 2005 that focused on frequently referenced theoretical frameworks for HIV/AIDS intervention development. Overall, I examined 257 peer-reviewed articles; 90 were used for this review.

The Epidemiology of HIV/AIDS

The CDC all-inclusive system of HIV/AIDS surveillance in the United States includes case reporting, monitoring, mortality rates related to stages of infection, behavioral and clinical indicators, and estimated incidence and prevalence rates (CDC, 2012). The CDC bases the estimated incidence and prevalence rates of HIV diagnosis on information received from 46 states and 5 U.S. dependent areas (Guam, American Samoa, Northern Mariana Islands, Puerto Rico, and the U.S Virgin Islands) (CDC, 2012). All areas included in the CDC HIV

epidemiology survey had confidentially name-based reporting systems in effect and included reports from January 2007 through December 2010.

In 2010, 61% of all self-reporting participants diagnosed with HIV contracted the infection through male-to-male sexual activity (CDC. 2012). Among females, 18% contracted the infection through heterosexual sex; among males, 10% contracted the infection through heterosexual sex (CDC, 2012). Of the 29,194 people diagnosed with HIV in 2010 within the self-reporting states and independent areas, 37% were African American engaged in male-to-male sexual activity; European American males accounted for 36% of HIV infections contracted through male-to-male sexual activity (CDC, 2012). Within the same reporting period, 13,357 individuals diagnosed with HIV contracted the infection through heterosexual contact.

As of 2010, an estimated 64% of the individuals diagnosed with HIV through heterosexual contact were African Americans. In contrast, European American males accounted for only 12% of diagnosed HIV cases; European American women accounted for 15% of diagnosed HIV cases through heterosexual contact (CDC, 2012).

In the same reporting period, AA males were diagnosed at a rate 7.5 times greater than their European American counterparts (CDC, 2010). Compared to their Hispanic American or Latino American counterparts, the rate for AA males were 2.3 times greater (CDC, 2010). Overall, African Americans who were IV drug users accounted for almost 48% of all diagnosed HIV cases; 47% of AA males and 51% of AA females diagnosed with HIV were IV drug users (CDC, 2012). By 2010, among women living with HIV and residing in 49 self-reporting states and 5 independent areas. 59% were African American women compared to 19% European American women (CDC, 2012).

Among the 602,021 males living with HIV, 36% were African American and 30% were European Americans; 22% were of Hispanic or Latino descent (CDC, 2012). Among females living with HIV at the end of 2009, 74% contracted HIV through heterosexual contact; 26% contracted the infection through IV drug use (CDC, 2012). Three decades have passed since the first heterosexual African American woman tested positive for HIV. Despite public health efforts to control the incident and prevalence rate of infection, African American women are still the most vulnerable group for contracting HIV compared to any other racial or ethnic groups in the United States.

The Social, Economic, and Cultural Context of HIV/AIDS

The social determinates of health are defined as the conditions under which a person is born, lives, and dies (Braveman, Egerter, & Williams, 2010; Hayes, Nkenge, & Leonard, 2012; Navarro, 2009). The systems available to handle illness such as health insurance and access to quality medical care are also considered social determinants of health (Davis & Tucker-Brown, 2013). Such determinants include income status, level of education, gender, and social status. Determinants also include social factors such as self-efficacy, which affects the decision to use condoms for every sexual encounter, and it may influence open discussion about HIV/AIDS with a partner (Baggaley et al., 2012; Braveman et al., 2010; CDC, 2012; Dimitrov et al, 2012; Navarro, 2009; Office of Minority Health, 2010). In this study, I focused on several social determinants of health that may influence risky sexual behavior among AA women and increase the vulnerability to the infection including age, income, and level of education that may influence condom use self-efficacy and relationship power negotiating condom use.

Age. According to Anderson, Lemay, Maranda and Blake (2013), young people 15-24 years of age represent 25% of the sexually active population in the U.S.; however, they also acquire close to 50% of all new sexually transmitted infections. There have been many HIV/AIDS prevention studies that focused on AA women 13-24 years of age (Bazargan et al., 2000; Bazargan, 2000; Ferguson, Quinn, Eng, & Sandelowski, 2007; McAnulty, 2012). There were several studies that focused on women 50 – 75 years of age (Nguyen & Holodnix, 2008; Whitmore, Satcher, & Hu, 2005; Zablotsky, 1998); however, there were only a few studies that focused on middle-income AA women 25-45 years of age (Orel, Spence & Steele, 2005; Whitmore, et al., 2005). This is a pivotal age range for developing relationships including marriage. This is also the time when self-applied pressure to find a stable relationship, marry, and have children increases (Marsh, 2007). There may also be additional pressure from peers and family (Marsh, 2007).

Age is an important variable in this study because most HIV/AIDS diagnoses (67%) are among AA women 25-45 years of age; in 2009, HIV was the fourth leading cause of death among male and female African Americans 25 - 45 years of age (Dean, Steele, Satcher, & Nakashima, 2005; Kaiser Family Foundation, 2013; Marsh, 2007). Focusing on this particular age group is necessary due to the importance of HIV infection among causes of death, which is relatively high within this age range among African Americans (McLellan-Lemal et al., 2013).

Income. Poverty is often cited as a major contributor to the HIV/AIDS epidemic among African Americans (Dean & Fenton, 2010 Gilbert & Wright, 2003). According to the 2011 U.S. Census Bureau report, the poverty threshold for a family of four (two adults and two children) was $22.811 per year; for a family with one adult and three children it rose to $22, 891 (US Census Bureau, 2011). Due to lingering recession issues, many middle-income households, regardless of

race or ethnicity, face higher taxes and medical costs that greatly reduce take home pay to below the established poverty line (Cohen, 2011). Additionally, a significant number of Americans experience working poor status despite at least one family member being employed (Adrian & Coontz, 2010; Cohen, 2011).

A weakened U.S. economy has hit middle-income Americans the hardest; suburbanites were just as affected by the economic downturn as urban Americans the hardest; suburbanites are equally affected by the economic downturn as urban Americans. In 2004, the poverty rate in suburbia rose to 8.2% compared to 7.8 % in 2000 (DeJong, 2011). Over the years, inequalities in wealth and family income have become so entrenched that middle-income and low-income labels automatically create misperceptions of a person's moral character, education level, and general ability to self-protect (Adrian & Coontz, 2010; Cohen, 2011; DeJong, 2011). Research also shows that living in high poverty urban areas increases the chance of contracting HIV/AIDS for any sexually active individual regardless of race or ethnicity (CDC, 2010; Miles, 2011; Geronimus, Bound & Colen, 2011).

Research also indicates a weak correlation between income and race in regards to risky sexual behavior and HIV/AIDS (Geronimus et al., 2011; Higgins et al, 2009; Miles, 2011; Sithokozile, 2010). Income was chosen as a variable for this study due to its influence on the confidence to self-protect in regards to assertiveness, negotiation efforts, and the balance of relationship power. According to Kennedy and Jenkins (2011), low self-esteem contributes to low assertiveness. Low assertiveness affects the ability to negotiate condom use thereby increasing the risk of unprotected sexual activity (Small, Weinman, Buzi & Smith, 2010). A fluctuation in income may produce insecurities in regards to monetary survival and future

prospects. Such insecurities may influence relationship power, which affects negotiation efforts (Marsh, 2007).

Education. There has been a strong link between high-risk sexual behavior and limited knowledge of sexually transmitted infections (STIs), specifically HIV/AIDS (CDC, 2010; Raphael, 2008; Robinson, Sanders & Boyd, 2012; Sharpe et al, 2011). Often, the mention of education is within the context of the socioeconomic determinants of health (McNair & Prather, 2004, Miles, 2011; Navarro, 2009; Williams & Prather, 2010). There has been limited research on this particular issue as a separate phenomenon; however, research shows that a person's ability to respond to information may be greatly influenced by the level of education attained (Raphael, 2008; Robinson et al., 2012; Sharpe et al., 2011).

Several recent studies of African American college women have shown that despite advanced education attainment, AA women may lack the knowledge of at-risk sexual behaviors that places them at risk for contracting a STI in general and HIV/AIDS specifically (Belgrave, Corneille, Hood, Foster-Woodson, & Fitzgerald, 2010; Jackson & Pittiglio, 2012). For example, a study conducted by Moore (2012) at Ohio State University found that AA women enrolled in colleges or universities are a greater risk for STIs than AA women of the same age but not enrolled in a college or university. The higher risk may be due to a newfound freedom of expression and exploration without parental influences and the perception of safety among college males and on college campuses (Belgrave et al., 2010; McAnulty, 2012; Moore, 2012; Wright, Randall, &Hayes, 2012).

On an international scale, Aggleton, Yankah, and Crewe (2011) examined the critical role HIV/AIDS education plays in reducing the risk of infection specifically education that addresses

treatment options, prevention measures, and community support. According to Aggleton et al, globally, students may not receive adequate prevention education if they are displaced due to war, famine, or outbreaks of regional infectious diseases; if they are victims of poverty or if they are orphaned due to civil unrest, or death of the family caregiver. Teachers may be reluctant to teach HIV/AIDS prevention in the classroom for fear of reprisal from parents or being accused of having HIV/AIDS because they know too much about the infection (Aggleton et al., 2011). Robertson et al. (2012) investigated the effects of education levels on prevalent HIV infection and risky sexual behavior practices among youth 15 - 21 years of age and adults 22 - 54 years of age.

Robertson et al. found that general education played a critical role in HIV/AIDS prevention. Robertson et al (2012) also found that females with secondary education or higher significantly reduced their risk of contracting HIV/AIDS in comparison to females with only a primary educational background. Education was chosen as a significant variable for this study based on previous and current research addressing the phenomenon from a cultural and social context in the U.S. which shows that low self-efficacy crosses educational lines (Chandra, Billioux, Copen & Sionean, 2012; Jackson & Cummings, 2011; Marsh, 2007, Rothenberg, 2004). Single, AA women with advanced education and significant income also may exhibit risky sexual behavior (Jackson & Cummings, 2011; Marsh, 2007, Rothenberg, 2004). This may be due to altered feelings of self-efficacy influenced by financial uncertainty, peer and family persuasion, and/or a relationship power imbalance that may influence self-assertiveness capabilities (Jackson & Cummings, 2011; Marsh, 2007, Rothenberg, 2004, Wright et al., 2012).

Marital Status

Researchers have found a significantly lower prevalence of HIV among married AA women compared to households headed by single AA women (Morooka & Lampkins, 2014). There is a presumption of monogamy within the martial relationship that promotes the feeling of safety from HIV exposure (Morooka & Lampkins, 2014). Therefore, married AA woman are less likely to get tested for HIV compared to single, head of household AA women (Morooka & Lampkins, 2014). Although marriage lowers the odds of HIV infection, it does not protect against spousal promiscuity (Kposowa, 2013; Morooka & Lampkins, 2014).

Summary

Studies have shown a correlation between individual knowledge, attitudes and beliefs and the social/cultural environment in which individuals live (Aggleton et al., 2011). Within the standard health model of age, income, and education is another model of social and cultural influences unique to the African American population. Expanding public health intervention to include all segments of the African American society may reduce the risk of creating another subgroup disproportionally affected by HIV/AIDS.

Intervention Paradigms

HIV/AIDS research in the 1980s produced a behavior change paradigm that remained the focused on public health policy and intervention design in the new millennium (Nguyen et al., 2011). The key assumptions from previous research created a limited number of premises that continued to guide the development of previous and present intervention efforts (Nguyen et al., 2011; Roberts & Matthews, 2012). Since 2000, HIV/AIDS research has expanded to include research investigating the social and structural intervention paradigms that may prove more effective in addressing the HIV/AIDS epidemic among AA women (Higgins et al., 2007).

Behavioral Interventions

The majority of previous and present public health HIV/AIDS interventions, individual and community based, focused on changing risky behaviors by changing the way individuals and communities think and react to certain health issues (Higgins et al, 2010; Wohlfeiler & Ellen, 2007). In the case of HIV/AIDS, individual and community behavior interventions were designed to increase knowledge and encourage changes in attitudes and beliefs (Adimora & Auerbach, 2010; Davis, 2011; Dean & Fenton, 2010; Gilbert & Wright, 2003; Hodder et al., 2010). Interventions that focused on individual behavior change had limited success in changing at-risk sexual behaviors among African American teens and adults (Higgins et al 2010; Hodder et al., 2010).

Although interventions focused on a change in behavior among African American teens were more successful than interventions designed for at-risk African American adults, neither group achieved long-term individual behavior change (Battle, Cummings, Baker & Krasnovsky, 1995; Deardorff et al., 2013; El-Bassel et al 2009; Essien et al., 2005). Several earlier studies mentioned the need for further research of the cultural barriers that effect HIV/AIDs prevention efforts among AA women (Demarco et al., 2009; Williams, Wyatt, & Wingood, 2010); however, public health policymakers continued to support and fund interventions focused on individual behavioral change (Global HIV Prevention Working Group, 2008).

Interestingly, most of the behavioral interventions cited a narrow demographic and relatively small sample size as limitations to the studies that led to the development of behavioral interventions (Davidson, 2011; Jepson, Harris, Platt & Tannahill, 2010; El-Bassel et al., 2009). Certain researchers made it clear that the findings from their research did not have potential for

extrapolation across the entire population of at-risk AA women (Davidson, 2011; El-Bassel et al., 2009; Jepson et al., 2010).

Social Context Interventions

In the late 1990s, it became clear that focusing only on individual risky behaviors were insufficient in addressing the HIV/AIDS epidemic among African Americans. The persistent spread of HIV/AIDS infection among AA communities dictated the need to go beyond the traditional individualized interventions and develop interventions that considered the unique social and cultural aspects of individual lives. Wohlfeiler and Ellen (2007) proposed two novel approaches for HIV/AIDS prevention. The first approach required public health practitioners to become change agents to facilitate the development of policy, economical, and environmental strategies to create "self-sustainable" (p. 330) prevention methods that did not rely on continual public health staffing or financial support. This approach would have required public health professionals to become agents of change in addition to providers of needed services (Hicklin & Godwin, 2009). The second novel approach required a shift in focus from individual behaviors to the social context in which risky behaviors flourish (Beatty, Wheeler & Gaiter, 2004; Brodish et al., 2011; Wohlfeiler & Ellen, 2007).

Social context interventions address the key drivers that affect the efforts of AA women to protect themselves from HIV/AIDS. According to Auerbach, Parkhurst & Caceres (2011), social drivers include gender inequalities, income, and self-efficacy. Racial and health disparities are also social context issues that affect risky behavior among AA women regardless of income and education levels (Auerbach et al., 2011). Social context interventions also take

into account that reducing the incident rate of HIV/AIDS require more than behavior modification (CDC, 2010; Davidson, 2011; Essien et al., 2005).

Although AA women have the highest rate of HIV/AIDS compared to any other racial or ethnic female group, they do not produce the highest rates of at-risk sexual behavior (Battle et al 1995; Williams & Prather, 2010). Additionally, African American males and females are no more likely to engage in IV drug use than any other racial or ethnic group despite producing higher rates of IV drug use (National Institute on Drug Abuse [NIDU], 2010). Therefore, risky behaviors among AA females may be the result of an interaction between unique cultural norms, values, and social norms (Adimora et al., 2010; Bonell et al., 2006; Furstenberg, 2009; McNair & Prather, 2004). Understanding unique cultural and social norms is critical to the success of any intervention developed to modify risky behaviors among AA women (Adimora et al., 2010; Bonell et al., 2006; Furstenberg, 2009). Unfortunately, politics that shape public health policies continue to support individual risky behavior modification interventions even though such interventions require more time, money, and staffing (El-Bassel, 2009).

Structural Interventions

Social and structural interventions are often used interchangeably; however, structural interventions address the structures that may inhibit risky behavior modification (Rotheram-Borus & Swendeman, 2009). Structural interventions also address environmental issues that promote discrimination, segregation, and stigma (Seeley et al., 2012; Thomas-Slayter & Fisher, 2011). For example, gentrification of poor neighborhoods may lead to the displacement of a large number of poor due to an increase in housing prices (DeJong, 2011, Goetz, 2011). This may result in an increase in population within disadvantaged neighborhoods. The lack of

affordable transportation and supportive family structures could result in fewer AA women seeking HIV/AIDS testing or treatment (DeJong, 2011, Goetz, 2011).

Another example of a structural intervention is the distribution of clean needles to IV drug users (Bertozzi, Martz, & Piot, 2009; Mahal, O'Flaherty & Bloom, 2009). The clean needle program proved to be effective in reducing the spread of HIV/AIDS among IV drug users and their partners; however, during his presidency, George W Bush discontinued the program despite empirical evidence of the program's success (Bertozzi, Martz, & Piot, 2009; Mahal, O'Flaherty & Bloom, 2009). According to Auerbach et al (2011), successful structural interventions required identification of a target population; identification of the critical behavior patterns and social drivers that produced risky behavior; choosing the level of structural intervention; describing expected and potential change patterns; intervention design and implementation; and monitoring and evaluating the intervention. Most importantly, it required thorough knowledge of the structural and social issues that affect AA women in all segments of society (Auerbach et al, 2011).

Summary

The limited success of public health HIV/AIDS interventions developed to address AA women could be due to the continual failure of the public health community to address behavioral issues from a cultural aspect as opposed to individual failure. Utilizing a cultural-centric approach to HIV/AIDS intervention development requires public health professionals to develop a cultural approach to identify health issues and the barriers that hinder or prevent behavioral adaptation or change (Airhihenbuwa, Ford & Iwelunmor, 2013).

Theoretical Models

The purpose for the use of theoretical models is to explain and predict changes in at-risk sexual behavior among the targeted population (Fishbein, 2005; Maticka-Tyndale, 2012; Traube, Holloway &Smith, 2011). The theoretical models most cited in literature for HIV/AIDS intervention development are the Health Belief Model, the AIDS Risk Reduction Model, the Theory of Social Construction, the Theory of Reasoned Action, and the Social Cognitive theory (Fife-Shaw & Abraham, 2009; Jemmott, 2012).

The AIDS Risk Reduction Model (ARRM)

The ARRM provides a model for understanding and predicting changes in HIV/AIDS risk behavior in three stages (Crepaz et al., 2009: Kowalewski et al, 1994). In the first stage, the individual recognizes and personalizes the threat; in the second stage, the individual makes a commitment to reduce or eliminate risky behavior (Crepaz et al., 2009; Kowalewski et al., 1994). In the third stage, the individual takes action by seeking HIV/AIDS information; exploring options such as condom use or treatment options, and taking a proactive stance in getting tested and obtaining needed medication (Crepaz et al., 2009; Kowalewski, Longshore & Anglin, 1994; Rotheram-Borus, et al, 2009).

ARRM uses several variables from other models including the Health Belief Model's self-efficacy variable, and its success depends on the completion of each stage; however, there are limitations (Crepaz et al., 2009; Rotheram-Borus et al., 2009). First, the model only addresses individual behavior; secondly, the model does not place enough emphasis on the sociocultural barriers that influence the individual's risk behavior or perception of risk (Crepaz et al., 2009; Rotheram-Borus et al., 2009; Rotheram-Borus & Swendeman, 2009). In 1997, Boyer et al. conducted a cognitive/behavioral intervention study of high risk individuals (n = 399) at a STD

clinic in California. The study included African Americans (46%), European Americans (29%) and Hispanic Americans (17%); 63 percent of the participants were heterosexual males and 37 percent were heterosexual females, 18-35 years of age. The participants were divided into two groups; the first group received the intervention that included a 1-hour counseling/education session on risk reduction strategies per week for four weeks. The second group received the standard, single counseling session lasting 15 minutes (Boyer et al., 1997).

Although the participants reported a decrease in high risk sexual activity including condom use self-efficacy and a decrease in sex partners, detention rates were low. Five months after the intervention, there were no significant changes in behavior among either group, especially among the female participants (Boyer et al., 1997). This theoretical model also failed to address the situation and structure barriers significant to the social and cultural aspects of the HIV/AIDS epidemic among AA women; therefore, it was not chosen as theoretic model for this study.

The Theory of Social Construction

The Theory of Social Construction examined the cultural and social factors that influence risk perception and risk behavior. According to this theory, the reality of a particular social event such as HIV/AIDS is dependent on the time and the place in which the event is experienced (Auerbach, 2011; Bajos, 1997; Rhodes, 2008; Rotheram-Borus & Swendeman, 2009). For example, at the onset of the epidemic, the perception of risk among AA women across income levels was very low because the transmission of infection was limited to homosexual activity. Another example would be AA women living in rural areas who may perceive HIV/AIDS as an urban problem, which reduced their perception of risk although they may engage in at-risk

sexual behaviors (Seeley et al., 2012; Thomas-Slayter & Fisher, 2011). Lastly, middle-income AA women may perceive HIV/AIDS as an urban phenomenon limited to low-income AA women (Seeley et al., 2012; Thomas-Slayter & Fisher, 2011).

Additionally, this theory focused on the influence of social issues, such as experience with discrimination, stigma, and segregation, on risk perception across income levels. This theory was not limited to changing individual behavior; instead, it focused on shared cultural and social issues that influence group action (Rhodes, 2008). This theoretical model was considered as a framework for this study; however, it was not feasible due to the large number of social and cultural constructs the model represented.

Theory of Reasoned Action

The Theory of Reasoned Action (TRA) (1967) provided a four-variable framework for understanding and predicting behavior under the premise that the individual was a rational thinker, and the individual controlled the behaviors under investigation (Wingood & DiClemente, 2000). The behavior variable described a specific behavior in regards to action, target, context, and time (Ajzen, 2012). For example, using condoms (action) with partners (target) of unknown health status (context) consistently (time). The intention variable described the individual's intent to perform the desired behavior; the attitude variable described the individual's feeling towards performing the desired behavior and involved individual belief in a successful outcome (Bagozzi, 2011, Doswell, Braxter, Cha, & Kim, 2011). The norms variable described how the individual perceived the response of others in regards to the behavior and the influences such responses had on sustained behavior change (Jemmott & Jemmott, 1991; Wingood & DiClemente, 2000).

As with the other theoretical models, the limitation of this model is that it does not account for social and structural barriers to behavior change. Mathematical modeling research conducted by Gorbach and Holmes (2003), found that theoretical models based on individual behavior change failed to account for the power of partner influence on risk behavior. Additionally, TRA did not consider that an individual may follow a different path to behavior change. For example, the individual may change risk behavior then change his or her attitude and belief towards the behavior only after performing a certain behavior over time (Wingood & DiClemente, 2000). Due to the limitations of the TRA in addressing situation and structure barriers significant to the social and cultural aspects of HIV/AIDS among AA women, it was not chosen as theoretic model for this research.

The Social Cognitive Theory

Bandura's social cognitive learning theory posited that an individual's perception of self-efficacy significantly affected the ability to feel in control of behavior practices (Bandura, 2004). If an individual believes she or he has the power to control certain circumstances, the individual is more likely to engage in positive behaviors (Bandura, 2004). The theoretical model also postulated that individuals required practice and positive feedback to develop self-efficacy skills. According to Marsiglia et al. (2013), Bandura's model addressed the skills and the self-beliefs that enabled the individual to exhibit consistent positive action despite social, cultural, and economic barriers.

Several interventions targeting female teens and college students have used this theory to develop successful intervention programs (Luca & Suggs, 2012; Sales et al., 2010). The theory takes into account important situation and structural barriers to HIV/AIDS prevention among AA

women (Luca & Suggs, 2012. Additionally, the theory focused on the development of strong self-efficacy skills as a critical component in HIV/AIDS prevention (Sales et al., 2010). However, this theory was not chosen due to the lack of a central principle to provide structure to the theory and its failure to account for emotional responses that may influence condom use (Sales, Lang, DiClemente, Latham, Wingood, Hardin & Rose, 2012).

Health Belief Model

The Health Belief Model (HBM) was developed by the Public Health Service in the 1950s to understand the barriers that prevented individuals from participating in pre-screening and prevention intervention. The HBM focused on individual attitudes and beliefs (Neff & Crawford, 1998; Riley & Baah-Odoom, 2010). This psychology-based model consist of five variables. The perception of threat included the perception of susceptibility or the individual's perception of personal risk and the perception of severity (i.e., medical and social consequences of infection) (Riley & Baah-Odoom, 2010). Although the perception of threat is often based on the degree of knowledge concerning the infection, it may also be based on personal belief concerning the affect contracting the infection may have on one's life (Riley & Baah-Odoom, 2010).

Perceived susceptibility or risk has the greatest influence on the adaption of healthy behaviors; a heightened sense of risk increased the likelihood that a person would engage in healthy sexual behaviors (i.e., self-efficacy condom use) to decreases personal risk. However, if the person perceived the risk to be minimum or unlikely, he or she is less likely to engage in healthy sexual behaviors. Research conducted by Corneille, Zyzniewski and Belgrave (2009) found that older AA women had a low perception of HIV risks, which promoted unhealthy

sexual behaviors. Hall (2013) conducted research exploring casual sexual behavior (sociosexuality) among AA women of which 81 percent had at least a college degree. The study found a strong correlation between sociosexuality and perceived susceptibility, which correlated with riskier sexual behavior.

Perceived benefit referred to the individual's belief that the personal effort will prevent infection and therefore be worthwhile (Neff & Crawford, 1998; Riley & Baah-Odoom, 2010; Wright, Randall & Hayes, 2012). Perceived benefits play a critical role in preventive health actions, especially secondary actions such as HIV screening as part of a routine health examination. Perceived barriers referred to the individual's perception of the corporeal and psychological cost of compliance such as the loss of a job or a position in the community (Riley & Baah-Odoom, 2010; Wright, Randall & Hayes, 2012). Cues to Action referred to the willingness to change risky behavior based on instructional information, reinforcement, and continual support (Riley & Baah-Odoom, 2010; Wright, Randall & Hayes, 2012). Self-efficacy referred to the belief that the individual could consistently perform the actions necessary to prevent infection or to prevent the transmission of infection to another person (Neff & Crawford, 1998; Riley & Baah-Odoom, 2010).

Several research projects have successfully used the HBM to explore sexual behavior practices among AA women. In a meta-analysis of eighteen studies to determine if the HBM could be used to predict healthy sexual behaviors, Carpenter (2010) found that perceived benefits and perceived barriers were strong predicators of condom use self-efficacy. The HBM provided a useful framework for Downing-Matibag and Geisinger in their 2009 study that surveyed seventy-one AA college women engaged in casual sexual relationships. There searchers found that the

HBM framework was useful in understanding sexual risk practices among AA college women. Wright, Randal, and Hayes (2012) also found the HBM useful in predicting condom use among AA college women; the research found that AA women exhibiting a high degree of condom assertiveness had a greater perception of susceptibility and a greater sense of self-efficacy in condom assertiveness.

Williams (2012) used the HBM as a theoretical framework to establish a link between popular urban music and risky sexual behavior among emerging adult AA women. The research found that urban music could be a cue to action in regards to risky sexual practices. Lastly, reteach conducted by Shi, Kanouse, Baldwin and Kim (2012) found a strong correlation between the perception of the prevalence of HIV within the community and engaging in protective behaviors such as using condoms and yearly HIV screening. Although the model has received criticism for failing to account for variances in behavior patterns, it was chosen for this study due to its reliable and valid application to predict health behaviors among African American (Kline & Huff, 2007). The HBM specifically addressed the construct of risk perception and the factors that influence the perception of risk, which is the focus of this research (Baban & Craciun, 2007; Orji, Vassileva & Mandryk, 2012).

Review of Methodology

There is a dearth of quantitative HIV/AIDS prevention studies involving AA women across income levels. Most studies reviewed (n = 22) were qualitative using semi-structured questionnaires and focus groups of low-income AA women either diagnosed with HIV/AIDS or with underlining issues that increased the risk of HIV (i.e., drug use, incarceration, and sexual abuse). For example, qualitative research conducted by Noar et al. (2012) focused on sexual

relationships and risk behaviors among AA women 18-45 years of age visiting a publicly funded STI clinic in a large city in the southeastern United States. Qualitative research conducted by Prather et al. (2012) used focus groups and semi-structured questionnaires to investigate microenterprise as a means to reduce the risk of HIV infection among unemployed and underemployed AA women. Unfortunately, information concerning the theoretical framework of both studies was vague.

There were several notably quantitative and mixed methods research projects focusing on AA women and HIV risk behavior. Lanier (2013) conducted a quantitative cross-sectional, correlation design study of the beliefs; peer perceptions; relationship power; and, sexual behavioral practices among low-income AA women in the southeastern U.S. based on the Theory of Planned Behavior. The theory posited that beliefs were precursors to understanding and explaining behavioral practices. Newsome and Airhihenbuwa (2012) conducted research on the effects of gender ratio imbalance on risky sexual behavior among AA women. The research focused on sexual networks unique to AA women that created a very small circle, which allowed HIV to spread rapidly. AA women exhibiting low risk sexual behavioral practices (i.e., condom use self-efficacy use, minimum partner exchange, etc.) were still at high risk for HIV due to a gender ratio imbalance within African American communities. This type of imbalance often resulted in AA men having multiple female sex partners and AA females surrendering their relationship power and compliance with partner demands for sex without condoms (Newsome & Airhihenbuwa, 2012).

Eyre, Flythe, Hoffman, and Fraser's (2011), mixed methods research explored the effects of infidelity on sexual relationships and the implications for HIV/STI prevention among low to

middle-income African Americans 19 - 22 years of age using grounded theory analysis. Bingham, Harawa, and Williams' (2013) quantitative research on gender role conflict among bisexual AA men found a high level of gender role conflict among the group, which increased the likelihood of engaging in sexual risk behavioral practices due to low self-esteem, reduced HIV knowledge, and non-disclosure of dual sexuality. The research also examined the beliefs, peer perceptions, and self-efficacy among AA women but it differed in the focus on an exclusive sub population of AA women that were older, and more financially stable than the subjects of previous risk behavior research (Bingham, Harawa, &Williams 2013).

Summary

The purpose of this literature review was to identify the social determinants of health that influence perception of sexual risk; prevailing intervention themes used to address the HIV/AIDS epidemic among African American females; and, the theoretical models used to develop HIV/AIDS interventions. The result of the review indicated that the social determinants of health, in regards to HIV/AIDS risk perception and risk behavior modification, mainly applied to one subgroup of African Americans, which were low-income AA women. The focus of the majority of studies reviewed varied according to current trends such as low-income, AA single mothers; AA females on public assistance; incarcerated AA females; or AA female drug users. Other studies focused on college aged AA females and perception of risk. There was limited research involving middle-income AA women and HIV/AIDS vulnerability. There was a large amount of information available on interventions currently used to address HIV/AIDS risk among low-income AA women but there was little information on interventions designed specifically for middle-income AA women. A review of literature on the theoretical models

used to develop HIV/AIDS prevention interventions indicated a lack of focus on social construction in the U. S. despite research that supported the need to address the influence of social constructs in HIV/AIDS policy and intervention development. This literature review highlighted the critical need for more research involving middle-income, adult African American female to determine the best methods to promote behavior change within the context of social and cultural barriers that affect self-efficacy practices.

Chapter Three: Methodology

This study focused on middle-income AA women 25-45 years of age. Historically, this sub population has been under addressed in regards to the HIV epidemic within African American communities. Currently, the sub population that identifies as most at risk for contracting HIV is low-income, urban AA women who are likely to be undereducated, under or unemployed and lacking access to quality health care (CDC, 2010). This sub population is also less likely to ensure the consistent use of condoms during sexual activity due to social and cultural stressors that make it difficult to exhibit relationship self-efficacy (CDC, 2010). However, low-income urban dwelling AA women are not the only sub population at risk for infection.

All AA women must deal with the social and cultural issues that result from being an African American female in today's society (Newsome & Airhihenbuwa, 2013). Middle and high-income AA women also must handle additional stressors as they struggle to obtain acceptance outside of their communities and maintain their place within the general society (Newsome & Airhihenbuwa, 2013). The purpose of this study was to explore perceptions and relationship self-efficacy among middle-income AA women based on the theoretical foundation of the Health Belief Model (HBM). This study also focused on the social and cultural influences unique to AA women that may contribute to perceptions and self-efficacy within a heterosexual relationship; the variables addressed in this study were the five constructs of the HBM. A reliable and validated survey instrument was administered to assess perception and relationship self-efficacy among the participants who meet the criteria for inclusion (age, income, and marital status).

This chapter presents the research design and rationale and identifies the target population. Additionally, this chapter provides information on sampling strategy and procedure, recruitment and data collection processes, instrumentation and operational constructs, significant variables, data analysis plan, threats to validity, and ethical considerations.

Research Design and Rationale

This study included a quantitative cross-sectional research design to assess the variables associated with the HBM constructs and condom use self-efficacy among a snowball sample of middle-income AA women who meet the inclusion criteria. A cross-sectional design was used to address a subpopulation that may differ in the variable of interest, condom use self-efficacy, but share other characteristics such as income, marital status, and ethnicity (Lavrakas, 2008). Cross-sectional studies are not causal and variables cannot be manipulated; they are useful for identification of certain characteristics within the targeted population but cannot be used to predict a cause-effect relationship between variables. It was not the intent of this study to identify causal relationships between the variables but rather to provide grounds for inference and to open the door for further study of this phenomena among the targeted subpopulation (Thisted, 2006).

The decision to employ the HBM for this study was based upon analysis of other comparable studies that illustrated the significance of each construct in regards to predicting health behaviors as demonstrated in the literature review (Anaebere et al, 2013; Jackson & Pittiglio, 2012; Rosenstock, Strecher, & Becker, 1994). Avoidance of negative health consequences is the major outcome of the HBM, and each construct indicate significant perceptions related to healthy sexual practices and condom use self-efficacy.

The rationale for the survey as a data collection tool was the low cost of data collection, time constraints, and the anonymous nature of the survey that encourages honest responses. Even adults may find it difficult to admit to unsafe sexual practices and the lack of relationship self-efficacy within a group of peers or in a one-on-one interview session for fear of negative judgment. Also, a survey design afforded a close-up view of a particular phenomenon in real time and provided information that could be extrapolated over an extended period of time (Leedy & Ormrod, 2001).

Methodology

Population

There are approximately 45 million African Americans within the U.S. which represents 13.1 % of the total U.S. population (, 2013). As of 2012, the District of Columbia has the largest concentration of African Americans (51.6%) followed by Mississippi (38%), Georgia (30%), North Carolina (22%), Florida (15.91%) and New York (15.19%). Among the total population of African Americans, 52% were females; during the same reporting period, 51% were 18- 34 years of age and 53% were 35-64 years of age (United States Census Bureau [USCB], 2013). Ninety –two percent of the African American female workforce earned at least $39,000 per year in “white collar” professional services. Eighty-four percent of all AA females are high school graduates; 21% have at least a four-year college degree (USCB, 2013). Within the U.S., married couples make up 43.9% of the African American population; single AA female households (i.e. partner present) represent 19.8% of the total African American population (BlackDemographics, 2014).

Sampling and Sampling Procedure

I used a snowball sampling technique to recruit participants. Although mainly used by researchers to reach populations difficult to locate such as the homeless or indigent populations, snowball sampling is used to take advantage of social networks to identify participants (Atkinson & Flint, 2013).). Information concerning the purpose of the study was posted on my personal page on Facebook, Twitter, and LinkedIn with an addition line asking participants to forward the posts to other AA women in the area. The sampling criteria for inclusion are presented in Table 2 follows:

Table 2.

Inclusion and Exclusion Criteria

Demographic Criteria	Inclusion	Exclusion
Ethnicity	African American	All others
Age	25-45	Under 25 and over 45
Income	40K-99K per year	<40K – 99K> per year
Marital Status	Single, married, separated, divorced, widowed	NA
Location	Within the U.S./ English as first language	Outside of the U.S./ English as secondary language

Sample Size

The size of the targeted population needed for this study (n =142) was obtained using G*Power 3 software. I used an f test for multiple linear regression analysis with *A piriori* to compute required sample size. Calculations were based on the five predictors of the HBM; the medium effect size of 0.30 was choosen to provide a clearer picture of the statistical significance of the results. If the effect size was too low, the significance of the findings may not have been readily apparent; if the effect size is too high, it may inflate the significance level (Nandy,

2013). This increases the chance of comitting a Type I or Type II error. I used an alpha of 0.05 and a 95% power range to reduce the probality of a Type I or II error.

Procedure for Recruitment, Participation and Data Collection

A notice (Appendix A) was posted on my personal social network pages explaining the purpose of the study and directions on how to access *Survey Monkey*. I also included the estimated amount of time (45 minutes) needed to complete the survey, and an email address the participants could use to contact me for study results. An additional line was added to encourage participants to forward the posts to other AA women in the area. Survey responses were accepted or rejected based on the demographic information provided in the survey. Survey Monkey installed "triggers" for age, income, location, and ethnicity; participants who did not meet the inclusion requirements (indicated by the response to any of these four questions) received a pop-up message thanking them for their participation and informing them that they did not meet the inclusion criteria.

The Survey Monkey site also included the letter of informed consent (Appendix B), which stated that completing the survey would indicate that the participant consented to participate in the study, the participant understood the purpose of the study, including the use of the data collected. Additionally, the survey engine site provided a method of ensuring all questions were answered by participants (skip logic) before proceeding to the next page of the survey and before exiting the survey to reduce the threat of missing or incomplete data which may have skewed survey results and lead to incorrect conclusions.

The survey remained open for 3 months to ensure sufficient time to gather the number of responses needed. It was necessary to post two reminder notices on the social media sites to

encourage participation and motivate procrastinators. After failing to collect the required number of responses after the 3 month window, I used Survey Monkey to collect the rest of the participant responses. I offered potential participants $10.00 to complete the survey however, I insured that each participant agreed to the letter of consent. Survey Monkey tabulated the survey scores and provided an Excel spreadsheet that was transferable to the Statistical Package foe Social Science (SPSS) software for analysis. The use of an Internet survey eliminated the need to provide participant debriefing; it eliminated the need to develop and implement follow-up procedures once the initial survey was completed and the information was captured for analysis (Wishart & Kostanski, 2009). All participants were provided with an email address to contact me for a copy of the study results.

Instrumentation and Operationalization of Constructs

Instrumentation

Data was collected using a 41-item questionnaire, which contained 32 items tested in the validation of the Sexual Risk Behavior Belief and Self- Efficacy Scales (SRBBS) (Basen-Engquist et al, 1999) (see Appendix C). The SRBBS consist of eight scales measuring attitudes, norms, self-efficacy, and perceived barriers to condom use self-efficacy. For this study, the scales used to measure the variables of interest are as follows:

1. Demographics: Seven items (Questions 1-7) assessed the general demographics of the participants and ensured participants meet the inclusion criteria of ethnicity, age, income, martial status, and location.
2. Perceived threat: Three items (questions 8-10) assessed the perception of threat, using a 4 -point Likert scale. Responses ranged from “Definitely yes” (4) to “Definitely no”.

3. Perceived benefit: Three items (Questions 11-13) were used to assess perceived benefit, using a 4-point Likert scale. Responses ranged from “Definitely yes” (4) to “Definitely no”.
4. Perceived barriers: Six items (Questions 31-36) were used to assess barriers to condom use using a 4-point Likert scale. Responses ranged from “Strongly agree” (4) to “Strongly disagree”.
5. Cues to action: Six items (Questions 14-19) were used to measure cues to action using a 4-point Likert scale. Responses ranged from “Strongly agree” (4) to “Strongly disagree”.
6. Condom Use Self- Efficacy: Six items (Questions 20-25) were used to measure self-efficacy in regard to the use of a condom using a three- point Likert scale; responses ranged from “Very certain” (3) to “Not certain”.
7. Relationship Self-efficacy: Six items (Questions 20-25) were used to measure self-efficacy in communicating with partner, sing a 3 point Likert scale. Responses ranged from “Very certain” to “Not certain”.

The SRBBS was chosen for this study because of its inclusion of the constructs of interest and the reliability and validation of the survey using three focus groups of AA women ages 18-49 (Farmer & Meston, 2006).

Table 3

Sexual Risk Behavior Beliefs and Self-Efficacy Scales (SRBBS):

Scale	Crobach’s α	Items per	Range of	Corresponding Questions

		Scale	Scores	
Perceived Threat	.87	3	3-9	8-10
Perceived Benefits	.87	3	3-9	11-13
Cues to Action	.84	6	6-24	14-19
Self-Efficacy (communication)	.66	6	5-18	20-25
Self-Efficacy (using and purchasing condoms)	.61	5	5-18	26-30
Perceived Barriers	.73	6	6-24	31-36

The total score for each construct was used to calculate descriptive data such as frequency, means, median, and standard deviation (*SD*).

Operationalization of Constructs

The dependent variable for this study was condom use self-efficacy as a predictor of safe sexual practices and sexual behavior. For the purpose of this study, condom use self-efficacy was defined as the constant use of male, latex condoms during every sexual encounter regardless of length of the relationship. The independent variables were the perceived threat of contracting HIV, perceived benefits of employing safe sex practices, the perceived barriers to condom use, relationship self-efficacy in successfully negotiating the use of condoms, and cues to action including the internal and external influences that may promote protective sexual behavior.

Data Analysis Plan

SPSS software was utilized to perform all computational analyses. Survey Monkey tabulated the survey scores and provided an Excel spreadsheet that was transferable to SPSS for analysis. Survey Monkey also provided a graph of the results according to age, income, education, relationship status (never married, separated, divorced, and widowed) and geographical location to facilitate further analysis.

I sought to answer the following questions and test the associated hypotheses:

RQ1: Is perceived threat a predictor of condom use self-efficacy after controlling for age, yearly income, highest level of education, and marital status?

H_0: Perceived threat is not a predictor of condom use self-efficacy after controlling for age, yearly income, highest level of education, and marital status.

H_1: Perceived threat is a predictor of condom use self-efficacy after controlling for age, yearly income, highest level of education, and marital status.

RQ2: Is perceived benefits a predictor of condom use self-efficacy after controlling for age, yearly income, highest level of education, and marital status?

H_0: Perceived benefits is not a predictor of condom use self-efficacy after controlling for age, yearly income, highest level of education, and marital status.

H_1: Perceived benefits is a predictor of condom use self-efficacy after controlling for age, yearly income, highest level of education, and marital status.

RQ3: Is perceived barriers a predictor of condom use self-efficacy after controlling for age, yearly income, highest level of education, and marital status?

H_0: Perceived barriers is not a predictor of condom use self-efficacy after controlling for age, yearly income, highest level of education, and marital status.

H_1: Perceived barriers is a predictor of condom use self-efficacy after controlling for age, yearly income, highest level of education, and marital status.

RQ4: Is cues to action a predictor of condom use self-efficacy after controlling for age, yearly income, highest level of education, and marital status?

H_0: Cues to action is not a predictor of condom use self-efficacy after controlling for age, yearly income, highest level of education, and marital status.

H_1: Cues to action is a predictor of condom use self-efficacy after controlling for age, yearly income, highest level of education, and marital status.

RQ5: Is relationship self-efficacy a predictor of condom use self-efficacy after controlling for age, yearly income, highest level of education, and marital status?

H_0: Relationship self-efficacy is not a predictor of condom use self-efficacy after controlling for age, yearly income, highest level of education, and marital status.

H_1: Relationship self-efficacy is a predictor of condom use self-efficacy after controlling for age, yearly income, highest level of education, and marital status.

A frequency analysis was used to explore the extent of perceived susceptibility; perceived severity; perceived barriers; cues to action; and, perceived self-efficacy among the population. A multiple linear regression analysis was used to explore the relationship between condom use self-efficacy (dependent variable) and the HBM constructs (independent variables) previously identified as predictors of condom use self-efficacy. This type of analysis is appropriate when using quantitative variables to explore a possible relationship to the predictor variables (Simon, 2003). According to Osborne & Waters (2002), there are four assumptions of regression analysis that must be addressed to avoid a Type I or Type II error and under or over estimating significance; the SPSS statistical software was used to address the assumptions of regression analysis.

Normal distributions Regression analysis assume variables have normal distributions; removing the univariate and bivariate outliers can decrease the probability of Type I/II error (Nau, 2015; Osborne & Waters, 2002; Tabachnick & Fidell, 2001). According to Osborne & Waters (2002), visual assessment of data and P-P plots skew and kurtosis can provide the

information needed to ensure normal distribution. Histograms, frequency distributions, and the use of *z*-scores can also identify outliers (Osborne & Waters, 2002).

Linearity: A linear relationship must exist between the independent and dependent variables to identify a true relationship (Nau, 2015; Osborne & Waters, 2002; Tabachnick & Fidell, 2001). Residual plots can expose non-linear relationships and validate linear relationships (Nau, 2015; Osborne & Waters, 2002).

Reliability: The use of multiple independent variables can decrease reliability on the strength of the relationship between the dependent and the independent variables (Tabachnick & Fidell, 2001). If one independent variable is unreliable in determining the strength of the relationship to the dependent variable, all other independent variables that follow can be affected and increase the chances of committing Type I and II errors (Tabachnick & Fidell, 2001). Testing for reliability covariates and the reliability of all variables can decrease the probability of weak reliability (Nau, 2015)

Homoscedasticity: It is assumed that the variance of errors is the same across all levels of the independent variables (Nau, 2015; Osborne & Waters, 2002; Tabachnick & Fidell, 2001). Heteroscedasticity occurs when there are differences in the variance of errors; a high degree of heteroscedasticity can increase the probability of a Type I error (Nau, 2015). Creating a plot of the standardized errors (residuals) and examining the plots to ensure the errors are evenly distributed around the horizontal line of the plot is an acceptable method for ensuring homoscedasticity (Nau, 2015). The multiple linear regression analysis included a test of statistical significance for the correlation coefficients, *R*; the absence of statistical significance could indicate that correlations were obtained by chance (Abrams, 2007). The correlation

coefficients measured the degree to which condom use can be predicted from a set of independent variables.

Threats to Validity

External Validation

External validation refers to the ability to generalize data across different groups in different locations at different times (Moons et al., 2012)**.** The threat to external validity included the attempt to generalize results across a specific population. Choosing participants who match in location, age, marital status, and income and ensuring an appropriate sample size helped mitigate external validity.

Internal Validation

In correlation research, internal validation refers to the inference that there is a causal relationship between research variables. According to Cone and Foster (2006), the three types of threats to internal validity are reverse causation, confounding variables and reciprocal causation. Reverse causation refers the incorrect identification of dependent and independent variables (Cone & Foster, 2006). For example, the use of condom use self-efficacy as an independent variable would be incorrect. Confounding variables refers to a variable or variables that may contribute to the variation in both the dependent and independent variables and does not allow for the manipulation of confounding variables; therefore, it is necessary to ensure participants are well matched in age, income, marital status, and level of education (Cone & Foster, 2006).

Restricting participation to women and the use of multiple linear regression to analyze data provided the means to measure the level of influence of the independent variables and statistically control for confounding variables. Reciprocal causation refers to a change in the

independent variable that influence the dependent variable thus influencing the independent variable (Cone & Foster, 2006). Managing reciprocal causation requires the avoidance of causation assumptions based on data analysis. Since this study focused on association and not causation, reciprocal causation did not pose a threat to internal validity.

Ethical Procedures

Obtaining approval from the Walden Institutional Review Board (IRB) (see Appendix D) to conduct the study using human subjects ensured the research was ethical and that the participants were not at risk (approval # 05-16-14-0175315). IRB approval indicated that the research process was sound, and the participants were protected from exploitation. Exploitation includes the use of names, addresses, and contract numbers to solicit additional information or the use of information gathered for purposes unrelated to the study. Protection is assured by disseminating the information through social networks to ensure names and contact information, such as email addresses of the participants, remain private.

The Survey Monkey site ensured no names or identifiable numbers were forwarded with the survey results to maintain confidentiality of the study participants thus ensuring that no names or identifiable numbers appear in the data tabulations and data analysis. An additional ethical procedure included a letter of informed consent (see Appendix B) attached to the solicitation describing the purpose of the study, the benefits and the risk of participation, the right to refuse or withdraw, and steps taken to ensure confidentiality. Once all of the data had been captured, the survey and resulting responses were permanently removed from the site. Exported data from the Survey Monkey site was protected using an encrypted USB flash drive

for data storage. The encrypted USB flash drive was stored in a locked file cabinet in a private office and, after five years, I will delete the data.

Summary

I used frequency analysis and multiple linear regression analysis to determine if there was an association between the independent and dependent variables. The instrument of choice was the 41-item Sexual Health and Belief Scale, which was an effective tool for investigating associations based upon the five HBM constructs. External validation was controlled by ensuring the participants were matched in age, location, marital status, and income. Internal validation was controlled by gender restriction and the use of multiple linear regression analysis. The ethical considerations included maintaining confidentiality by ensuring all responses remained anonymous with no identifying numbers or symbols. In chapter 4, I provide an in-depth description of the methods used to collect and analyze data and the results of the data analysis.

Chapter 4: Data Analysis

The purpose of this study was to explore the association between HIV risk perception and condom use self-efficacy among middle-income AA women using five constructs of the Health Belief Model (HBM) (perception of threat, perceived benefits, perceived barriers, cues to action, and relationship self-efficacy) and the controlling factors (age, income, education attainment, and marital status) as the independent variables.. The dependent variable for this study was condom use self-efficacy.

Five research questions guided this study:

RQ1: Is perceived threat a predictor of condom use self-efficacy when controlling for age, yearly income, highest level of education, and marital status?

H_0: Perceived threat is not a predictor of condom use self-efficacy when controlling for age, yearly income, highest level of education, and marital status.

H_1: Perceived threat is a predictor of condom use self-efficacy when controlling for age, yearly income, highest level of education, and marital status.

RQ2: Is perceived benefits a predictor of condom use self-efficacy when controlling for age, yearly income, highest level of education, and marital status?

H_0: Perceived benefits is not a predictor of condom use self-efficacy when controlling for age, yearly income, highest level of education, and marital status.

H_1: Perceived benefits is a predictor of condom use self-efficacy when controlling for age, yearly income, highest level of education, and marital status.

RQ3: Is perceived barriers a predictor of condom use self-efficacy when controlling for age, yearly income, highest level of education, and marital status?

H_0: Perceived barriers is not a predictor of condom use self-efficacy when controlling for age, yearly income, highest level of education, and marital status.

H_1: Perceived barriers is a predictor of condom use self-efficacy when controlling for age, yearly income, highest level of education, and marital status.

RQ4: Is cues to action a predictor of condom use self-efficacy when controlling for age, yearly income, highest level of education, and marital status?

H_0: Cues to action is not a predictor of condom use self-efficacy when controlling for age, yearly income, highest level of education, and marital status.

H_1: Cues to action is a predictor of condom use self-efficacy when controlling for age, yearly income, highest level of education, and marital status.

RQ5: Is relationship self-efficacy a predictor of condom use self-efficacy when controlling for age, yearly income, highest level of education, and marital status?

H_0: Relationship self-efficacy is not a predictor of condom use self-efficacy when controlling for age, yearly income, highest level of education, and marital status.

H_1: Relationship self-efficacy is a predictor of condom use self-efficacy when controlling for age, yearly income, highest level of education, and marital status.

In this chapter, I begin with a presentation of the descriptive statistics (frequencies and percentages) for the demographic characteristics, the five constructs of the HBM and the controlling factors (independent variables) and condom use self-efficacy (dependent variable). In the second section of this chapter, I explore the inferential statistics and multiple linear regression calculations performed to answer the five research questions. I end the chapter with a description of the results and the analyses performed.

Data Collection

Initially, **s**tudy participants were solicited using my personal Facebook, Twitter, and LinkedIn accounts. After 4 months and four reminders, a total of 68 eligible participants were obtained, which was short of the desired number of participants (n = 142). In September 2014, I received approval from the IRB to allow Survey Monkey to obtain the additional participants needed; Survey Monkey posted the survey for an additional 4 weeks and obtained 95 participants bringing the total number of participants to 163. The survey was closed the third week of October 2014. A total of 163 African American (AA) women participated in the study of which 11 participants were culled due to income level (>$95,000) bringing the total number of eligible participants to 152 AA women throughout the United States (Table 4).

Table 4

Frequencies and Percentages for Categorical Variables (n =152)

Variables	*n*	%
Ethnicity		
African American	152	100
Age		
25-29	15	10
30-35	49	32
36-40	44	29
41-45	44	29
Born in the US		
Yes	152	100
Yearly Income		
$40,000 to less than $50,000	40	26
$ 50,000 to less than $60,000	40	26
$60,000 to less than $ 70,000	38	25
$70,000 to less than $85,000	20	13
$85,000 to less than $95,000	14	9
US Residence		
East	31	20
North	21	14

South	79	52
West	21	14
Type of Residence		
City	79	52
Rural area	19	13
Suburban area	54	36
Highest Level of Education		
Less than 4 years of high school/		
High school diploma/GED	13	9
1 to 3 years of college	29	19
4 or more years of college (college graduate)	46	30
Graduate degree (MS, MA PhD)	52	34
Professional degree (JD, DDS, MD, etc.)	12	8
Marital Status		
Single	68	45
Married	61	40
Divorced	19	13
Separated/Widowed	4	3

Note. Due to rounding error, percentages may not add up to 100.

Preliminary Analysis

In the preliminary analysis, I screened the data for univariate outliers using *z* scores; scores below -3.29 or above 3.29 were removed from the data set (Stevens, 2009). A total of six outliers were removed from the dataset prior to the final data analysis. The assumption was that outliers represented survey responses that widely deviated from the general response of the sample population (Osbourne & Overbay, 2004). Although some argument exist over the validity of removing outliers, I decided to remove the responses that fell outside of the established *z* score data points to reduce the rate of error (Osbourne & Overbay, 2004).

Because income was a categorical variable, it was dummy-coded for the regression; the level $40,000 to less than $50,000 of income was used as the reference category. Because education attainment was a categorical variable, it was dummy-coded for the regression; the graduate degree level was used as the reference category. Because marital status was a

categorical variable, it was dummy-coded for the regression; the level single within the marital status category was used as the reference category. Because age was a categorical variable, it was dummy-coded for the regression; the age 30-35 was the reference category.

Means and Standard Deviations

The perceived threat observations ranged from 2.00 to 4.00, with an average observation of 3.15 (*SD* = 0.45). The perceived benefits observations ranged from 1.50 to 4.00, with an average observation of 3.46 (*SD* = 0.55). The cues to action observations ranged from 2.67 to 5.00, with an average observation of 3.88 (*SD* = 0.53). The relationship self-efficacy observations ranged from 1.60 to 3.00, with an average observation of 2.76 (*SD* = 0.30). The condom use self-efficacy observations ranged from 1.50 to 3.00, with an average observation of 2.64 (*SD* = 0.36). The perceived barriers observations ranged from 1.00 to 5.00, with an average observation of 1.93 (*SD* = 0.83). Means and standard deviations for continuous variables are presented in Table 5.

Table 5

Means and Standard Deviations for Continuous Variables (n=152)

Variable	*M*	*SD*
Perceived Threat	3.15	0.45
Perceived Benefits	3.46	0.55
Cues to Action	3.88	0.53
Relationship Self-Efficacy	2.76	0.30
Condom Use Self-Efficacy	2.64	0.36
Perceived Barriers	1.93	0.83

Assumption Testing

According to Stevens (2009), the analyses for ungrouped data may be robust to a violation of homoscedasticity; in this case, the analysis may be weakened but not rendered invalid. To address any violations to homoscedasticity, I opted to use a more stringent alpha level (α =.025) for moderate violations and α=.01 for severe violations (Stevens, 2009). All other assumptions of linear regression were tested, including a linear relationship, determining significant outliers, normal distribution, and independence of outliers. There were issues of skewness in the independent variables of the analyses. To address this skewness, log transformations were conducted on the variables prior to analysis.

Results

Research question 1

Is perceived threat a predictor of condom use self-efficacy when controlling for age, yearly income, highest level of education, and marital status?

Prior to conducting the multiple linear regression analysis, the assumption of normality was assessed using a Q-Q scatterplot.

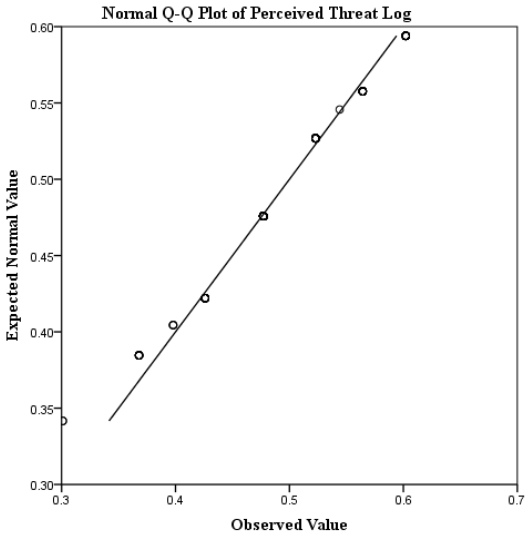


Figure 4.1. Q-Q Plot for Perceived Threat (transformed).

The Q-Q scatterplot indicated perceived threat did not violate the assumption of normality. The assumption of homoscedasticity was assessed using a residual scatterplot (Figure 4.2) and the assumption of homoscedasticity was met because the points were distributed in a rectangular pattern and the curvature line was approximately straight (Field, 2013).

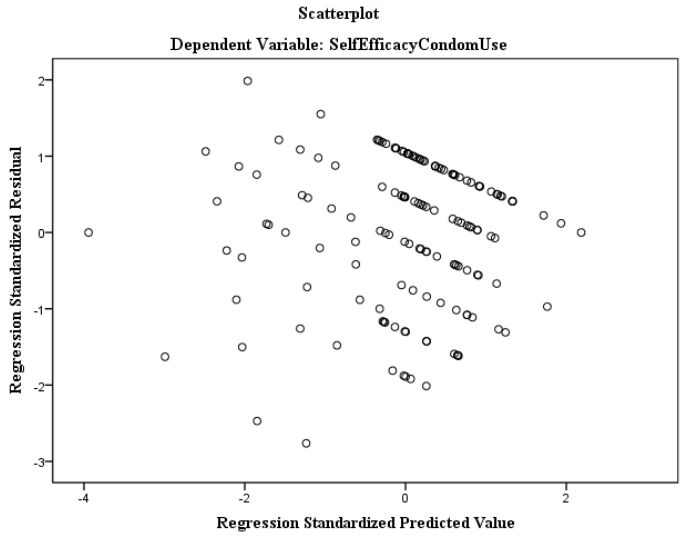


Figure 4.2. Residual Scatter Plot for Perceived Threat with Controlling Factors.

To examine the research question, a multiple linear regression was conducted to determine whether perceived threat predicted condom use self-efficacy, after controlling for age, income, education attainment, and marital status. Variables were entered in two blocks; block one consisted of the controlling variables (i.e. age, income, education, and marital status), while block two consisted of perceived threat. The results of the multiple linear regression were significant in block one, $F(17,135) = 1.923$, $p = 0.023$, $R^2 = 0.19$, suggesting that age, income, education attainment, and marital status accounted for 19% of the variance in condom use self-efficacy. The results of the multiple linear regression were significant in block two, F (17,135) =

2.035, $p = 0.013$, $R^2 = 0.21$, suggesting that perceived threat accounted for only 2% of the variance in condom use self-efficacy and this construct was not a significant predictor of condom use self-efficacy (p=0.071) (Table 6). An examination of the individual confounding variables showed that income, specifically $85,000 to $95,000 ($B$ = -.381, p = 0.002), was a significant to condom use self-efficacy (Table 6). In this case, the null hypothesis was accepted; after controlling for age, income, education attainment, and marital status, perceived threat was not a significant predictor of condom use self-efficacy among this population.

Table 6

Results for Multiple Linear Regression with Age, Yearly Income, Education Attainment, Marital Status, and Perceived Threat predicting Condom Use Self-Efficacy

	B	*SE*	*Std. B*	*t*	*p*
25-29 (ref: 30-35)	-.082	.109	-.068	-.758	.450
36-40 (ref: 30-35)	.024	.078	.031	.311	.756
41-45 (ref: 30-35)	.022	.076	.028	.288	.773
$50,000 to less than $60,000 (ref: $40,000 to less than $50,000)	.018	.080	.022	.219	.827
$60,000 to less than $ 70,000 (ref: $40,000 to less than $50,000)	.068	.082	.081	.824	.411
$70,000 to less than $85,000 (ref: $40,000 to less than $50,000)	-.174	.110	-.164	-1.591	.114
$85,000 to less than $95,000 (ref: $40,000 to less than $50,000)	-.381	.118	-.307	-3.224	.002
Less than four years of High School (ref: Graduate school)	-.536	.356	-.121	-1.507	.134
High School Diploma/GED (ref: Graduate school)	.175	.116	.131	1.502	.135
1 to 3 years of college (ref: Graduate school)	.047	.089	.051	.521	.604
4 or more years of college (College graduate) (ref: Graduate school)	.082	.075	.105	1.086	.279
Professional degree (JD, DDS, MD, etc.) (ref: Graduate school)	.235	.120	.176	1.962	.052

Separated (ref: single)	-.076	.215	-.030	-.355	.723
Divorced (ref: single)	-.038	.093	-.035	-.403	.688
Widowed (ref: single)	.296	.358	.067	.828	.409
Married (ref: single)	-.038	.064	-.052	-.594	.554
Perceived Threat Log	.857	.471	.148	1.819	.071

Note. F (17,134) = 2.035, P = 0.013, R^2 = 0.21

Research question 2

Is perceived benefits a predictor of condom use self-efficacy when controlling for age, yearly income, highest level of education, and marital status?

Prior to conducting the multiple linear regression analysis, the assumption of normality was assessed using a Q-Q plot (Figure 4.3).

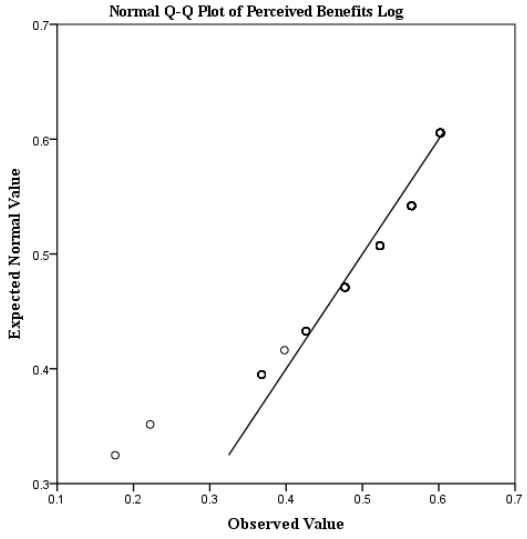


Figure 4.3. Q-Q Plot for Perceived Benefits with Controlling Factors

The Q-Q scatterplot indicated perceived threat did not violate the assumption of normality. The assumption of homoscedasticity was assessed using a residual scatterplot (Figure 4.4) and the assumption of homoscedasticity was met because the points were distributed in a rectangular pattern and the curvature line was approximately straight (Field, 2013).

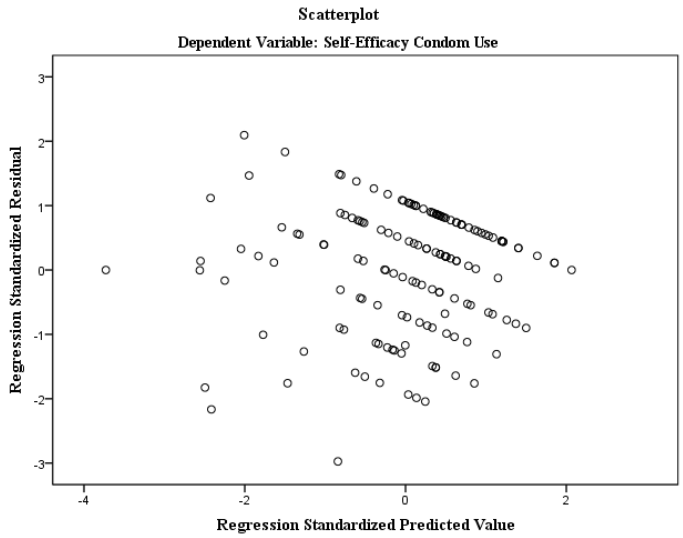


Figure 4.4. Residual Scatter Plot for Perceived Benefits with Controlling Factors.

To examine the research question, a multiple linear regression was conducted to determine whether perceived benefits predicted condom use self-efficacy, after controlling for age, income, education attainment, and marital status. Variables were entered in two blocks; block one consisted of the controlling variables (i.e. age, income, education, and marital status), while block two consisted of perceived benefits. The results of the multiple linear regression were significant in block one, $F(16,135) = 1.923$, $p = 0.023$, $R^2 = 0.19$, suggesting that age, income, education attainment, and marital status accounted for 19% of the variance in condom use self-efficacy. The results of the multiple linear regression were significant in block two, $F(17,134) = 2.349$, $p = 0.004$, $R^2 = 0.23$, suggesting that perceived benefits accounted for 4% of the variance in condom use self-efficacy (Table 7). An examination of the individual predictors showed that income, specifically \$85,000 to \$95,000 ($B = -.289$, $p = 0.016$), and perceived benefits ($B = 1.036$, $p = 0.006$), were significant predictors of condom use self-efficacy (Table

7). In this case, the null hypothesis was rejected; when controlling for age, income, education attainment, and marital status, perceived benefits was a significant predictor of condom use self-efficacy among this population.

Table 7

Results for Multiple Linear Regression with Age, Income, Education Attainment, Marital Status, and Perceived Benefits predicting Condom Use Self Efficacy

	B	*SE*	*Std. B*	*t*	*p*
25-29 (ref: 30-35)	-.093	.107	-.077	-.869	.386
36-40 (ref: 30-35)	.035	.076	.044	.459	.647
41-45 (ref: 30-35)	.015	.075	.019	.205	.838
$50,000 to less than $60,000 (ref: $40,000 to less than $50,000)	.055	.081	.067	.678	.499
$60,000 to less than $ 70,000 (ref: $40,000 to less than $50,000)	.082	.080	.099	1.024	.308
$70,000 to less than $85,000 (ref: $40,000 to less than $50,000)	-.123	.109	-.116	-1.128	.261
$85,000 to less than $95,000 (ref: $40,000 to less than $50,000)	-.289	.118	-.232	-2.446	.016
Less than four years of High School (ref: Graduate school)	-.643	.350	-.145	-1.839	.068
High School Diploma/GED (ref: Graduate school)	.173	.115	.130	1.507	.134
1 to 3 years of college (ref: Graduate school)	.051	.088	.056	.586	.559
4 or more years of college (College graduate) (ref: Graduate school)	.090	.074	.115	1.213	.227
Professional degree (JD, DDS, MD, etc.) (ref: Graduate school)	.198	.118	.149	1.678	.096
Separated (ref: single)	-.064	.211	-.025	-.302	.763
Divorced (ref: single)	-.042	.092	-.039	-.461	.645
Widowed (ref: single)	.275	.353	.062	.780	.437
Married (ref: single)	-.030	.063	-.042	-.480	.632
Perceived Benefits Log	1.036	.375	.226	2.766	.006

Note. F (17,134) = 2.349, p = 0.004, R^2 = 0.23.

Research question 3

Is perceived barriers a predictor of condom use self-efficacy when controlling for age, yearly income, highest level of education, and marital status?

Prior to conducting the multiple linear regression analysis, the assumption of normality was assessed using a Q-Q plot (Figure 4.5).

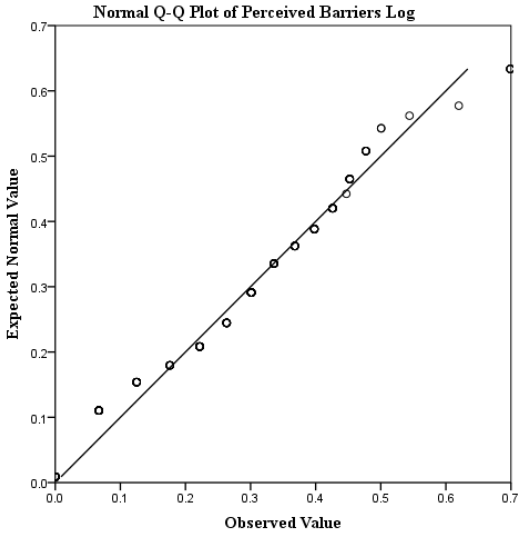


Figure 4.5. Q-Q scatterplot for Perceived Barriers with Controlling Factors

The Q-Q scatterplot indicated perceived threat did not violate the assumption of normality. The assumption of homoscedasticity was assessed using a residual scatterplot (Figure 4.6) and the assumption of homoscedasticity was met since the points were distributed in a rectangular pattern and the curvature line is approximately straight (Field, 2013).

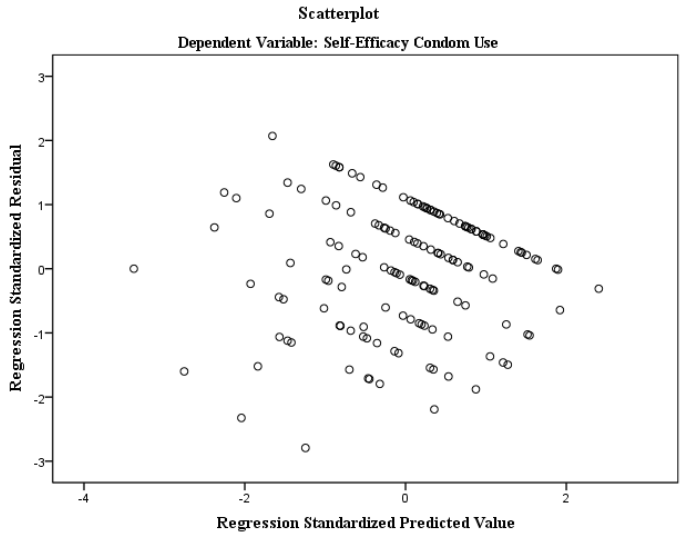


Figure 4.6. Residuals scatterplot for homoscedasticity for Perceived Barriers with Controlling Factors.

To examine the research question, a multiple linear regression was conducted to determine whether perceived barriers predicted condom use self-efficacy, after controlling for age, income, education attainment, and marital status. Variables were entered in two blocks; block one consisted of the controlling variables (i.e. age, income, education, and marital status), while block two consisted of perceived barriers. The results of the linear regression for block one were significant, $F(16,135) = 2.59$, $p = 0.023$, $R^2 = 0.19$, suggesting that age, income, education attainment, and marital status accounted for 19% of the variance in condom use self-efficacy. The results of the linear regression for block two were significant, $F(17,134) = 3.055$, $p < 0.001$, $R^2 = 0.28$, suggesting that perceived barriers accounted for 9% of the variance in condom use self-efficacy (Table 8). An examination of the individual predictors showed that income, specifically \$85,000 to \$95,000 ($B = -.297$, $p = 0.009$), and perceived barriers ($B = -.664$, $p < 0.01$) were significant predictors of condom use self-efficacy (Table 8). In this case the

null hypothesis was rejected; after controlling for age, income, education attainment and marital status, perceived barriers was a significant predictor of condom use self-efficacy among this population.

Table 8

Results for Multiple Linear Regression with Age, Yearly Income, Education Attainment, Marital Status, and Perceived Barriers Predicting Condom Use Self-Efficacy

	B	*SE*	*Std. B*	*t*	*p*
25-29 (ref: 30-35)	-.045	.104	-.038	-.437	.663
36-40 (ref: 30-35)	.021	.074	.026	.283	.778
41-45 (ref: 30-35)	.002	.073	.003	.033	.973
$50,000 to less than $60,000 (ref: $40,000 to less than $50,000)	.017	.076	.021	.228	.820
$60,000 to less than $ 70,000 (ref: $40,000 to less than $50,000)	.092	.077	.111	1.190	.236
$70,000 to less than $85,000 (ref: $40,000 to less than $50,000)	-.108	.105	-.102	-1.027	.306
$85,000 to less than $95,000 (ref: $40,000 to less than $50,000)	-.297	.113	-.240	-2.641	.009
Less than four years of High School (ref: Graduate school)	-.651	.338	-.147	-1.928	.056
High School Diploma/GED (ref: Graduate school)	.219	.111	.165	1.969	.051
1 to 3 years of college (ref: Graduate school)	.056	.085	.061	.656	.513
4 or more years of college (College graduate) (ref: Graduate school)	.104	.072	.133	1.442	.152
Professional degree (JD, DDS, MD, etc) (ref: Graduate school)	.193	.114	.145	1.692	.093
Separated (ref: single)	.015	.206	.006	.075	.941
Divorced (ref: single)	-.052	.089	-.048	-.582	.562
Widowed (ref: single)	.376	.341	.085	1.100	.273
Married (ref: single)	-.034	.061	-.047	-.561	.576
Perceived Barriers Log	-.664	.159	-.321	-4.175	.000

Research question 4

Is cues to action a predictor of condom use self-efficacy when controlling for age, yearly income, highest level of education, and marital status?

Prior to conducting the multiple linear regression analysis, the assumption of normality was assessed using a Q-Q plot (Figure 4.7).

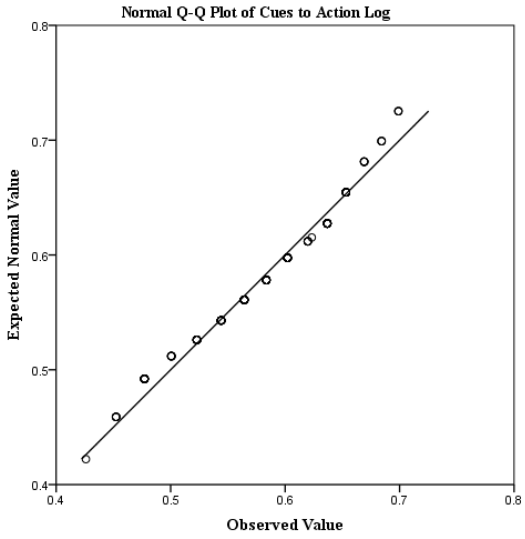


Figure 4.7. Q-Q scatterplot for Cues to Action with Controlling Factors

The Q-Q scatterplot indicated cues to action does not violate the assumption of normality. The assumption of homoscedasticity was assessed using a residual scatterplot (Figure 4.8) and the assumption of homoscedasticity was met since the points were distributed in a rectangular pattern and the curvature line is approximately straight (Field, 2013).

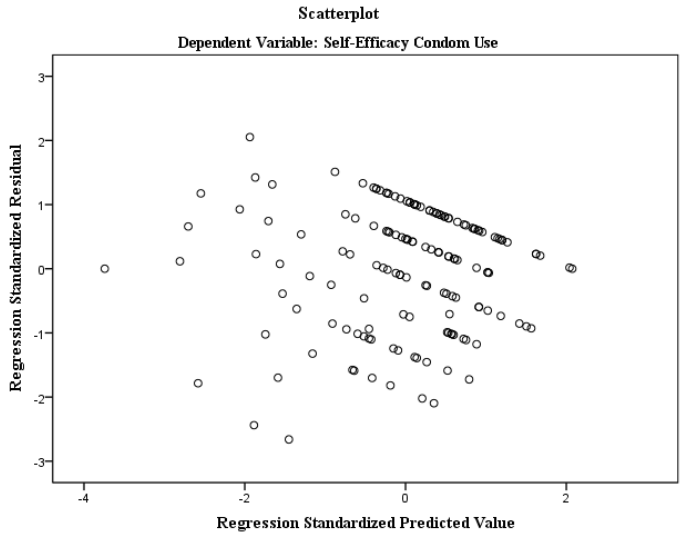


Figure 4.8. Residuals scatterplot for homoscedasticity for Cues to Action with Controlling Factors.

To examine the research question, a multiple linear regression was conducted to determine whether cues to action predicted condom use self-efficacy, after controlling for age, income, education attainment, and marital status. Variables were entered in two blocks; block one consisted of the controlling variables (i.e. age, income, education, and marital status), while block two consisted of cues to action. The results of the linear regression for block one were significant F (16, 135) = 1.923, p = 0.023, R^2 = 0.19, suggesting that age, income, education attainment, and marital status, accounted for 19% of the variance in condom use self-efficacy. The results of the linear regression for block two were significant, F (17,134) = 2.327, p = 0.004, R^2 = 0.23, suggesting that cues to action accounted for 4% of the variance in condom use self-efficacy (Table 9). An examination of the individual predictors showed that income (B = -.324, p = 0.006) and cues to action (B = 1.321, p = 0.008) were significant predictors of condom use self-efficacy (Table 9). In the case, the null hypothesis was rejected; after controlling for age,

income, education attainment, and marital status, cues to action was a significant predictor of condom use self-efficacy among this population.

Table 9

Results for Multiple Linear Regression with Age, Yearly Income, Education Attainment, Marital Status, and Cues to Action Predicting Condom Use Self- Efficacy.

	B	*SE*	*Std. B*	*t*	*p*
25-29 (ref: 30-35)	-.087	.107	-.072	-.811	.419
36-40 (ref: 30-35)	.022	.076	.027	.283	.777
41-45 (ref: 30-35)	.007	.075	.008	.089	.930
$50,000 to less than $60,000 (ref: $40,000 to less than $50,000)	.064	.081	.078	.784	.435
$60,000 to less than $ 70,000 (ref: $40,000 to less than $50,000)	.090	.080	.109	1.130	.261
$70,000 to less than $85,000 (ref: $40,000 to less than $50,000)	-.159	.108	-.149	-1.469	.144
$85,000 to less than $95,000 (ref: $40,000 to less than $50,000)	-.324	.116	-.261	-2.785	.006
Less than four years of High School (ref: Graduate school)	-.556	.350	-.125	-1.590	.114
High School Diploma/GED (ref: Graduate school)	.128	.116	.096	1.101	.273
1 to 3 years of college (ref: Graduate school)	.036	.088	.040	.410	.682
4 or more years of college (College graduate) (ref: Graduate school)	.077	.074	.098	1.035	.302
Professional degree (JD, DDS, MD, etc.) (ref: Graduate school)	.220	.118	.166	1.872	.063
Separated (ref: single)	-.025	.213	-.010	-.119	.905
Divorced (ref: single)	-.046	.092	-.042	-.497	.620
Widowed (ref: single)	.190	.356	.043	.534	.594
Married (ref: single)	-.040	.063	-.054	-.629	.531
Cues to Action Log	1.321	.488	.225	2.709	.008

Note. F (17,134) = 2.327, p = 0.004, R^2 = 0.23.

Research question 5

Is relationship self-efficacy a predictor of condom use self-efficacy when controlling for age, yearly income, highest level of education, and marital status?

Prior to analysis, the assumption of normality was assessed with a Q-Q scatterplot (Figure 4.9).

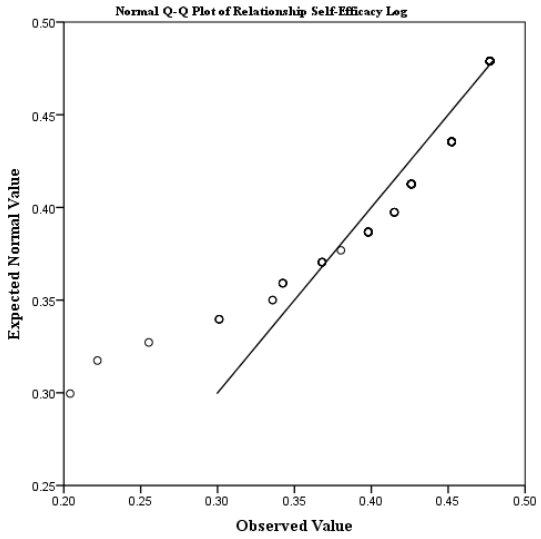


Figure 4.9. Q-Q scatterplot for normality for Age, Income, Education Attainment, Marital Status, and Relationship Self- Efficacy predicting Condom Use Self-Efficacy.

The Q-Q scatterplot indicated relationship self-efficacy did not violate the assumption of normality. The assumption of homoscedasticity was assessed with a residuals scatterplot (Figure 4.10). The assumption is met because the points were distributed in a rectangular pattern and the curvature line was approximately straight.

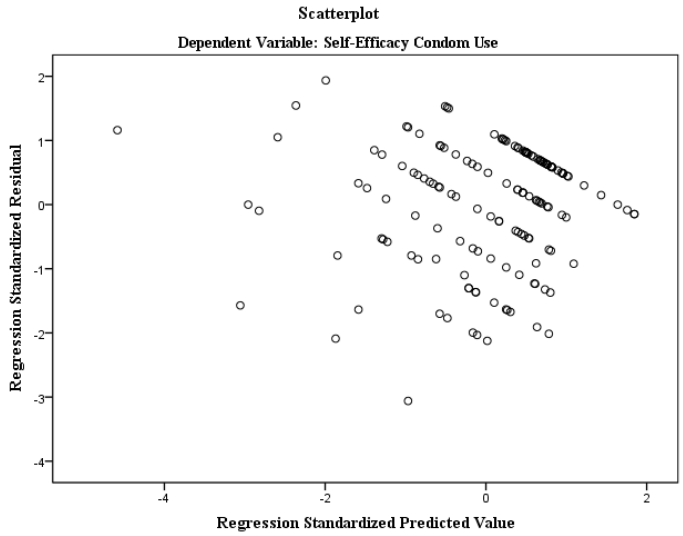


Figure 4.10. Residuals scatterplot for homoscedasticity for Age, Income, Education Attainment, Marital Status, and Relationship Self-Efficacy predicting Condom Use Self-Efficacy.

To examine the research question, a multiple linear regression was conducted to determine whether relationship self-efficacy predicted condom use self-efficacy, after controlling for age, income, education attainment, marital status. Variables were entered in two blocks; block one consisted of the controlling variables (i.e. age, income, education, and marital status), while block two consisted of relationship self-efficacy. The results of the linear regression for block one were significant, $F(16,135) = 1.923$, $p = .023$, $R^2 = 0.19$, suggesting that as a SES model age, income, education attainment, and marital status accounted for 19% of the variance in condom use self-efficacy (Table 10). However, an examination of the individual predictors showed that age ($B = 0.05$, $p = 0.587$), income ($B = 0.1$, $p = 0.291$), education attainment ($B = 0.06$, $p = 0.528$), and marital status ($B = 0.04$, $p = 0.531$) were not significant predictors of condom use self-efficacy (Table 10). The results of the linear regression for block two were significant, $F(17,134) = 4.526$, $p < .001$, $R^2 = 0.37$, suggesting that relationship self-efficacy accounted for 18% of the variance in condom use self-efficacy. In this case the null hypothesis

was rejected; after controlling for age, income, education attainment, and marital status, relationship self-efficacy was a significant predictor of condom use self-efficacy among this population.

Table 10

Results for Multiple Linear Regression with Age, Income, Education Attainment, Marital Status, and Relationship Self Efficacy predicting Condom Use Self Efficacy

	B	*SE*	*Std. B*	*t*	*p*
25-29 (ref: 30-35)	-.055	.097	-.046	-.568	.571
36-40 (ref: 30-35)	.049	.069	.062	.707	.481
41-45 (ref: 30-35)	.011	.068	.013	.156	.876
$50,000 to less than $60,000 (ref: $40,000 to less than $50,000)	.046	.072	.057	.641	.522
$60,000 to less than $ 70,000 (ref: $40,000 to less than $50,000)	.074	.073	.090	1.024	.308
$70,000 to less than $85,000 (ref: $40,000 to less than $50,000)	-.111	.098	-.105	-1.129	.261
$85,000 to less than $95,000 (ref: $40,000 to less than $50,000)	-.291	.105	-.235	-2.762	.007
Less than four years of High School (ref: Graduate school)	-.517	.317	-.116	-1.631	.105
High School Diploma/GED (ref: Graduate school)	.189	.104	.142	1.814	.072
1 to 3 years of college (ref: Graduate school)	.031	.080	.034	.390	.697
4 or more years of college (College graduate) (ref: Graduate school)	.020	.067	.025	.291	.772
Professional degree (JD, DDS, MD, etc.) (ref: Graduate school)	.168	.107	.126	1.568	.119
Separated (ref: single)	-.098	.192	-.038	-.510	.611
Divorced (ref: single)	.040	.085	.037	.472	.638
Widowed (ref: single)	.236	.320	.053	.737	.462
Married (ref: single)	-.024	.058	-.032	-.409	.683
Relationship Self-Efficacy Log	3.093	.503	.448	6.148	.000

Note. F (17,134) = 4.526, $p < .001$, $R^2 = 0.37$.

Summary

Chapter 4 began with descriptive statistics of the sample population followed by the means and standard deviation for the variables and a multiple linear regression analysis for the four controlling variables of age, income education attainment and marital status. Each of the five HBM constructs were used to predict condom self-efficacy use among middle-income AA women, which included Q-Q plots to determine if the data violated the assumption of normal distribution and residual scatterplots to determine if there were any violations of homoscedasticity. According to the results presented in this chapter, there was a significant relationship between perceived benefits (RQ2), perceived barriers (RQ3), cues to action (RQ4), relationship self-efficacy (RQ5) and condom use self-efficacy. Therefore the null hypotheses were rejected and the alternative hypotheses was accepted. After controlling for age, income, education attainment, and marital status there was a significant relationship between four HBM constructs and condom use self-efficacy among middle-income AA women.

Perceived threat (RQ1) was not a significant predictor of condom use self-efficacy among middle-income AA women therefore, the null hypothesis was accepted. After controlling for age, income, education attainment, and marital status perceived threat was not a predictor of condom use self-efficacy. Income was determined to be significant to perceived threat, perceived barriers, perceived benefits, and cues to action within the context of condom use self-efficacy. However, age, income, education attainment, and marital status were not significant to relationship self-efficacy within the context of condom use self-efficacy.

The data generated did not violate the assumption of normality; the multiple linear regression analysis was robust enough, due to the sample size (n=152), to minimize the effect

requiring no additional testing (Stevens, 2009). The data generated did not violate the assumption of homoscedasticity. In chapter 5, I discuss the implications of the data analyses in the context of the HBM constructs; the controlling factors and their relationship to the outcome of the study; the limitation of generalizability; the validity and reliability of the research results; and recommendations for further research.

Chapter 5: Discussion

The purpose to this quantitative study was to determine whether there was an association between the five HBM constructs and self- efficacy related condom use among middle-income African America (AA) women. The participants in this study were middle-class AA women ages 25-45 with a yearly income of $40, 000 - $95,000. The survey was open to AA women across the United States but the majority of the participants (52%) came from the southern states. The majority of the participants were single (45%) between the ages of 30 and 35 (32%), lived in suburban areas (36%) and having the highest level of education being a graduate degree (34%).

The demographics were important because the most current data on HIV prevalence rates indicate that low-income AA women are at greater risk for contracting the infection due to inconsistent condom use. The purpose of this study was to determine whether middle-income AA women also showed an inconsistency in condom use self-efficacy, which would place them at equal risk for infection. Risk determination was based upon the constructs of the HBM after controlling for age, income, education attainment and marital status, which is the theory most frequently used to determine degree of health risk among targeted populations (Ahadzadeh, Sharif, Ong, & Khong, 2015; Asare, Sharma, Bernard, Rojas-Guyler, & Wang, 2013; Cheney & John, 2013; Hall, 2011; Montanaro & Bryan, 2014).

The data analysis presented in Chapter 4 showed a significant association between four of the HBM constructs (perceived threat, perceived benefits, perceived barriers, cues to action,) and condom use self-efficacy among the targeted population. Relationship self-efficacy was not significant to condom use self-efficacy after controlling for age, income, education attainment and marital status. As a demographic model, age, income, education attainment, and marital

status were significant to the outcome of the study. However, when examined as individual confounding variables, income was the only variable significantly related to condom use self-efficacy in conjunction with perceived threat, perceived benefits, perceived barriers, and cues to action. In regards to relationship self-efficacy, age, income, education attainment, and marital status, were not significantly related to condom use self-efficacy.

Interpretation of Results

Sexual Risk Behavior

Among the 152 participants, 85% were sexually active within the past year and 70% were in a sexual relationship at the time of this study. Seventy-one percent of the women reported having a sexual relationship lasting longer than five years; however, only 59 % felt it was necessary to use a condom even if pregnancy was not possible; 41% felt condoms should be used during intercourse even if the couple knew each other very well. The percentage of condom use among my study participants was considerable higher than the percentage rates reported by a CDC study in 2010; according to the CDC survey only 23% of sexually active AA men and women, 15-44 years of age, consistently use condoms (CDC, 2010). However, the lower percentage from the CDC study could be attributed to a larger sample of women (*n* =22,682) and the inclusion of women from all ethnic groups (i.e., European Americans, Asian Americans, etc.)

Additionally, when asked if their healthcare provider discussed safer sex activity including the use of condoms, 54% of my study participants responded “yes”, which was higher than the national average. According to a 2013 survey of 500 men and women 25 years of age and older, 85% of the participants wanted to discuss safe sex practices with their primary physician but 71% of the participants felt their primary physician would dismiss their concerns

(Fenway Institute, 2014). Only 15% of the survey participants said their physician openly discussed sexual issues with them and provided HIV/STD counselling (Fenway Institute, 2014). These statistics are important because discussing sexual history and current sex practices with patients provide physicians with the opportunity to not only improve or enhance the patient-physician relationship but also to provide counselling on safe sex practices and patient risk.

The results of my study in regards to physician discussions may also indicate that knowledge of safe sex practices may not be enough to promote condom use self-efficacy use. Studies on condom use self-efficacy conducted by Brawner, Reason, Goodman, Schensul, & Guthrie (2015); Kerwin, Foley, Thornton, Basinga, & Chinkhumba (2011); and, Paxton, Villarreal, & Hall (2013) indicated no significant association between knowledge or level of education and condom use self-efficacy. The results of these studies are in keeping with the results of my study, which indicates that level of education is not a predictor of condom use self-efficacy although condom use seems to be higher among AA women with 2- 4 years of college courses or advanced degrees.

Research Questions

Research question 1

Is perceived threat a predictor of condom use self-efficacy after controlling for age, income, education attainment, and marital status?

According to the HBM, *perceived threat* refers to the perception of vulnerability to the risk of infection and the perception of the seriousness of the infection in regards to medical issues and social acceptability (Boskey, 2014). Based on my survey results, the association between the perception of threat and condom use self-efficacy among middle-income AA

women was not statistically significant (p =.071). Among the participants, 84% believed it was acceptable for women their age to be sexually active, especially with a steady partner. When asked if they believed it was acceptable for women their age to have multiple sexual partners within the same month, 11.18% of the participants responded "Definitely yes", while 19% responded "Probably no".

According to the CDC (2015), having multiple sex partners can significantly increase a woman's chance of contracting HIV, which may place the AA women in this study who expressed some level of uncertainty (i.e. "Probably no") at greater risk for infection compared to the participants who answered "Definitely yes". The majority of the participants understood the risk and the seriousness of HIV; however, some women (12%) seemed willing to take the risk based upon their responses to having multiple sex partners over a 1 to 2 month period.

The variation in responses, especially concerning multiple sex partners within 1-2 months was consistent with other studies focusing on low-income AA women (Davis & Tucker-Brown, 2013; Sharpe et al, 2011). Branch-Vital, Fernandez, Ross, Chan & Smith (2009) found no correlation between perceived threat and self-reported condom use among single AA women 18 years and older regardless of age, income, and level of formal education. Branch-Vital et al (2009) concluded that inconsistent condom use among AA women may be more related to complex cultural distinctions that may vary according to the area and social environment, which indicates a need for further research to determine if there is an association between perceived threat and condom use self-efficacy among AA women in different regions and social environments.

Research question 2

Is perceived benefits a predictor of condom use self-efficacy after controlling for age, income, education attainment, and marital status?

According to the HBM, perceived benefits refers to the belief that a specific action will be effective in reducing risk, which will be beneficial to the person (Boskey, 2014). Based upon the survey results, there was a significant association between perceived benefits and condom use self-efficacy ($p = .006$). The majority of participants (69%) believed a condom should be used if a woman their age was sexually active. Only 41% of the participants believed that a condom should be used even if the partners knew each other very well; 45% answered "*probably yes*" indicating some doubt of the perceived benefits of condom use if the partner is well known. Perceived benefits plays an important role in individual HIV prevention efforts; if the individual understands and accepts the benefits of condom use, she will be more likely to use a condom during every sexual encounter if she is single (Noar et al, 2011).

Married AA women may be more likely to undergo yearly HIV testing, as part of a routine physical if she understands and believes there is some benefit in making the effort (McLellan-Lemal, Toledo et al., 2013). This is also in keeping with HIV prevention studies involving low-income AA women, the difference being that low-income AA women, single and married, often feel they do not have an option despite the obvious benefits (Davis & Tucker-Brown, 2013; Sharpe et al, 2011). According to my study results, middle-income AA women understand the benefits of condom use but may not consistently use condoms during every sexual encounter despite having the option to choose to use a condom with their partner. I did not differentiate between single and married AA women, which is an area for further study among middle-income AA women.

Research question 3

Is perceived barriers a predictor of condom use self-efficacy after controlling for age, income, education attainment, and marital status?

According to the HBM, perceived barriers refers to a person's estimation of the degree of difficulty in the performance of a specific behavior based upon perceived social and economic challenges (e.g., finances, living conditions, social support groups, etc.) (Boskey, 2014). The perception of barriers to specific behavioral changes relates not only to social and environmental hindrances but also to the level of confidence a person has in performing the specific behavior. Based upon survey results, there was a significant association between perceived barriers and self- efficacy related condom use (p = .000); 52 % of participants were not embarrassed to purchase a condom and nearly half did not feel uncomfortable carrying a condom (47%). The majority of participants (53%) would carry a condom with them and 51% would put a condom on their male partner before sex. However, when asked if they were concerned sex would not feel as good if condoms were used, 29% strongly disagreed; 27% disagreed, and 22 % somewhat agreed. The majority of the study participants were confident in the purchase of condom and initiating the use of a condom with their partner.

However, the diverse opinions on the fear of reducing the quality of sex by using a condom among my study participants may suggest that some women would be willing to sacrifice safety for higher levels of pleasure sensations; this is in keeping with similar studies involving AA women and condom use (Branch-Vital et al., 2009; Smith & Larson, 2014). Among low-income AA women, one of the most common barriers to condom use self-efficacy was the fear that their partner would not enjoy sexual activity as much or refuse to engage in sex

if he had to wear a condom (Anaebere et al, 2012; Battle et al, 1995; Chandra et al, 2012; El-Bassel et al, 2009). The same fears exist among middle-income AA women but the fear is less about the partner and more about how the female will feel (Sharpe et al. 2011; Szymanski & Henrichs-Beck, 2014; Wilkins, 2012). I did not ask my participants to identify specific personal barriers to condom use self-efficacy but the majority had unlimited access protective products and seemed to be comfortable with carrying condoms despite some degree of concern over the reduction of sexual pleasure with condom use.

Research question 4

Is cues to action a predictor of condom use self-efficacy after controlling for age, income, education attainment, and marital status?

The HBM defines cues to action as the stimulus required to initiate a recommended action, which, in this study, was condom use self-efficacy (Boskey, 2014). Such stimulation can come from a variety of sources including family, friends, and relationship self-efficacy. The stimulus can have a positive or negative influence on behavior such as friends demonstrating and encouraging relationship self-efficacy or pressuring a woman to remain in a relationship that is undermining her self-efficacy. According to survey results, there was a significant association between cues to action and condom use self-efficacy ($p < .008$). The majority of participants (78%) had friends who believed that condoms should be used if the female was sexually active even if pregnancy was not a possible.

The majority of participants (31%) also had friends who believed condoms should be used with a steady partner even if the female knew her partner very well. Among my study group, friends were highly influential and my participants had a positive response to the opinions

of their friends. This was also reported in studies involving AA women in college and low-income AA women but the influence was both positive and negative (Ivy et al, 2013; Ndabarora & Mchunu, 2014; Noar et al., 2012; Paxton et al., 2014). College students were more likely to be positively influenced by their peers and family members but among low-income AA women, friends and family members were of like mind in regards to the necessity of sacrificing safe health behaviors for monetary support and maintaining a sexual relationship (Ivy et al, 2013; Ndabarora & Mchunu, 2014; Noar et al, 2012; Paxton et al. 2014). The positive influence of friends and family among middle-income AA women in my study and AA women attending college may relate to the level of education attainment among family and friends and how education can have a positive influence on social support mechanisms that contribute to cues to action (Crowley, 2010).

Research question 5

Is relationship self-efficacy a predictor of condom use self-efficacy after controlling for age, income, education attainment, and marital status?

The HBM defines self-efficacy as an individual's level of confidence in performing a certain act or acts such as insisting on the use of condoms in any situation (Boskey, 2014). According to survey results, there was a significant association between relationship self-efficacy and condom use self-efficacy (p= .001). The majority of the survey participants (84%) were certain they could resist having sex with someone they just met despite the attraction; 77% were certain they could say "No" to their partner if they were not ready to have sex. Among the women surveyed, 47% were certain they could begin using condoms with their partner even if they had not previously used a condom during sex. The majority of participants (95%) were

certain they could tell a man they recently met to use a condom before sex; 74% were certain they could instruct their partner on how to use a condom correctly. Among the participants, 90% were certain they would go to a store to buy condoms; 51% were certain they would have a condom with them whenever they decided to have sex; and, 61% were certain their partner would begin to use a condom if she decided it was necessary.

The survey results for this construct may indicate that the participants had a high degree of self-worth and self-confidence, which has a positive influence on their ability to negotiate safer sex practices with their partner (Mucherah & Frazier, 2013; Reid & Aiken, 2011). However, some women (8%) taking the survey displayed an uncertainty in their ability to negotiate condom use.

Among AA college students, relationship self-efficacy equated to the ability to negotiate condom use successfully and under any circumstances; however, there was a prevalent fear of condom negotiation among study participants (Crosby et al., 2013; French & Holland, 2011). Otto-Salaj et al. (2010) who studied the reactions of single, heterosexual, 18-35 year old AA men to condom negotiating strategies found successful condom negotiation had more to do with the attitude of the male partner than the self-efficacy of the female. According to this study, AA men often had a strong negative response to condom negotiations regardless of the strategy used (Otto-Salaj et al., 2010). This is important because most HIV interventions focus on the female's attitude towards the use of condoms and her ability to negotiate condom use; the intervention training rarely take in to account the characteristics of the male partner, which may have more influence on female behavior than any other identifiable variable (Otto-Salaj et al, 2010).

Among the participants in my study, there was a high degree of self-efficacy in the introduction and use of condoms, which may indicate a strong positive response to condom use among their male partners. Such a positive response from the male partner may be reflective of the male's level of educational attainment. Educated AA women tend to seek male partners with the same education and social standing and educated AA men are more likely to view condom use as a necessary protective health measure rather than a hindrance to sexual enjoyment (CDC, 2012).

Confounding Factors

As a sociodemographic model**,** the confounding factors of age, income, education attainment, and marital status were significant indicators of condom use self-efficacy in conjunction with perceived threat, perceived benefits, perceived barriers, and cues to action. An examination of the individual components of the model indicated economic status in conjunction with perceived threat, perceived benefits, perceived barriers, and cues to action was significant to condom use self-efficacy. However, as a model and as individual variables, age, income, education attainment, and marital status were not significant to relationship self-efficacy.

The overall outcome of this study indicated the higher the income the less likely middle-income AA women are to perceive and respond to the threat of HIV infection. A higher income mean reduced exposure to external stressors such as unemployment, spousal abuse and community instability (Edberg, 2013, Everett, Hall, & Hamilton-Mason, 2010). A higher income also could affect the ability to negotiate condom use and the willingness to end a relationship if terms were not met (Edberg, 2013; Everett, Hall, & Hamilton-Mason, 2010; Hall & Pichon, 2014). Based on the lack of affect the confounding variables had on relationship-self efficacy, it

could be assumed that the participants had a high degree of self-esteem related to the reduction of sociodemographic stressors that may reduce self-esteem and self-awareness. A high degree of self-esteem and self-awareness decreases the ability to negotiate condom use (Everett, Hall, & Hamilton-Mason, 2010; Hall & Pichon, 2014).

Limitations of the Study

There are several notable limitations of the study. First, the sample was relatively small and the majority of respondents were from the South Atlantic states (i.e. Georgia, Florida, North & South Carolina, etc.), which makes it difficult to extrapolate findings across the. Second, is selection bias, which is a possibility when focusing on one sub-population; opening the survey to all AA women could have different results (McCambridge, Kypri & Elbourne, 2014, Sionean et al., 2014). Self-reporting bias could have affected the outcome of this study; self-reporting bias occurs when the participant provides responses that may not be true (McCambridge et al, 2014; Sionean et al, 2014). A form of self-reporting bias that could have influenced the outcome of this study was social desirability bias that occurs when the participant denies undesirable behaviors and chooses the more socially acceptable responses (McCambridge et al, 2014; Sionean et al, 2014). Although my survey was anonymous, some respondents could have felt the need to respond in a positive manner rather than admit they had experienced multiple sex partners or they found it difficult to negotiate condom use with their partner.

Third, the inclusion of married AA women in this HIV study could have significantly impacted this study, particularly in addressing relationship self-efficacy. Married AA women have a different perspective on the use of condoms, they tend to feel safe within a monogamous relationship and would not consider it necessary to have their partner wear a condom during sex

(Flash et al., 2014; Lanier, 2013). Fourth, the HBM could have inherent limitations that influenced the outcome of this study. One of the flaws in the HBM is its inability to address the emotional, racial, or gender specific variances that could contribute to the outcome (Asare et al, 2013). However, it was not my intent to measure social and environmental variables that influence condom use self-efficacy and relationship self-efficacy. The last potential limitation of this study is personal bias (value neutrality) due to my link to the study participants; being a single, middle-class AA woman, it was difficult to remain neutral or impartial as I analyzed and discussed the results of my study. It was necessary to take a step back on several occasions and rework my interpretations and discussion points to ensure impartiality.

Recommendations

The results of this study indicated that four of the five HBM constructs (perceived benefits, perceived barriers, cues to action, and relationship efficacy) were influential in promoting condom use self-efficacy use. However, the outcome of the study does not offer in-depth insight into the social, cultural, and emotional contexts of the participants' lives. Therefore, the recommendation is for a mixed methods study of middle-income, educated AA women that would examine the statistical aspect of their lives and the environmental contexts. I would also recommend including all AA women, regardless of age, income, or education levels, in future HIV prevention studies to understand how quality of life (e.g., unique stressors, support mechanisms, relationship dynamics, income, and level of education) could affect safe sex practices within social environments.

The majority of HIV prevention studies surveyed a mixed group of AA women in regards to age, income, and education level. In these studies, the majority of women were low-income

and the research included self-reporting drug users who had a history of incarceration or had a partner who was incarcerated (Davis & Tucker-Brown, 2013). A study conducted by Turpin (2013), indicated that AA women responded to health messages that were designed to include all types of AA women and visually represented multiple age and income levels within the population. The study also indicated that AA women felt they were culturally stereotyped based on their race and their lack of interest in prevention campaign strategies was due to a conscious avoidance of stigma associated with being labeled as high-risk (Turpin, 2013). Additional translational research is needed to identify culturally competent prevention strategies that will engage middle-income AA women and to determine the best approach in the formation of public health alliances among the AA middle-income population. The formation of public health alliances with community leaders, including prominent members of the clergy, within the AA middle-income population could reduce historical feelings of distrust and suspicion related to previous public health practices (McNair & Prather, 2004).

Public health practitioners should make the effort to develop a better understanding of relationship dynamics among middle-income AA men and women. Studies have indicated a significant decline in marriage rates among all Americans; however, AA women have experienced the sharpest decline (Elliott, Krivickas, Brault, & Kreider, 2012). There is a large amount of information on the decline of marriage among AA women and various hypotheses on why the decline continues but there is insufficient information available on the sexual, emotional, and social implications of the decline in marriage rates among middle-income AA women and how these implications affect condom self-efficacy (Hall & Pichon, 2014; Kennedy & Jenkins, 2011)

To develop effective HIV prevention interventions, public health researchers must understand how sexuality, class, race, and gender are linked as power systems and how these variables affect the sexual identity, behavior and sexual relationships of AA women (Moore, 2012). The term "intersectionality" was a term developed by Kimberle Crenshaw in 1989 to describe the various ways AA women experience multiple oppressions such as gender and race. In her essay, Crenshaw discussed how AA women are left out of the discussion of women, sex, and racial discrimination because any discussion concerning sex usually centered on European-American women; any discussion concerning racial discrimination was in reference to AA males (Crenshaw, 1989). AA women became invisible and their unique intersectional experiences were ignored (Lanier, 2013).

The failure of public health practitioners to address the HIV epidemic as an intersectional issue further marginalizes AA women from all economic levels. Therefore, my recommendation is that public health researchers expand the scope of HIV research to examine the complex intersectional experiences unique to AA women within each economical class rather than conveniently lumping all AA women under the umbrella of race and gender. With such insight, public health practitioners can develop effective HIV prevention interventions appropriate to the population. To address the issue of intersectionality, public health researchers should look beyond the epidemiology of the disease and focus on the social aspects of HIV within AA communities. The effect of marital status, the limited number of eligible AA men, gender inequality, middle-class stress, and depression are just a few of the variables that influence condom use (Bowleg, 2013; Choo & Ferree, 2010; Gray, 2013). Continual failure of public health researchers and practitioners to address HIV on a multifaceted social level results in

interventions that fail to produce desired results and further alienates the sub-populations we need to reach.

Public health practitioners should examine condom use self-efficacy among all classes of AA women using more appropriate theoretical frameworks to identify and address the social and structural determinants of HIV-related behavior. For example, the Diffusion of Innovation Model can be used to examine how novel ideas are communicated and accepted in regards to HIV prevention messages (Gardner, 2014). The model focuses on identifying communication channels unique to a population that can be used to disseminate health messages (Gardner, 2014). It also identifies people within the population that can help get the message out and the time and processes needed to disseminate the message (Gardner, 2014). Another theory that may be effective is the Empowerment Theory, which posits that change is a process of shared experiences and social influences (Turner & Maschi, 2014). The three elements of the theory is identifying the target populations at the individual and group level (population for change); identifying the concerns of the targeted population through active listening and an exchange of meaningful dialogue (participatory education); and, the use of focus groups to gather information and working with the community to find solutions (focus group strategies) (Turner & Maschi, 2014).

Developing effective HIV prevention interventions for any group requires extensive knowledge of the unique prevalent and distributed behaviors that contribute to the spread of infection beyond the boundaries of education, economical, and relationship status. It also goes beyond the boundaries of individual behavior. Any attempt to change or modify individual behavior without first understanding the intersectionality of structural, institutional, community,

and interpersonal influences or barriers unique to AA women could fail to reduce the incidence rate of HIV infection among the population.

Implications

African Americans continue to have the highest incidence and prevalence rates of HIV infection in comparison to all other groups in the United States despite progressive public health interventions. The phenomenon has been attributed to socioeconomic issues including poverty, limited access to quality medical care, the fear of stigma, and an unwillingness to get tested for the virus for fear of rejection by their peers and the community. The current face of HIV is low-income AA women with limited knowledge of HIV prevention strategies, poor safe negotiation skills, and limited social networks that support HIV prevention efforts. This narrow focus has placed other AA women, who do not fit into the current mold, at risk for infection, which could be due to a false belief in safety because of the at-risk exclusion.

The information obtained from this study could contribute to the existing body of research on minority health and health disparities by providing insight into the degree of self-efficacy that exist among middle-income, adult AA women. Another implication could be the expansion of HIV intervention programs to include all women of color regardless of marital status, social status, and level of education. Middle-income AA women could have many of the same socioeconomic issues as low-income AA women such as the lack of financial security and the tendency to choose their partners from a limited pool of AA men. However, despite the similarities, there is limited information concerning the perception of threat, benefits and barriers, cues to action, and relationship self-efficacy that may hinder HIV prevention efforts (MacMaster, Bride & Davis, 2009; Neal-Barnett et al., 2011).

There are also implications for the need of increased surveillance and prevention strategies at the clinical level. This information could provide additional insight for the healthcare community by building awareness of the critical need for HIV prevention counseling at the clinical level since healthcare providers have a significant role in assisting their patients in maintaining good health and avoiding or reducing health threats (Flash et al., 2014). Primary care clinicians are viewed as a trusted source of current health information. Primary care physicians can be on the forefront of reducing and eventually eliminating the spread of HIV among AA women by engaging their patients in discussion concerning HIV prevention, including the consistent use of condoms for single AA women and yearly STI screenings for all AA women regardless of marital status (Flash et al, 2014).

The information gained from this study could encourage public health researchers to embrace the theory of intersectionality and develop effective prevention paradigms to address the HIV epidemic within all AA communities, especially interventions using social media. A better understanding of the diversity that exist within the AA population and how this diversity is rarely addressed in social media campaigns could result in public health campaigns that are Afrocentric and culturally appropriate (Hall & Pichon, 2014, Kennedy & Jenkins, 2011). Lastly, the outcome of this study could have implications on an individual level; it could increase personal awareness of behavioral patterns, the importance of support networks, and relationship self-efficacy that could increase the risk of HIV.

Conclusion

The HIV epidemic within African American communities is complicated by a strong link between sex, sexuality, class, race, gender and the disparity of exposure to HIV (Choo & Ferree,

2010: Crenshaw, 1989; Gray, 2013; Moore, 2012). AA women are at risk of contracting HIV regardless of age, educational level, and income. A large number of AA women are reluctant to seek partners outside of the AA community; they have some degree of doubt in their ability to negotiate safe sex practices with their partners; and, they have reservations concerning the benefits of condom use. The statistical analysis of the survey results indicated a high degree of self-awareness in regards to HIV prevention strategies (condom use self-efficacy), stronger support systems (cues to action), greater understanding of risk among middle-income AA women (benefits), and a strong sense of relationship self- efficacy. It also indicated a limited awareness of the threat of contracting HIV, which could be due to the inclusion of married, AA women who are complacent within their monogamous relationships. The connotations of this study indicate the need for an expanded paradigm for HIV prevention interventions to include middle-income AA women and the need to restructure HIV prevention strategies to address all women of color in the United States.

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Appendix A

SOCIAL MEDIA COMMUNICATION

Dear Community,

I am conducting an internet-based survey to collect data for my dissertation entitled, "***Measuring the Predictors of Condom Use Among Southeastern Middle-Class, African American Women***". The purpose of this study is to examine condom use and relationship self-efficacy among single, middle-income African American women, which is a sub group rarely addressed in HIV intervention programs.

The premise of my research is that all African American women are at risk for contracting HIV and we cannot afford complacency based upon education, income levels, or number of sexual partners. African American women as a unique population are constantly exposed to such stressors as finacial uncertainty, relationship issues, and family concerns that contribute to risky health behaviors. Therefore, all African American women should be addressed in the development of public health practices and interventions. The data collected from the survey will contribute to a better understanding of the factors that influence risky health behavior among middle-income African American women, which may contribute to the development of more effective health intervention programs for African American women.

The 45-minute survey is accessible via *Survey Monkey* (insert address) using the following code (insert code)**.** Please read the questions carefully and respond honestly and to the best of your ability. All responses will be anonymous; I will not receive any names or email addresses to identify participants and no additional action will be required once you complete the survey.

I need at least 145 women to participate in this study so please forward this information to others who may also be interested in taking the survey

Appendix B

LETTER OF INFORMED CONSENT

You are invited to take part in a research study of HIV prevention among middleclass African American women. The researcher is inviting all African America women between 25-45 years old to be in the study. This form is part of a process called "informed content" to allow you to understand this study before deciding whether to take part.

This study is being conducted by a researcher named Yvonne Reed, who is a doctoral student at Walden University.

Background Information:
The purpose of this study is to understand how middle-class African American women feel about HIV prevention.

Procedures:
If you agree to be in this study, you will be asked to:

- Follow the link provided to access the survey in Survey Monkey (www.surveymonkey.com)
- Take the 45 minute survey

Here are some sample questions and statements:

- How sure are you that you could use a condom correctly?
- How sure are you that if you told your partner you wanted to start using condoms, that is what the two of you would do?
- I believe it is Ok for women my age to be sexually active with a steady partner.
- I believe condoms should always be used if a woman my age has sex even if pregnancy is not possible.

Voluntary Nature of the Study:
This study is voluntary. Everyone will respect your decision of whether or not you choose to be in the study. If you decide to join the study now, you can still change your mind later. You may stop at any time.

Risks and Benefits of Being in the Study:
Being in this type of study involves some risk of the minor discomforts that can be encountered in daily life, such fatigue or stress. Being in this study would not pose risk to your safety or wellbeing.

Potential benefits include personal satisfaction in being a part of something important and being able to give your opinion on the subject without others judging you or your actions.

Payment

There is no payment, thank you gifts, or reimbursements provided to study participants.

Privacy:
Any information you provide will be kept anonymous. The researcher will not have access to your personal information or access to any other information that may identify you in the study reports. The completed survey will be deleted from the Web site immediately after the information is collected and saved on an encrypted USB flash drive for storage and downloaded to a password-protected computer that is only accessible by the researcher. Data will be kept for a period of at least 5 years as required by the university.

Completing the survey means you are consenting to participate in this study and that you understand the purpose of the study and the use of the data collected.

Contacts and Questions:
If you have questions, you may contact the researcher via 404-639-3347 or ymr1@cdc.gov. If you want to talk privately about your rights as a participant, you can call Dr. Leilani Endicott. She is the Walden University representative who can discuss your concerns with you. Her phone number is 612-312-1210. Walden University's approval number for this study is _____and it expires on _____.

Please print or save this consent form for your records

Appendix C

Sexual Risk Behavior Beliefs and Self-Efficacy Scales (SRBBS)

Demographics

1. What is your ethnicity?

    - African American
    - Asian/ Pacific Islander
    - Hispanic
    - Native American
    - European American
    - Other

2. What is your age?

    - Under 25
    - 25-29
    - 30-35
    - 36-40
    - 41-45
    - Over 45

3. Where do you reside in the US?
    - North
    - South
    - East
    - West

4. Do you live in
    - A city
    - A rural area
    - A suburban area

5. What is your yearly income?

    - Less than $ 40,000
    - $40,000 to less than $50,000
    - $ 50,000 to less than $60,000
    - $60,000 to less than $ 70,000
    - $ 70,000 to less than $85,000
    - $85,000 to less than $95,000
    - More than $95,000

6. What is the highest level of education completed?

    - Less than four years of High School
    - High School Diploma/GED
    - 1 to 3 years of college
    - 4 or more years of college (College graduate)
    - Graduate degree (MS, MA PhD)
    - Professional degree (JD, DDS, MD, etc.)

7. What is your current marital status?

    - Single
    - Separated
    - Divorced
    - Widowed
    - Married

Sexual Risk Behavior Belief and Self-Efficacy Scales

8. I believe women my age should still be sexually active

    - Definitely yes
    - Probably yes
    - Probably no
    - Definitely no

9. I believe it is Ok for women my age to be sexually active with a steady partner

    - Definitely yes
    - Probably yes
    - Probably no
    - Definitely no

10. I believe it is OK for women my age to be sexually active with several partners in the same month.

    - Definitely yes
    - Probably yes
    - Probably no
    - Definitely no

11. I believe condoms should be used if a woman my age is sexually active.

- Definitely yes
- Probably yes
- Probably no
- Definitely no

12. I believe condoms should always be used if a woman my age has sex even if pregnancy is not possible.

    - Definitely yes
    - Probably yes
    - Probably no
    - Definitely no

13. I believe condoms should always be used if a woman my age has sex, even if the two people know each other very well.

    - Definitely yes
    - Probably yes
    - Probably no
    - Definitely no

14. Most of my friends believe women my age should still be sexually active.

    - Strongly agree
    - Agree
    - Somewhat agree
    - Disagree
    - Strongly disagree

15. Most of my friends believe it is OK for women my age to be sexually active with a steady partner.

    - Strongly agree
    - Agree
    - Somewhat agree
    - Disagree
    - Strongly disagree

16. Most of my friends believe it is OK for women my age to be sexually active with several different partners in the same month.

    - Strongly agree
    - Agree
    - Somewhat agree

- Disagree
- Strongly disagree

17. Most of my friends believe condoms should be used if a woman my age has sex, even if pregnancy is not possible.

    - Strongly agree
    - Agree
    - Somewhat agree
    - Disagree
    - Strongly disagree

18. Most of my friends believe condoms should always be used if a woman my age had sex, even if the two people know each other very well.

    - Strongly agree
    - Agree
    - Somewhat agree
    - Disagree
    - Strongly disagree

19. Most of my friends believe condoms should always be used if a woman my age has sex, even if the two people know each other well.

    - Strongly agree
    - Agree
    - Somewhat agree
    - Disagree
    - Strongly disagree

20. Imagine you met someone at a social event. He wants to have sex with you. Even though you are very attracted to each other, you are not ready to have sex. How sure are you that you could keep from having sex?

    - Very certain
    - Somewhat certain
    - Not certain

21. Imagine you are in a relationship, but you have not had sex. Your partner really wants to have sex but you do not feel ready. How sure are you that you could keep from having sex until you feel ready?

    - Very certain
    - Somewhat certain

- Not certain

22. Imagine you and your partner decide to have sex but he will not use a condom. You do not have sex without a condom. How sure you that you could keep from having are sex until your partner agrees to use a condom?

    - Very certain
    - Somewhat certain
    - Not certain

23. Imagine you and your partner have been having sex but have not been using condoms, How sure are you that you could tell your partner you want to start using condoms?

    - Very certain
    - Somewhat certain
    - Not certain

24. Imagine you are having sex with someone you just met. How sure are you that you could tell that person you want to use condoms?

    - Very certain
    - Somewhat certain
    - Not certain

25. Imagine that pregnancy is no longer possible. You want to use condoms to avoid contracting an STD or HIV. How sure are you that you could convince your partner that you still need to use condoms?

    - Very certain
    - Somewhat certain
    - Not certain

26. How sure are you that you could use a condom correctly?

    - Very certain
    - Somewhat certain
    - Not certain

27. How sure are you that you can explain to your partner how to use a condom correctly?

    - Very certain
    - Somewhat certain
    - Not certain

28. How sure are you that if you told your partner you wanted to start using condoms, that is what the two of you would do?

    - Very certain
    - Somewhat certain
    - Not certain

29. If you wanted to use a condom, how sure are you that you could go to the store and buy one?

    - Very certain
    - Somewhat certain
    - Not certain

30. If you decided to have sex, how sure are you that you could have a condom with you when you needed it?

    - Very certain
    - Somewhat certain
    - Not certain

31. It would be embarrassing to buy condoms in a store.

    - Strongly agree
    - Agree
    - Somewhat agree
    - Disagree
    - Strongly disagree

32. I would feel uncomfortable carrying a condom.

    - Strongly agree
    - Agree
    - Somewhat agree
    - Disagree
    - Strongly disagree

33. It would be wrong to carry a condom with me because it would mean that I'm planning to have sex.

    - Strongly agree
    - Agree
    - Somewhat agree
    - Disagree

- Strongly disagree

34. Having my partner put on a condom before sex would be a hassle.

    - Strongly agree
    - Agree
    - Somewhat agree
    - Disagree
    - Strongly disagree

35. Having my partner put on a condom before sex would be embarrassing.

    - Strongly agree
    - Agree
    - Somewhat agree
    - Disagree
    - Strongly disagree

36. Sex would not feel as good if condoms were used.

    - Strongly agree
    - Agree
    - Somewhat agree
    - Disagree
    - Strongly disagree

37. Have you been sexually active within the past year?

    - Yes
    - No

38. Have you purchased condoms within the past year?

    - Yes
    - No

39. Does your healthcare provided talk to you about safer sexual activity such as using condoms, STD/HIV educations, dental dam, etc?

    - Yes
    - No

40. Are you currently in a sexual relationship?

- Yes
- No

41. What is longest sexual relationship experienced?

- Less than 1 year
- 1 to 2 years
- 2 to 4 years
- More than 5 years

Appendix D

IRB Letter of Approval

5/16/14

IRB <**IRB@waldenu.edu**>

This email is to notify you that the Institutional Review Board (IRB) has approved your application for the study entitled, "Measuring the Predictors of Condom Use among Middle-Class African American Women."

Your approval # is 05-16-14-0175315. You will need to reference this number in your dissertation and in any future funding or publication submissions. Also attached to this e-mail is the IRB approved consent form. Please note, if this is already in an on-line format, you will need to update that consent document to include the IRB approval number and expiration date.

Your IRB approval expires on May 15, 2015. One month before this expiration date, you will be sent a Continuing Review Form, which must be submitted if you wish to collect data beyond the approval expiration date.

Your IRB approval is contingent upon your adherence to the exact procedures described in the final version of the IRB application document that has been submitted as of this date. This includes maintaining your current status with the university. Your IRB approval is only valid while you are an actively enrolled student at Walden University. If you need to take a leave of absence or are otherwise unable to remain actively enrolled, your IRB approval is suspended. Absolutely NO participant recruitment or data collection may occur while a student is not actively enrolled.

If you need to make any changes to your research staff or procedures, you must obtain IRB approval by submitting the IRB Request for Change in Procedures Form. You will receive confirmation with a status update of the request within 1 week of submitting the change request form and are not permitted to implement changes prior to receiving approval. Please note that Walden University does not accept responsibility or liability for research activities conducted without the IRB's approval, and the University will not accept or grant credit for student work that fails to comply with the policies and procedures related to ethical standards in research.

When you submitted your IRB application, you made a commitment to communicate both discrete adverse events and general problems to the IRB within 1 week of their occurrence/realization. Failure to do so may result in invalidation of data, loss of academic credit, and/or loss of legal protections otherwise available to the researcher.

Both the Adverse Event Reporting form and Request for Change in Procedures form can be obtained at the IRB section of the Walden web site or by emailing irb@waldenu.edu: http://researchcenter.waldenu.edu/Application-and-General-Materials.htm

Researchers are expected to keep detailed records of their research activities (i.e., participant log sheets, completed consent forms, etc.) for the same period of time they retain the original data. If, in the future, you require copies of the originally submitted IRB materials, you may request them from Institutional Review Board.

Both students and faculty are invited to provide feedback on this IRB experience at the link below:

http://www.surveymonkey.com/s.aspx?sm=qHBJzkJMUx43pZegKlmdiQ_3d_3d

Sincerely,
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