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Human Immunodeficiency Virus Disparity in Black Men who Have Sex With Men

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This is to certify that the doctoral dissertation by

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MS, Bellevue University, 2005

BSN, Clayton College and State University, 2002

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Dissertation Submitted in Partial Fulfillment

of the Requirements for the Degree of

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Abstract

The HIV/AIDS epidemic continues to be a challenge in the men who have sex with men (MSM) population. Initiatives to decrease rates of new HIV infections have proven less than optimal. Despite evidence-based interventions to curtail the prevalence and incidence rates of HIV infection, Black MSM have been most impacted with increased HIV incidence. The purpose of this quantitative correlational study was to explore the relationship, if any, between age, online and physical venues attended by participants within the last thirty days, neighborhood's perceived social environment, and HIV incidence in the non-Hispanic Black MSM population in a metropolitan statistical area (MSA) in Southern U.S. Social cognitive theory was used to frame this study. Secondary datasets from the *Involve[MEN]t* database were used in this study and included 810 Black and White MSM living in a MSA. Ages of the participants ranged between 18 and 39. Original data were collected through online questionnaires. Chi-square, independent samples *t* test, and logistic regression model were used to analyze data. Chi-square analysis showed a significant main effect ($p = 0.006$) for online venue Facebook and HIV incidence but no significance differences identified between age, online venues CraigsList and Black Gay Chat, physical venues (including bars and restaurants, gyms, and bath houses), and neighborhood's perceived social environment (including neighborhood attachment, self-esteem/morale, and personal safety). Positive social implications of the study findings could include tailoring existing interventions with strategies to address self-esteem and morale, explore selected online and physical venues, and develop social and behavioral structured policies in the Black MSM population.

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Dedication

I dedicate this research in loving memory of my father Mr. Fred Beckley Sr. (Rest in Heaven) for instilling in me the will to achieve and wisdom to know that all goals are attainable with diligent work; my beautiful and inspirational mother Mrs. Shirley Beckley for believing in me every step of the way always letting me know that "if anyone can do it, you can"; my wonderful and motivating husband Wilmer Hildreth Jr. for his love, support, and patience especially during times when I was on an emotional rollercoaster with life challenges and stressors; we have faced a lot in our first 3 years of marriage but, all things have made us stronger; to my God Mother Ms. Phyllis Benson, who taught me how be a prayer warrior and know that nothing happens before its time (Rest in Heaven), and to my dearest family and friends who always showered me with words of encouragement; this journey was not easy but I could not have completed it without all of you in my corner. Most importantly, I dedicate this research to the fight, the journey, and lives of those living with HIV and to those who fight and have fought a courageous battle against AIDS.

Acknowledgments

I would like to acknowledge God as the head of my life. Philippians 4:13; "I can do all things through Christ which strengthens me." I would like to acknowledge my Chair Dr. Goes, for his mentorship, support, and patience. I would like to acknowledge my co-chair, Dr. Osoba for rigorous review that helped me to make my research more robust. I would like to acknowledge Dr. Naser for her constructive and expedited review of my research study. I would like to acknowledge Dr. Sullivan with Emory University for supporting me with my research study; without your approval to access these data, I would not have been able achieve my goal. I would like to acknowledge Dr. Root for her kind and compassionate words during residency 3 after losing my father in 2013 (words have the power to ignite the healing process). I give great thanks to all of my professors who helped to mentor me during this journey. I would like to acknowledge Ms. Joyce Williams my dedicated prayer warrior who prayed with me and for me to help me get over some of life's most challenging hurdles. To my colleague Dr. Jacquelyn Anthony, thank you for helping me stay focused on my study and for being a valuable support system to keep me motivated. I would like to acknowledge my loving family, extended family, and friends who have offered continuous words and acts of encouragement, those who have believed in me every step of the way. I have learned that each person's journey is their own; one does not have to be swift; however, if one believes and persevere through life's challenges then any goal can be achieved.

Table of Contents

List of Tables

Chapter 1: Introduction to the Study

Health disparities affect all populations. Researchers have explored social determinants of health, behavioral factors, and environmental factors; however, they have not fully identified discriminatory factors that increase health disparity and disease morbidity for members of one race, gender, or ethnicity over another. Pellowski, Kalichman, Matthews, and Adler (2013) noted evidence of an increase in health disparities with disease morbidity and mortality among socioeconomically compromised individuals, including those in minority groups.

According to Moore, Keruly, and Bartlett (2012) addressing health disparities specific to Human Immunodeficiency Virus (HIV) presents challenges for some risks groups most affected such as Black non-Hispanic, Black Hispanic, men who have sex with men (MSM), injection drug users, impoverished populations, and incarcerated populations. Further barriers related to HIV regimen compliance, retention, and access to care, have contributed to medication resistance and virologic failure, which leads to treatment failure (Moore, Keruly, & Bartlett, 2012).

However, researchers who have explored HIV morbidity in Black and priority subgroup populations (e.g., Black non-Hispanic MSM) have noted the need for further research to identify specific determinants of health and illustrate a relationship between HIV disparities within the race. Murray and Oraka (2013) identified a generalized predictive trend relevant to testing behavior among racial groups, which further showed racial and ethnic variances for HIV testing. Surveillance reports from the Centers for Disease Control and Prevention (CDC, 2012) indicated that HIV prevalence in 2009 and

HIV incidence in 2010 were highest among Blacks, in comparison with other races and ethnic populations. CDC (2013) data further showed that HIV incidence among Blacks was nearly 10 times the incidence rate of their white counterparts. HIV morbidity among the Black MSM population was noted by researchers to be higher than their White MSM counterpart population.

National surveillance reports have framed HIV morbidity as an epidemic in the Black MSM population. In the HIV Surveillance Supplemental Report (CDC, 2010), Blacks exceeded the HIV diagnosis rate by as much as 9 times that of members of other racial/ethnic groups and selected characteristics criteria. Endeavors with future research to identify a relationship between HIV status in the Black MSM population and their social, environmental, and structural determinants may prove pivotal in tailoring evidence-based interventions. If a relationship exists between social and behavior effects, then existing prevention initiatives and interventions may be modified based on those relationships to provoke a systemic change that further fosters positive social change, possibly eliminating barriers to achieving successful outcomes.

In Chapter 1, I include a background of the study problem, purpose, and theoretical framework I will use to determine the relationship, if any, between age, online and physical venues attendance, and neighborhood's perceived social environment, and HIV incidence in the Black MSM population. In this chapter, I also review the scope, assumptions, limitations, and delimitations of the study. Chapter 1 closes with a synopsis of the study.

Background of the Study

Health disparities among minority populations have steadily increased, with significantly higher morbidity rates in comparison to their white counterparts despite implementation of primary and secondary intervention efforts (Lanier & Sutton, 2018). As Moore, Keruly, and Bartlett (2012) have reported, HIV disparities are notably present in the Black population, those identified as poor, and injecting drug users. The CDC (2012) found that Black MSM accounted for approximately 40% of HIV diagnoses among members of all high-risk transmission groups. U.S. surveillance data for 2007-2010 indicated that Blacks account for 45% of new HIV diagnoses (National Center for HIV/AID, Viral Hepatitis, STD, and TB Prevention, 2010). Historically, education methods to promote prevention and evidence-based intervention using best practices have shown effectiveness in some populations; however, based on literature and documented surveillance reports, minority populations continue to bear the burden of disease morbidity (CDC, 2012).

Researchers have investigated relationships between social determinants of health and health disparities that have contributed to increased HIV morbidity rates in minority populations. Herbst, Painter, Tomlinson, and Alvarez (2014) found that HIV incidence has increased among Black MSM. According to Kraut-Becher et al. (2008), disparities in HIV have been distinct between races; however, they concluded that there were environmental, behavioral, and other social factors that must be considered to reduce disparities in HIV morbidity.

Although researchers have provided evidence of increased HIV incidence related to Black MSM, evidence of social, behavioral, and environmental influences has not been fully explored to determine the relationships, if any, between these variables and health disparities. Baral, Logie, Grosso, Wirtz, and Beyrer (2013) described how social and structural drivers contribute to HIV vulnerabilities and health inequities that may be further stratified by social, economic, organizational, and political power and domination factors. The authors further emphasized the importance of integrated strategies beyond individualized risk. Taking cue from Baral et al., I explored comprehensive epidemiologic data to categorically address HIV risk.

Key measures of association for studies relevant to HIV morbidity on a national level have indicated an increase of HIV incidence in Black MSM populations and racial disparity of HIV incidence beyond existing social determinants of health in comparison to White MSM (Sullivan et al., 2015). Findings from these studies may be used by researchers with consideration to explain racial and ethnic disparities. However, those studies have been limited by their reliance on self- reported risk and behavior data, individual stated behaviors, reported HIV status, and small sample sizes. In this study, I explored the relationships, if any, between social and structural drivers that contributed to disparities in HIV morbidity between Black MSM and those in other MSM populations.

Social Determinants

The CDC (2010) has noted that social determinants of health (SDH) may refer to a canopied system of social, economic, environment, health, and societal structures that lead to health inequities. Social factors had an association with health status and disease

morbidity. According to Adimora and Schoenbach (2013), social factors may be considered indicators for health outcome of individuals and populations. Social networks may be the preliminary forum for establishing sexual networks.

Sexual networks, as an extension of social networks, may increase the transmission risk for HIV. Kraut-Becher et al. (2008) discussed the shift from an individual-level to a population-level focus on sex partner selection. The behavior of one's partner extends the risk and interconnected environmental and social factors beyond individual behavior. Environmental and social factors may inadvertently affect one's lifestyle and overall health status.

Social epidemiology expanded the research of social factors not expressly associated with chronic diseases. As Adimora and Schoenbach (2013) noted, sexual behaviors are influenced by social conditions not limited to education, work, religion, and mobility. Bout et al. (2014) further identified social factors that contribute to HIV disparities including poverty, income inequality, stigmatizing social institutions, and limited health care access. Although poverty had been the leading social factor for HIV morbidity in more urban populations, it does not totally explain the epidemic and rate of racial disparity.

Findings from these studies have informed other researchers and influenced health outcomes in the Black MSM population. These findings may be useful for researchers looking to further explore associations of social networks, social environments, and HIV incidence while working to include environmental and overall social factors that may lead to more insight regarding the racial disparity.

HIV Disparity

As asserted by Arya, Kumar, Patel, Street, Giordano, and Viswanath (2014) in The *American Journal of Public Health*, more than 1 million people in the United States are living with HIV, and slightly less than 15% are unaware of being HIV positive since they have not yet been diagnosed with the infection. In the United States, the rate of HIV infection overall has become more predictable than in earlier years with the exception of identified subgroups. As the CDC (2014) has noted, variances for distinct subgroups morbidity shows both increases and decreases, and 2014 estimated rate of HIV infection were under 14%.

To further demonstrate the burden of HIV and the need to address this epidemic, a national HIV/AIDS strategy was initiated by the White House Office of National AIDS Policy in 2010. According to the CDC (2014), one overlapping goal is to "reduce HIV-related disparities and health inequities" (The White House Office of National AIDS Policy, 2010). The CDC has a shared interest in reducing health disparities and improving health equity by revisiting traditional prevention strategies and "recognizing the gaps in data regarding social determinants of health (SDH) and HIV" (CDC, 2014).

The first reported diagnosed case of HIV in the United States was more than 30 years ago (Hemminge, McFadden, Cook, Tang, & Schneider, 2012). Although the CDC and other organizations have worked diligently to research, educate, and implement efforts to reduce the rate of HIV infections, HIV disparities still exist today. For instance, a CDC Morbidity and Mortality Weekly Report (MMWR, 2011) showed that HIV infections among Blacks were nearly 800% higher than for Whites.

Incidence of HIV among Black MSM

The Black MSM population accounts for more HIV morbidity when compared to other racial populations, and morbidity has increased in those aged 13-29. As Maulsby et al. (2013) noted, rates of new infection increased by more than half among young Black MSM. When estimating rates of HIV infection, Lanier and Sutton (2013) asserted that one in 16 Black MSM will be infected with HIV in their lifetime.

The *American Journal of Health*, authors Arya et al. (2014) found that the subgroup of Black MSM aged 13-29 experienced the greatest rate of HIV infection and concluded that racial disparity was a distinguishing factor for HIV in the United States. Although I researched various determinants such as socioeconomic disparities and risk behaviors among the MSM I identified as gaps in research findings that justify the greater incidence among Black MSM.

Sharpe, Harrison, and Dean (2010) noted that social networks, housing conditions, and social support are key indicators of HIV/AIDS morbidity. Research has shown that HIV transmission had been identified in MSM population and that social and sexual networks may potentially be an influence for behavior. Kraut-Becher et al. (2008) discussed population-level parameters and elaborated on the sexual connections of individuals in certain populations and social networks. Groups were further delineated by sexual behavior and HIV status or risk.

Bout et al. (2014) noted that a lower male-to-female ratio relationship indicated a correlated factor for HIV incidence among Black MSM. This correlation further indicated an increase in risk behavior in male-to-male relationships. Although there are evidence-

based practices for HIV prevention, increased rates of new HIV infection among Black MSM indicated a gap in knowledge of how to successfully implement HIV initiatives to reduce the racial disparity of HIV. Taken as a whole, the literature has indicated a continuing need for further research and outreach to address HIV disparities and to identify relationships that may exist in specific subpopulations experiencing the impact or increased incidence of HIV infection.

Problem Statement

The general problem I identified while conducting research for this study was an increase of HIV morbidity among the Black MSM population in a metropolitan city in Southern U.S. Metropolitan Statistical Area (MSA). Presently, two counties in the MSA have been identified as high-risk HIV incidence geographical areas and receive federal funding to address HIV disparity in these high morbidity counties (City of Atlanta [Fulton/DeKalb Counties] Jurisdictional HIV Prevention Planning Group, 2012). As reported by Georgia Department of Public Health HIV Surveillance Department 2008, one MSA percentage of HIV morbidity was 48.3; the second percentage of HIV morbidity was 27.1 for represented HIV morbidity in the Southern state. Evidence of these disparities warrants further research to explore racial disparities relevant to HIV incidence in the subgroup population of Black MSM.

In a prospective cohort study Sullivan et al. (2015) found an increase in the HIV incidence rate among Black MSM; they also found that the Southern city's HIV morbidity incidence was at a 3.8% higher rate than other in other U.S. MSM populations for all race groups. However, Black MSM overall indicated a higher incidence of those

newly infected with HIV. Although this particular study was representative of a Southern city in a MSA, generalized studies on a national level reflect similar data trends (Hemmige et al., 2012).

The specific problem that I addressed in the quantitative correlational study was the lack of knowledge regarding the relationship if any, between Black non-Hispanic MSM, age, venue attendance, neighborhood's perceived social environment, and newly infected HIV status. This combination of factors in the Southern MSA may have contributed to the increased incidence of newly diagnosed HIV cases in the Black MSM population if determined that a relationship exists. According to the CDC (2012), Blacks comprise less than 20% of the U.S. population, yet this subpopulation accounts for nearly 50% of newly diagnosed HIV infections.

Ethno-racial status as Black, has not been framed as a risk factor for HIV incidence among Black MSM in comparison to other MSM races. However, Sullivan et al. (2015) mentioned that explorative avenues such as HIV screening and identified barriers that inhibit linkage to care including access to treatment for those infected with HIV may be possible variables to increased HIV incidence. These proposed explorative avenues may or may not have had a relationship with increased HIV morbidity in the Black MSM population. The structural factors I explored regarding linkage and access to care may further explain racial disparity and HIV.

According to Griensven and Stall (2014), Black MSM were less likely to comply with antiretroviral therapy (ART) regimens, whereas White MSM were more likely to be on ART and virally suppressed. Virally suppressed MSM who are linked to care and

adhere to treatment have notably lower transmission rates than those not linked to care or adhering to a treatment regimen. Beer, Oster, Mattson, and Skarbinsk (2013) asserted that lower ART use results in lower viral suppression despite sexual risk behavior.

As reported by the CDC (2012), the Black MSM population experiences a higher incidence of HIV when compared to all MSM populations. A review of the literature indicated higher HIV morbidity among Black MSM with an increase in the subgroup of younger Black MSM. However, identified high-risk transmission behavior among the MSM population and traditionally associated with HIV morbidity did not lean towards this being an isolated factor, nor did high-risk transmission behavior predict or justify the presence of disparities among Black MSM.

As Dean and Fenton (2010) discussed, there are multiple variables outside of high-risk transmission behaviors that contribute to morbidity and mortality of infectious diseases. Identified variables outside of higher-risk transmission behavior that contribute to HIV incidence could be used to inform public health professionals working to address HIV health disparity in Black MSM. Such information could be used in alignment with national HIV prevention efforts to influence community and public health efforts for high impact prevention.

The top four goals for the CDC PS12-1201 (2012) grant were as follows: (a) increase routine testing, (b) increase HIV testing among populations at greatest risk, (c) increase the percentage of newly identified HIV positive persons who learn their sero-status and receive post testing, and (d) increase the percentage of persons living with HIV who received recommended initial and ongoing sexually transmitted infections (STI)

screening as part of continuous HIV medical care. These goals related to my research study involving newly diagnosed HIV infections in Southern high morbidity counties in the MSA.

Gained insight into environmental, structural, and social indicators that may affect individual populations may be vital in developing and implementing successful intervention and prevention strategies. Heslin, Anderson, Ettner, and Cunningham (2004) stated that minority populations are faced with more disadvantages related to poor health status, including lower income and education levels, demographic status, and geographic variations that compromise access to expert medical care in comparison to their white counterparts. These barriers to getting care may influence overall health status among minority populations. With identified barriers accounted for, I explored environmental, structural, and social indicators to determine if a relationship existed between HIV and the Black MSM population living in the MSA.

By isolating age, venue attendance, and neighborhood's perceived social environment as determinants of health, defined parameters could be explored for HIV morbidity in the Black MSM population. I made this assumption based on evidence of increased HIV incidence in Southern MSA counties. Findings may potentially serve as a foundation for developing, tailoring, and implementing new evidence-based interventions to reduce disparities in incidence of new HIV infection among Black MSM in the MSA.

Purpose of the Study

The purpose of the quantitative, correlational research was to identify the relationships, if any, between age, venue attendance, neighborhood's perceived social

environment, and HIV incidence among Black MSM in the MSA. The results of this study may lead to more tailored intervention efforts to potentially reduce the rate of newly infected HIV cases among the Black MSM population in two high morbidity Southern counties in the MSA.

The root cause for racial disparity and the increased incidence of HIV morbidity was not clearly shown in current research. Specific variables demonstrating a relationship with increased HIV incidence among Black MSM despite existing interventions dictated further exploration. Evidence-based interventions have been implemented since originally developed by the CDC. However, intervention strategies have not resulted in a decrease of newly diagnosed HIV cases among Black MSM populations, specifically those observed in the Southern MSA

Intervention and prevention strategies have been developed and implemented, yet increased rates of HIV in the Black MSM population remain greater than in other observed MSM subgroups. Kraut- Becher et al. (2008) asserted that determining causal variables among Black, Whites, and Latinos precipitate strategies developed with prevention efforts in mind. However, exploring if there is a relationship among specific determinants and the Black MSM population may assist with identifying causative relationships.

According to Skinta, Murphy, Paul, Schwartcz, and Dilley (2012), one challenge for effective HIV prevention strategies was the acknowledgment of behavior structure that contributed to inconsistent behavior practices. Information relevant to HIV transmission, prevention, and intervention methods has been made available and thus has

not consistently proven most effective in behavioral change. Therefore, gained insight regarding social networks, sexual networks, structural factors, social factors, and behavior factors may lead to revision of existing initiatives. Social and sexual networks, behavior practices, and structural and social factors must be explored to align CDC initiatives with the needs of the Black MSM populations in the Southern city MSA.

Theoretical Framework for the Study

In this study, I concentrated on the role of cognitive factors and behaviors of Black MSM in relation to their HIV status. According to Bandura (1986), social cognitive theory (SCT) outcomes are factored by self-efficacy, cognition, behavior patterns, expectations, and intentions. Researchers have used social-cognitive models to explain health risk in various populations; this model has been used to explain health risk for those infected with HIV (Safren et al., 2010). SCT may explain the influence of behavior, social environment, social networks, and cognitive intentions and expectations regarding HIV status.

Oster et al. (2011) found that a higher incidence of HIV morbidity in the Black MSM population, in comparison to other MSM populations, was associated with one's sexual network. As indicated by CDC (2011), Black MSM rates of HIV infection were statistically significant and nearly 10 times greater than White MSM in a research study. In the context of the study, I used SCT to identify social behaviors, expectations, and environments of Black MSM relative to their HIV status and increased morbidity rates.

SCT, as I used it in this study, included identifying determinants that may demonstrate a relationship between age, venue attendance (both social and physical),

neighborhood's perceived social environment, and HIV incidence. I also used it to further explore behaviors that may reduce the risk of acquiring or transmitting HIV. How individuals are influenced by social factors can determine their behaviors within their social networks and social environments, further expanding into their sexual networks. According to Bandura (1999), there are internal and external indicators that may influence initiation and maintenance of social behaviors. SCT may be used as a sustainable mechanism to produce positive behavior changes that may further result in self- regulated behavior modification. In SCT, there are six constructs involved:

1. Reciprocal determination: The core concept of SCT centered on interactions of person, environment, and individual behavior.
2. Behavioral capability: This construct considers actions of an individual's behavior based on their scope of learning through knowledge and experience.
3. Observational learning: This construct focuses on observing behaviors of others and reenacting the behavior that is deemed successful.
4. Reinforcements: This construct, in a sense, involves internal and external cause and effects through past experiences with a particular behavior. This construct is closely relational to positive and negative motivators further influenced by an individual's behavior and the environment.
5. Expectations: This construct is driven by an individual's decision and outcome of a particular behavior. This may be considered as a consequence of an action taken by an individual.

6. Self-efficacy: The concept for this construct focuses on an individual's ability to achieve their anticipated goal through successfully performing a behavior. Influences for this construct includes internal ability, individual and environmental factors. (Boston University School of Public Health, 2013)

According to Bandura (2001), SCT encompasses the individual, environmental influence, and social forms of action. SCT considers how the various forms of action interrelate to determine behavior and decision outcomes. Using SCT for the study allowed me to explore how behavior and thoughts of individuals in their environment affect their HIV outcomes in an ethnically- and racially-diverse MSM population.

I used behavioral capability, an SCT construct, to considering actions of Black MSM based on factors of age, venue attendance, and neighborhood's perceived social environment. Identified social, behavioral, and age determinants can be fashioned as an environmental or collective agency that may represent demographics for the researched population. The indicator for behavioral capability was risk behaviors. My assumption with respect to behavioral capability as a construct was that actions based on age, venue attendance, and perceived social environment may influence risk behaviors.

I also used the SCT construct self-efficacy to consider how the behaviors of the Black MSM population are influenced by internal ability and environmental factors. The indicator for self-efficacy was outcome of HIV status. My assumption with respect to self-efficacy as a construct was that internal ability and environmental factors may influence the outcome of HIV status. By using these two constructs for the study, I hoped

to associate the cognitive process individuals may have contemplated when faced with social networks, behavior, and sexual practices regardless of knowledge.

In this study, I used quantitative secondary data available from the Emory University Center for AIDS Research (CFAR) for HIV incidence, Black MSM, age, venue attendance, and neighborhood's perceived social environment. Specifically, I used this data to explain determinants of health based on structural environment, social network, and social behavior that may influence the incidence of HIV.

Research Questions and Hypothesis

RQ1: To what extent, does age relate to MSM HIV incidence, controlling for the effects of high-risk behavior in the Black MSM Population in a Southern city U.S.?

$H_0$1: Age is not related to MSM HIV incidence, controlling for the effects of high-risk behavior in the Black MSM population in a Southern city U.S.

H_a1: Age is related to MSM HIV incidence, controlling for the effects of high-risk behavior in the Black MSM population in a Southern city U.S.

RQ2: What is the relationship between online and physical venue attendance and HIV incidence in the Black MSM population in a Southern city U.S.?

$H_0$2: There is not a relationship between online and physical venue attendance and HIV incidence in the Black MSM population in a Southern city U.S.

H_a2: There is a relationship between online and physical venue attendance and HIV incidence in the Black MSM population in a Southern city U.S.

RQ3: To what extent, if any, does neighborhood's perceived social environment correlate with HIV incidence in the Black MSM population in a Southern city U.S.?

$H_0$3: Neighborhood's perceived social environment is not related to HIV incidence in the Black MSM in a Southern city U.S.

H_a3: Neighborhood's perceived social environment is related to HIV incidence in the Black MSM in a Southern city U.S.

Nature of the Study

I conducted quantitative research with a correlational study using a survey method. A correlation design, as indicated by Field (2009), allows the researcher to demonstrate the relationship between variables without manipulation. A correlational design does not imply a causal relationship between variables. According to Campbell and Stanley (1963), a correlational design may be used as a preliminary step in establishing credibility to the research study hypotheses. A cross-sectional approach as mentioned by Frankfort-Nachmias and Nachmias (2008) works well in a natural environment when conducting a non-experimental study.

I used a quantitative correlation design with a cross-sectional survey approach for statistical analysis to demonstrate the relationship between variables relevant to determinants of health and HIV morbidity for Black MSM. This method and design allowed me to objectively measure variables and provide an analysis of data collected to answer research questions. The independent variables were age, venue attendance, and neighborhood's perceived social environment; the dependent variable was HIV incidence. As mentioned by Kelle (2006) quantitative methods permit formulation of hypotheses by applying a hypothetico-deductive (HD) approach; variables can then be objectively examined to test theories.

A quantitative correlation design with a cross-sectional survey approach permitted me to use a large amount of data collected for the identified sample population of Black MSM in the Southern U.S. MSA and their HIV status. Sale, Lohfeld, and Brazil (2002) asserted the use of a quantitative method is based on determining the cause for phenomena accommodating data collections from large sample populations not limited to a randomized assignment.

This design was well suited to collecting information regarding age, venue attendance, social environment, and HIV status from diverse Black MSM. I analyzed data collected using existing statistical software programs (Statistical Package for Social Scientist (SPSS) and G* Power). These software programs were used to determine the appropriate study size and analyze data from the study.

Operational Definitions

I have used the following operational definitions throughout this document.

Metropolitan Statistical Area (MSA): An area located in the northern third of the state with a geographical area of 8,376 square miles and an estimated population of 5,420,913 as reported in 2009. Officially designated by the United States Census Bureau as the Atlanta-Sandy Springs-Marietta MSA, it is considered the 8th largest metropolitan area in the United States (Georgia Department of Public Health, 2011).

Age at baseline: participants within the constrained age range of 18-39 (Emory University, *Involve[MEN]t* study, 2014).

Health disparity: A difference in health that is closely linked with social or economic disadvantage that negatively affect groups of people who have poor health

status due to social and economic barriers to health (*Western Journal of Nursing Research*, 2007).

High risk behavior: MSM relationships involving anal and oral sex, multiple sex partners, unprotected sexual encounters, and substance abuse (Emory University, *Involve[MEN]t* study, 2014).

HIV incidence: Incident of HIV infection, number of new HIV infections in the MSM population during the period of the *Involve[MEN]t* study as measured by current and/or most recent HIV test results are used to conclude the incident of HIV infection for measurement in this study (Emory University, *Involve[MEN]t* study, 2014).

Incident of HIV infection: New HIV infection during the period of the *Involve[MEN]t* study (Emory University, *Involve[MEN]t* study, 2014).

Men who have sex with men (MSM): A term used to categorize males who engage in sexual activity with other males, regardless of how they identify themselves (CDC, 2010).

Online venues: Online social media environments further identified in the study as Facebook, Craigslist, and Black Gay Chat (Emory University, *Involve[MEN]t* study, 2014).

Neighborhood's perceived social environment: Location of resident within the Southern counties geographical area and social environment (Emory University, *Involve[MEN]t* study, 2014).

Personal safety in residential area: A resident reporting levels of safety within their residing neighborhood to include police patrolling neighborhood of residents (Emory University, *Involve[MEN]t* study, 2014).

Physical venues: Physical environments further identified in the study as bars/restaurants, gyms, and bathhouses (Emory University, *Involve[MEN]t* study, 2014).

Resident's attachment to neighborhood: Participants who reside in an identified geographical location and have resided at that address for at least six months (*Involve[MEN]t* study, 2014).

Resident's Self-esteem and or morale: participant's self-reported assessment of how residents he feels about self and self-perceptions (Emory University, *Involve[MEN]t* study, 2014).

Seroadaptation: Practice of modifying sexual behavior based on one's own HIV serostatus, the perceived HIV serostatus of sexual partners, and the differences in risk of HIV transmission by sexual acts (Irvin et al., 2014).

Sexual networks: Groups of individuals who are connected to one another through sexual activity (Cooper et al., 2014).

Social determinants of health: Complex, integrated, and overlapping social structures and economic systems that responsible for most health inequities; the economic and social conditions that influence the health of people and communities; social determinants of health affect factors that are related to health outcomes (Centers for Disease Control and Prevention, 2014).

Virologic failure: Type of HIV treatment failure that occurs when antiretroviral therapy (ART) fails to suppress and sustain a person's viral load to less than 200 copies/mL. Medication resistance, medication toxicity, and treatment noncompliance are contributing factors for virologic failure (National Institute of Health, 2016).

Assumptions

I assumed that self-reported behaviors of study participants were indicative of behaviors of past and present sexual partners. In a study conducted by Irvin et al. (2015), Black MSM living in Seattle self-reported sexual risk that did not exceed those of their White counterparts and further reported past testing practices parallel to those similar of White MSM. Irwin et al. (2015) further mentioned that Black MSM had a higher positivity rate and did not know the actual sero-status of their sexual partners. In this study, I assumed self-reported data were reported honestly by participants when completing the online questionnaire.

Another assumption was that recent incarceration, employment status, and homelessness were indicative of increase rates of new HIV infections. In some instances, there was an influential association of variable and new HIV infections; however according to Sullivan et al. (2015), the aforementioned variables were loosely associated with significance relevant to new HIV infections to justify the existing disparity of new HIV infections among Black MSM. In this study, an assumption was that data reported were accurate and representative of the target population.

Poor socioeconomic status had often been associated with health disparities; high-risk behavior that potentiates prevalence of HIV infection in Black MSM populations has

often been considered as a factor for disease prevalence. According to Moore, Keruly, and Bartlett (2012) individuals living below the poverty line are faced with barriers to health care and have a higher HIV infection rate than those considered socially advantaged. I assumed poor socioeconomic status and health disparity included a limitation with focus on social constraints that may potentiate a relationship with health disparities within particular socioeconomic status. In this study, an assumption was that participants' neighborhood's perceived social environment is impoverished or stigmatized by HIV.

The concept of social stigma and acceptance related to testing, sexual behavior, or perhaps internalized homophobia associated with cultural upbringing was factors that warranted further examination. According to Oldenburg et al. (2015) social environments with consideration to structural stigma results in poor health status thereby further contributing to health disparities. An assumption may have concluded that social and structural stigma may increase HIV status outcomes for those in the Southern MSA MSM population. Oldenburg et al. (2015) concluded in their study that MSM populations in a heightened stigmatized environment were also associated with fewer HIV –prevention strategies than those MSM living in less stigmatizing environments. Delving further into assumptions with this study, one may assume structural stigma accounted for social behavior that places an individual at higher risk in more stigmatizing environments.

Scope and Delimitations

The scope of the study was to identify a relationship between HIV infection in the Black MSM population in a Southern city U.S. and determinants that were exclusive to

this subgroup not observed in other MSM populations. Sullivan et al. (2015) discussed categorical factors, for instance, race and age of partners that concluded higher prevalence rates with the clear distinction to not project stigmatization of the components reflected in the partner pool. Results concluded from the study may not be generalized for all Black MSM population but more specific to Black MSM living in a Southern city MSA.

Delimitations of this study included my selection of HIV morbidity in the Black MSM population; identifying which determinants predicted HIV morbidity in Black MSM and my attempt to display the relationship of determinants and HIV status in the Black MSM population. Education, employment, income, job and food security, quality of health services, access to services, and housing were excluded as variables as the study population and secondary data accounted for those variables included in the self-interview questionnaire.

Variables of age, venue attendance, and neighborhood social environment were selected and accounted for the aforementioned excluded variables. This study results did not identify determinants of health for all races of MSM; the study results identified determinants for the Black MSM population living in the Southern city MSA as this population was identified as the predominantly affected risk group in MSA. This study did not identify the cause of HIV morbidity for Black MSM; this study did determine if a relationship existed between Black MSM living in the Southern city geographical area. This study did not identify interventions to decrease HIV morbidity; this study was to determine if a relationship existed and influenced further research based on findings.

Another theory considered for this study was the transtheoretical model (TTM) of health behavior change. The TTM and the SCT are often used in research for health behaviors and social sciences. However, the TTM was not selected; this theory focuses more on stages of change with decisional balance, self- efficacy and temptations. With consideration given to the risk of HIV infection for the target population, the SCT model was selected; this model focusses more on social behaviors, actions, and the environment.

Limitations

One limitation of this study can be aligned with barriers that most researchers have explored the Black MSM population but, not the underlying strategies associated with social networks and structural barriers that would affect change in tailoring existing interventions for this population. The limitation with this factor was that many existing interventions are based on behaviors that an individual must perform to reduce their risk of HIV infection. However, Peterson and Jones (2009) concluded that innovatively tailoring existing strategies and interventions would serve to benefit Black MSM rather than continuing to employ those that have proven ineffective in reducing HIV infection among this population. If these tailored interventions were to include structural and social environments limitations may be mitigated.

The use of secondary data was another limitation; the process for data collection was dependent upon those who have conducted prior research and may not have identified all variables associated with the study. Data collection was further identified as a limitation; some secondary data collection processes included the use of computer assisted self-interview questionnaires and depended on the individual to the level of

literacy and transparency in disclosed personal behaviors. Biases may be involved with collection of the primary data based on literacy level and need for assistance to complete interview questionnaires not limited to participants who may not be forthcoming with sensitive information associated with risk behaviors.

Sullivan et al. (2015) indicated a limitation within their study related to determining further exploration of the relationship and variables associated with young Black MSM HIV disparity. Some data collected was generated through self-reporting mechanisms which proved to be a limitation of the study. Irvin et al. (2015) asserted self-reporting as a limitation in their study for decreased disclosure of seroprotection of Black MSM in comparison to other MSM racial and ethnic populations.

There were also limitations considered when using social cognitive theory (SCT), as a theoretical framework specifically related to public health. According to Boston University School of Public Health (2013), changes in one's environment may be loosely associated with dictated changes in the behavior of an individual. Other influences must be taken into consideration, which included past experiences, motivators, and a more focused operationalized plan to render anticipated outcomes with this theoretical framework. Therefore, SCT lends itself to anticipating change influenced by the environment of those in the study population. With the Black MSM population in the Southern city MSA once social and structural environment was changed, this may have influenced a change in new HIV infection outcomes.

Significance

The significance of conducting research on potential relationships between determinants of health and HIV morbidity in the Black MSM population coincided with initiatives for the Centers for Disease Control and Prevention national HIV prevention plan (CDC, 2012). According to Holtgrave, Jean, and Milan (2007), HIV prevention strategies must be founded on scientific evidence to reduce HIV incidence. The research could be useful for achieving public health initiatives by serving as a guide for identifying the relationship between determinants of health and HIV infection. Results of the study may demonstrate a need to focus on determinants of health that influence high-risk behavior among Black MSM which may increase their chances for contracting HIV.

Determinants of health applied to a specific subset population instead of more generalized populations may be useful for identifying a relationship if any exists. My research study explored HIV incidence and prevalence pattern associated with health disparities among Black MSM specific to those living in the MSA. However, Sharpe, Harrison, and Dean (2010) observed studies that alluded to more critical indicators associated with socioeconomic determinants of health such as employment, income, and education level to trigger a more comprehensive perspective.

Public health leaders and multi-disciplined service providers could use this data in determining best practices for mitigating HIV morbidity by establishing evidence-based population health programs, policy, and tailored intervention strategies to improve health outcomes. Black MSM could potentially experience a decrease in infection rate thus, closing the gap for disparity compared to their white MSM counterparts. The rationale

was that conducting research to identify determinants of health for Black MSM could assist with further defining relationships between HIV, social environment, social and sexual behavior, and new diagnoses of HIV as possible variables influencing health status in Black MSM populations living in the high HIV morbidity areas of identified high morbidity counties in the MSA.

Evidence-based prevention strategies have been employed throughout the nation to reduce HIV/AIDS morbidity. As noted by Owczarzak (2011), the CDC's efforts in HIV prevention that led to the development and launch of Diffusion of Effective Behavioral Interventions (DEBI) program in 2002 were pivotal. The DEBI program is evidenced based and proven effective when implemented according to the program. The DEBI program has been applied to target populations based on demographic data. However, Sharpe, Harrison, and Dean (2010) asserted that primary focus on demographic determinants, i.e., age, race, sex, and race/ethnicity display part of a larger picture.

The research I conducted may be used to stimulate social change by increased awareness of health disparities in minority sub-populations, further exploring social and behavioral factors more congruent with health outcomes. Researchers may then attempt to approach HIV morbidity from a social cognitive perspective incorporating age, venue attendance, and social environment strategies. Further efforts may incorporate those possible determinants with standardized approaches based on evidenced based interventions proven effective yet, missing the mark in minority populations. The most direct impact that may be a result of conducting this study was identified relationships

that contributed to the increased incidence of newly diagnosed HIV positive Black MSM in the MSA.

Summary

Public and private sector health care providers are charged with implementing standardized evidence-based interventions to proactively address specific needs of populations and improve health status. As mentioned by Lieb et al. (2011) policy makers and stakeholders can use information reported from research findings as a framework for developing culturally specific intervention programs. This topic was important in the effort to eliminate health disparity gaps and provided useable evidence of determinants of health and their relationship with HIV for Black MSM populations.

Existing researchers confirmed the magnitude of the HIV epidemic in minority subgroups. Community stakeholders, health care providers, public health agencies, community-based organizations, federal, local and state policy makers, including those living with HIV or affected by HIV must answer the call to be informed on HIV racial disparity. Everyone must accept their role in contributing to systemic change. My research should provoke open dialogue about racial disparity regardless of economic status with hopes of destigmatizing HIV in all communities and populations.

My research could further contribute to social change relevant to HIV in the Black MSM population by identifying social, environmental, and structural determinants relationships if they exist and by exploring social and behavior effects that may demonstrate importance in tailoring interventions. Although rates of HIV have been observed as an epidemic on a national level, identifying a correlation between newly

diagnosed HIV infections within a population subgroup and current evidenced based intervention may warrant modification of existing approaches to forge a systemic change further leading to positive social change. By tailoring prevention and intervention strategies based on proven relationships, healthier outcomes may be realized among the identified population and may contribute to positive social change through the concept of SCT which involves modification of an individual's behavior and environment behavior. Moreover, although statistical validity is not equivalent to clinical relevance; findings from this study may be used to further identify unknown variables or covariates and their relationship with the disease to improve health outcomes for all minority MSM populations and specific for Black MSM.

In Chapter 1, I provided a background of the study, a discussion of the problem statement, research design, methodology, and the purpose of this study. The nature of the study, assumptions, limitations, and scope and delimitations were presented with further discussion related to use of secondary data. I included a discussion that indicated the significance for conducting research including how it is important to social change aligned with public health strategies of prevention of increased HIV Morbidity. In Chapter 1, I presented the theoretical and conceptual framework, research questions, and hypothesis for this study. In Chapter 2, a literature review of relevant articles for the study was presented. Articles reviewed and presented will allow the reader to gain insight on HIV incidence, existing literature, and the gap in literature as it relates to the study.

Chapter 2: Literature Review

HIV disparity and its impact on specific populations has received national attention with coordinated and evidence-based strategies. The CDC developed a national HIV/AIDS initiative to address disparities and improve health outcomes for those living with HIV/AIDS and those at risk for new infection (CDC, 2014). The U.S. National HIV/AIDS Strategy (NHAS, 2015) has four primary goals, with one being the reduction of newly diagnosed HIV cases. With this study, I explored the relationship, if any, between HIV incidence, age, venue attendance, and social environment among Black MSM. Black MSM in the MSA. Findings from this analysis may be useful in developing future initiatives to tailor existing initiatives and achieve national goals. To determine the extent of relationships, if any, between variables in this study, I developed the following research questions.

RQ1: To what extent, does age relate to MSM HIV incidence, controlling for the effects of high-risk behavior in the Black MSM Population in a Southern city U.S.?

RQ2: What is the relationship between online and physical venue attendance and HIV incidence in the Black MSM population in a Southern city U.S.?

RQ3: To what extent, if any, does neighborhood's perceived social environment correlate with HIV incidence in the Black MSM population in a Southern city U.S.?

In Chapter 2, I offer an analytical review of the literature relevant to specific areas introduced in Chapter 1 and that served as a foundation for the development of the study. In this chapter, I present a comprehensive review of studies on HIV morbidity and prevalence in the Black MSM population. Further, I explore racial disparity among Black

MSM and determinants that may be associated with greater incidence of HIV morbidity. I have also provided an overview of HIV as an epidemic and how it has affected the Black MSM population at a significant rate.

In subsequent sections of the literature review, I discuss the dependent variable of HIV status; I further review literature on age, venue attendance, and neighborhood's perceived social environment and their possible influence on HIV morbidity. I also discuss literature related to theoretical frameworks used in social and behavioral HIV research. Next, I offer an exploratory review of racial disparity and new HIV cases potentially associated with determinants of health. Social, physical, and behavior factors were explored to determine if there were existing relationships with increased HIV morbidity in the Black MSM population. I examine literature on social determinants of health (SDH) and implications of racial disparities within the Black MSM population and conclude with a supportive review of the literature that demonstrates the prevalence of HIV within the Black MSM population. The conclusion for Chapter 2 includes a discussion of historical studies relevant to my research questions and hypotheses.

Literature Search Strategy

The literature review process included retrieval of scholarly books, peer reviewed articles, and research documents through Walden University Library, ProQuest, Science Direct, Stephen B. Thacker CDC Library, National HIV Behavioral Surveillance (NHBS) reports, AIDSmap, and PubMed (Medline). The literature review included keyword searches for articles using Google Scholar, Google, and CDC library search engines. Keywords included *human immunodeficiency virus (HIV), acquired immunodeficiency*

syndrome (AIDS), African American/Black, men who have sex with men (MSM), social determinants, HIV morbidity, HIV disparity, HIV and social networks, sexual networks, HIV incidence, HIV prevalence, and *high-risk behaviors.*

Primary sources of information were published between 2012 and 2016. However, earlier literature was included to represent historical information. As the foundation for current research, I reviewed information from 86 peer-reviewed articles, 21 dissertations, six government reports and articles, and six books (Table 1).

Table 1

Reviewed Research (Referenced)

Area of research	Books	Scholarly journals	Doctoral dissertations	Government reports	Other reports
Age and HIV		3			
HIV Infection	4	3	2		
Social determinants of health HIV	1 (1)	13		1	
Race and HIV		18	3		
HIV prevention and intervention		8			
National HIV Strategy		4		3	
HIV infection				1	
HIV-related stigma		13	2		
Disparities in HIV		15			
HIV among MSM		9	5		2
Sexual and social networks		4	1		
Social cognitive theory	1		7	1	
Total	6	89	20	6	2

Government and public agency websites I reviewed included but were not limited to those of the Georgia Department of Public Health (DPH), the CDC, AIDSVU, AIDSmap, NHBS, CDC Wonder, Online Analytical Statistical Information System (OASIS), Emory CFAR, HIV Information Exchange (HIE), and Health Resources and Services Administration (HRSA). Key search terms used were *HIV morbidity, national HIV initiative, HIV prevention,* and *HIV strategies.*

HIV Infection in the United States

The CDC (2015) reported that approximately 1.2 million people 13 years and older are infected with HIV; it was further estimated that 13% of that total are not aware they are HIV positive. Bradley et al. (2014) suggested a need to address the care continuum for those living with HIV with the intent to increase viral suppression. HIV may be prevented if a model of testing, treatment, and continued care leading to viral suppression is sustained. In 2014, the CDC Division of HIV/AIDS Prevention (DHAP) published an HIV surveillance report. The report showed positive effects of recent prevention efforts, but ongoing disparities within subgroup populations.

The annual surveillance report summarized data regarding HIV infection diagnosed in the United States. Information collected for this report included estimated data for rates of infection during the period of 2010-2014. HIV prevalence cannot be contained to one geographical area and has expanded beyond regional explanations. HIV morbidity observed on a regional level may be considered a weakness to address national level initiatives to combat health disparity. Local level strategies and efforts may be more impactful to reduce HIV morbidity expansion at the national level. Data were drawn from all 50 states, including the District of Columbia, American Samoa, Guam, the Northern Mariana Islands, Puerto Rico, the Republic of Palau, and the U.S. Virgin Islands.

The surveillance report concluded with a finding of stable HIV morbidity in the United States; however, the more detailed picture showed an increase of HIV diagnosed in some subgroups and an observed decrease in other subgroups. A dominant theme was that Black males represented a higher rate of HIV infection in 2014 (CDC, 2014). Also

noted in the surveillance report was a higher rate of HIV infection among Blacks in comparison to other subgroups. 2014 rates for Blacks were 49.4 percent more than half the rate of other reported races; the age most affected from 2010-2014 were those between the ages of 25-29 years. The route of transmission that contributed to nearly 70% of estimated new HIV infections was male-to-male sexual contact (CDC, 2014).

In the United States, HIV has been a public health issue for more than 40 years (Murray & Oraka, 2014). Overall, HIV incidence has reached a level of stability; however, racial/ethnic and minority subgroups have shown an increase burden of disease disparity. According to Lieb et al. (2010), HIV prevalence rates among the MSM population viewed categorically by race/ethnicity permits a more transparent picture. Identifying HIV prevalence by state and subgroup could be useful in the allocation of funding streams that coincide with implementing tailored prevention/intervention strategies, which in turn may mitigate the increased HIV prevalence rates among Black MSM populations.

Race and HIV

Surveillance data reported by the CDC (2011) showed that Black MSM have been most affected by the HIV epidemic in the United States. HIV infections increased by 48% among young Black MSM during the years 2006 through 2009 (CDC, 2011). Sullivan et al. (2015) reported that young Black MSM living in a Southern city MSA were observed to have a higher incidence of HIV infection relative to their White counterparts not influenced by individual risk behavior. A gap in research I noted was lack of insight regarding intervention efforts for isolated subgroups that rendered a

decrease in new HIV infections. Despite evidenced-based intervention efforts, HIV disparities have been prominently observed in isolated racial and ethnic subgroups.

In the United States, HIV prevalence is observed in every racial and ethnic group. Although Blacks comprised 12% of the population, nearly 50% of individuals diagnosed with HIV are Black (Sullivan et al., 2015). CDC (2014) showed that HIV affects all races. However, the diagnosis of new HIV infection continued to be disproportionately observed in the subgroup of Black MSM. Frye et al. (2014) claimed that gaining insight regarding societal factors is imperative to achieving the goal of reducing HIV among MSM.

I observed reported data for Black MSM to have an increase in the rate of new HIV infections at a significantly higher rate in comparison to other MSM as reported by Lieb et al. (2011). In the United States, approximately 33 % of new infections are detected in the subgroup of Black MSM (Lieb et al., 2011). Sullivan et al. (2015) projected factors outside of risk behaviors, health accessibility, and hazard ratios inclusive of sexual networks have contributed to HIV disparities at higher rates among Black MSM compared to White MSM despite both groups employing comparable intervention methods.

The CDC have established evidence-based practices that have been proven to reduce rates of new HIV infection on a national level once implemented (CDC, 2012). Tailored evidence-based interventions may be used to address the overall issue of HIV prevalence in the Black MSM subgroup. However, despite efforts to use strategies that have resulted in a decline of HIV morbidity among white MSM, Black MSM HIV

morbidity remains disproportionate. Black MSM comprised more than 70% of new HIV infections in 2010, which is nearly seven times the rate for white MSM (CDC, 2012).

An identified weakness was one related to existing prevention efforts and a need to explore racial disparity and new HIV infections. In efforts to reduce HIV morbidity through prevention methods, integrated strategies based on surveillance reports may be instrumental in reducing health disparities. The evidence of demonstrated relationships of HIV among Black MSM populations in the U.S. may be used as a forecast to develop strategies addressing the need for this population.

In the Southern city MSA, Georgia region, two MSA counties AIDS cases totaled more than 65% (Georgia DPH, 2011). Blacks were observed as the most affected racial groups of those living with HIV. According to Sullivan et al. (2014) Black MSM had more than twice the prevalence and five times more incidence of HIV in comparison to their white counterparts. The reasoning behind such racial disparity had not yet been concluded. However, researchers demonstrated a gap that dictated further exploration with race and HIV.

National HIV Strategy and Initiative

"Treatment is prevention" has become the banner statement for domestic stakeholders in the fight against HIV/AIDS as asserted by Mugavero, Amico, Horn, and Thompson (2013). A dominant theme noted was the fight against HIV through treatment as prevention. The National HIV/AIDS Strategy (NHAS, 2010) identified four goals to address the HIV epidemic:

1. Reduce new HIV infections

2. Increase access to care and optimize health outcomes for people living with HIV (PLWH)
3. Reduce HIV-related health disparities and health inequities; and
4. Achieve a more coordinated national response to the HIV epidemic.

The National HIV/AIDS Strategy (NHAS) was released by President Barack Obama in 2010 (Holtgrave, 2014). Targeted goals were established on a national level and were projected to be obtained by 2015. In July 2013, President Obama released an executive order aligned with the NHAS critical goals for federal agencies to achieve outcomes and improve HIV care continuum (Bradley et al. 2014). Supported by a national strategic initiative, HIV has long been an ongoing concern and now has reached a state of national epidemic proportion.

According to Whiteside et al. (2014), an initiative focused on expedited federal endeavors was established to increase HIV testing, care, and treatment. Despite historic efforts to reduce HIV morbidity, this disease has continued to impact specific populations and sparked further determination with national attention. Goals set by the NHAS were deemed aggressive and focused on areas of HIV prevention, care, programs and policies, and reduction of disparities (Holtgrave, 2014). There was great attention to established goals; however, resources were not fully explored to sustain ambitious but achievable efforts.

Funding presented as an issue and further demonstrated a hindrance with existing programs falling below the estimated allocation needed to achieve projected NHAS goals. As mentioned by Holtgrave (2014) without redirection of federal investment for

domestic HIV programs, achieving goals set by NHAS will be endangered. The ballooned consequences would further lead to increased HIV/AIDS-associated mortality, morbidity, and overall economic downfall.

The CDC (2009) initiated efforts to address the increased incidence of HIV morbidity in identified racial /ethnic groups. Although HIV/AIDS initiatives to address the significant increase in HIV morbidity among Blacks were implemented as a national response, more strategies were required to reduce the rates of newly positive HIV-infected men and women. Focus on the identified four goals by NHAS may be used as a vantage point to reduce new HIV infections on a national level.

HIV Intervention and Prevention

Mustanski, Lyon, and Garcia (2011) conducted a mixed-methods study to compare minority MSM and white MSM internet usage and sexual health among this population. In the study, it was determined that providing HIV intervention strategies via internet usage with increased awareness in the Black MSM population may not be the most viable method of intervention. Mustanski, Lyon, and Garcia (2011) demonstrated trends of decreased HIV/AIDS information through internet access by Black MSM in comparison to their white MSM counterparts.

Halkitis et al. (2011) reported an increased incidence of Black MSM contributing to over fifty percent HIV morbidity among the population in the United States. Various HIV screening strategies for Black MSM was determined most effective as a testing strategy. However, tailored interventions for Black MSM which include structural factors may be integrated with screening method for targeted populations.

A literature search conducted by Maulsby et al. (2013) revealed a gap related to limited peer-reviewed articles specific to Black MSM and HIV interventions. Out of the 127 articles produced, 31 were deemed applicable for use within their study (Maulsby et al., 2013). Most peer-reviewed articles focused on sexual risk behaviors and medical services as methods for HIV intervention which included discussion topics relevant to HIV-related stigma, homophobia, racism, and masculinity.

A demonstrated weakness was the universal ineffectiveness of existing interventions to reduce HIV incidence among Black MSM. Campbell and Quintiliani (2006) observed how tailored interventions may promote healthy outcomes. In order to tailor existing prevention and intervention strategies, testing relationships among variables as associated predictors could identify a need to redirect allocation of resources. Guidance on development and implementation of tailored strategies may prove significant in reducing health disparities in targeted populations.

The study, grounded in a critical review of the literature, could be used to bridge the gap by communicating specific needs among the Black MSM population. Changed behavior may result in reduced risk for HIV infection when open discussion is embraced regarding healthy relationships, the social context of HIV- risk, and relationship dynamics are integrated into tailored interventions (Maulsby et al., 2013). Since introducing the Diffusion of Effective Behavioral Interventions (DEBI) programs by CDC in 2002, Community-based organization (CBOs) and other HIV service providers have integrated DEBI programs as a conduit for best practices in HIV service delivery (Owczarzak, 2012). Utilizing various HIV prevention methods that have been concluded

as effective, may potentially increase identifying undiagnosed HIV-positive Black MSM and high-risk negative Black MSM.

According to CDC (2009), the United States is at the height of an HIV epidemic; however, HIV is preventable and HIV prevention saves lives. It may be a matter of pay now or, pay later; however, the cost of preventing HIV is approximate $355,000 saved for each possible case (CDC, 2009). Therefore, HIV prevention can potentially forestall associated rising medical cost.

Sexual Networks and Social Determinants of HIV

I considered exploring social constructs and structural factors in determining the mechanism for increased HIV prevalence within identified subgroups. Overcoming structural barriers that may have historically heightened mistrust of HIV prevention strategies initiated by the government must be considered to engage those most affected. Misperceived social constructs related to stigma, social inequities, and homophobia is still positioned as challenges for open dialogue regarding risk behavior, intervention, and prevention methods (Vaughan, Rosenberg, Shouse, & Sullivan, 2014).

The CDC (2014) researchers explored social determinants of health (SDH) and how, once they have been identified, they can be used to establish differences in structuring HIV initiatives to address specific populations. SDH are considered as influences of social and environmental conditions that result in the health status of individuals. SDH may be collected and explored in research to determine how one subgroup of a population, health status may demonstrate a significant variance from another, resulting in health disparities.

According to Beltran, Harrison, Hall, and Dean (2011), there are five determinants that impact population health three of which are considered SDH. Biology and genetics, individual behavior, social environment, physical environment, and health services have been identified as population health determinants (Beltran, Harrison, Hall, & Dean, 2011). A study conducted by Kraut et al. (2008) included an evaluation that accounted for racial and ethnic disparities; however, itemized factors may not produce anticipated outcomes to reflect strategic efforts aligned with reducing health status and HIV morbidity.

Dean and Fenton (2013) recounted the consultation efforts of CDC in 2008 which convened academic scientific, public health experts, and key community leaders. The results of this convention formulated goal focused priorities and best practices to address societal factors associated with health inequities. Structural changes were pivotal at the organizational level to cover policy and programmatic changes. National Center for HIV/AIDS, Viral Hepatitis, STD, and TB Prevention (NCHHSTP) had since used external consultation recommendation within a systems thinking approach to combat SDH within their strategic plan (Dean & Fenton, 2013).

As suggested by Koelmeyer, English, Smith, and Grierson, (2014) social determinants of health are interrelated; further exploration of SDH is required to conclude which are priorities thus necessary to tailor interventions. In the study, expanding the research perspective beyond generalized social determinants of health to include methodological and conceptual factors may help to define which health disparity of HIV contribute to increased morbidity in the Black MSM population. CDC (2014)

Surveillance Report recognized the importance of identifying gaps in HIV surveillance data and make geocoded surveillance data more hearty.

In the aforementioned studies sexual networks and social determinants of health were measured using electronic instruments based on specific variables. Sexual networks were measured through self-report using an existing National HIV Behavioral Surveillance (NHBS) instrument. Self-reported location information was measured using a web-based mapping tool and geocoded based on the United States Census Bureau's representation of zip codes.

Disparities and HIV

A review of the literature reflected evidence of disparity affecting minority populations greater than their White counterparts. Demographic and cultural factors were considered as factors that influenced the cause of health disparities. Poverty, incarceration, lower education status, and access to care have often been highlighted as factors to justify prevalence of disparities. However, once further examined, an identified weakness was the variation amidst these factors and urbanization are not implicit (Vaughan et al., 2014).

A study conducted by Whiteside et al. (2014) concluded that Blacks comprised close to 50 % of all newly infected individuals which included those living with HIV infection. Vaughan, Rosenberg, Shouse, and Sullivan (2014) reported data from 2009 which displayed 43% Black, 35% White, and 19% Hispanic as those diagnosed with HIV. Respectively in comparison to Whites, Blacks and Hispanics as a whole were

nearly 10 times more likely to be living with a diagnosis of HIV (Vaughan, Rosenberg, Shouse, & Sullivan, 2014).

Maulsby et al. (2014) explored the literature and evidence which concluded with the disparity of HIV among non-Hispanic Black MSM at a rate of 48% newly infected aged 13-29. Although prior researchers have uncovered increased rates of HIV among the Black MSM population, further examination must ensue to address the gap and determine the relationship of racial disparity and HIV morbidity.

In order to reduce HIV morbidity in the Black MSM population, efforts to address disparities that may be associated with race must be considered to determine if there is a relationship. One debatable assumption was that health disparity has a cause and effect relationship with race, education, and socioeconomic status. Although reviewed research provided a categorical perspective of health status, disease morbidity and how it was impacted by structural and social determinants, there were still unclear factors that resulted in existing health outcomes. As concluded by Sullivan et al. (2014) structural factors, care, social and sexual networks must be explored to gain insight into disparities between Black and White MSM. Although my study did not address all of these factors, I addressed social and structural factors that may be associated with behavior identified in the study population.

Laveist et al. (2008) revealed health disparities in integrated communities; they further, accounted for racial factors to determine how health disparities affect integrated communities. However, the study concluded with evidence of increased disease

morbidity in Black racial groups. Research studies have demonstrated the racial disparity of disease weighted heavily within the Black race.

Kraust-Becher et al. (2008) identified three groups; core group was individuals infected with HIV, have many sexual contacts, and engage in mixing; intermediary and peripheral populations are couples who are committed to life partner monogamous relationships. Blacks (AA) demonstrated increased rates of sex missing among identified groups. “Higher rates of sexual contact between “core” AAs and “peripheral” AAs facilitates the spread of infection through the AA population” (Kraust-Becher et al., 2008).

The disparity of HIV morbidity has been noted as a national concern beyond race, gender, or socioeconomic status. A more in-depth review of the literature revealed HIV morbidity at a higher incidence among the Black MSM population in comparison to their white counterparts. As determined by researched literature, the disparity of HIV morbidity in the MSM population is evident in literature. Yet, a weakness at the time of the study, were generalizations about determinants of health that applied specifically to Black MSM.

Wejnert et al. (2015) hypothesized contributions for HIV disparity among Black MSM; such as lack of education, history of incarceration, lower income, unemployment, higher HIV partner pool, less access to treatment, and poor adherence to antiretroviral therapy (ART). The mode of HIV transmission has been viewed as universal across race and ethnic groups. However, Beer, Oster, Mattson, and Skarbinski (2013) mentioned

there is still a lack of understanding what exactly contributes to increased racial disparity and HIV among Black MSM.

HIV-related Stigma

HIV-related stigma has had an adverse association with those living with HIV; negative effects on quality of life have resulted due to positive HIV status (Starks, Rendina, Breslow, Parsons, & Golub, 2013). Anxiety and fear of becoming HIV-infected have been documented as an obstacle for knowing one's status (Starks et al., 2013). The study conducted by Starks et al. (2013) concluded with results supporting the importance of considering an individual's sexuality when overcoming barriers to HIV-related stigma (Starks et al., 2013).

From a treatment perspective, HIV may be managed as a chronic disease. Although the HIV disease process may be manageable when an individual is linked and maintained in care, social stigma remains a reality for those living with this disease. Emlet et al. (2015) concluded in their quantitative study the impact of stigma and how stigma is a social issue associated with HIV diagnosis. In their study, the authors used a 16 items modified version of the HIV Stigma Scale that evaluated four components of the stigma experience; Personalized or Enacted Stigma, Disclosure Concerns, Negative Self-image or Internalized Stigma, Concern with Public Attitudes. Emlet et al. (2015) combined Disclosure Concerns and Concern with Public attitude to a subscale noted as Anticipated Stigma.

Emlet et al. (2015) examined the social impact of HIV stigma and age. This study concluded that the impact of HIV-related stigma stabilized with age. Based on this study,

older adults have developed coping skills related to with HIV and were often engaged in support groups. MSM in comparison to heterosexual or bisexual men experienced a lower rate of stigma (Emlet et al., 2015). The study by Emlet et al. (2015) suggested the need to formulate more stigma related interventions for people living with HIV (PLWH) including those who are HIV negative.

Garcia et al. (2016) conducted a qualitative ethnographic study that examined the psychosocial implication of homophobia and HIV stigma in social support networks. The authors concluded that although their findings cannot be generalized, the sample reflected the altered relationship associated with homophobia and stigma within the support network of the study population. Garcia et al. (2016) provided insight on how imperative it is to focus on building emotional support in peer networks for the study population.

A quantitative study conducted by Vaughn, Rosenberg, and Sullivan (2014) explored spatial relationships between Black and White MSM living in the Southern MSA area with gay stigma, poverty, and HIV infection. In this study, Vaughn et al. (2014) concluded that increased perceived stigma was associated with HIV status and being gay. Geocoded anonymized mapping was used as a measure to plot variables such as gay stigma, poverty, and HIV status among the Black and White MSM population living in a Southern city MSA (Vaughn, Rosenberg, & Sullivan, 2014).

Vaughn, Rosenberg, and Sullivan (2014) further asserted that stigma was a community-level factor and poverty in certain areas displayed a notable increase in perceived stigma. The strength of association demonstrated gay stigma being perceived more by Black MSM than their White counterparts. Also, the findings were valid in with

a concentration of White MSM more centralized in the urban area and Black MSM more dispersed. Vaughn et al. (2014) further concluded Black MSM were concentrated in high gay stigma and high poverty-stricken areas, than their White counterparts. Limitations will be addressed by accounting for the stigma, poverty, and current HIV status.

Traditionally, this Southern region has been known as a conservative State; political and religious ideal have been shown to impose an environment of resistance and stigma for sexual minorities and HIV/AIDS research (Georgia DPH, 2011). Although stigma and discrimination may be experienced by those living with HIV, federal government established legal parameters to prevent discrimination. According to DPH (2011) Americans with Disabilities Act (ADA) serves as one level of protection against HIV related discrimination which may indirectly be associated with HIV related stigma.

It has become apparent through various research studies that MSM may bear the stigma of being or becoming HIV positive. In a quantitative study conducted by Jeffries et al. (2015) sexual minority stigma is associated with MSM due to what may be perceived as an immortal behavior of gay and bisexual men. As mentioned by Arnold, Rebchook, and Kegeles (2014) many studies have looked at stigma but have not fully examined the diversity of stigma. Whether HIV stigma is internalized or openly discussed, the impact and outcome of HIV status observed among Black MSM continues to be depicted as racial disparity (Overstreet, Earnshaw, Kalichman, & Quinn, 2013).

Age and HIV

According to Mustanki and Newcomb (2013), young men who have sex with men (YMSM) aged younger than 25 years, make up a fraction of the youth population

however, were close to 3% higher diagnosed with HIV than young females. The Black YMSM population has demonstrated an increase in HIV prevalence; between the years 2006-2009, diagnoses of HIV among the Black YMSM increase by nearly 50% (Mustanki & Newcomb, 2013). Scott et al. (2014) asserted that YMSM and minority MSM lead the United States rates of HIV incidence.

During the time period of 2007-2010, HIV incidence rates had increased by 12% among the MSM population; more than 20% of this increase was observed in the young MSM population (Scott et al., 2014). Despite the disparity of HIV incidence in the Black YMSM population, stated individual risk behaviors in research did not justify the increase rate of morbidity. However, older MSM partners of YMSM may be contributed to increased HIV incidence for the Black YMSM population.

According to Georgia DPH (2015) more than 500 cases of newly diagnosed HIV cases were among MSM were of those aged 13-24 years old. The overall evidence of HIV incidence is further depicted in research with age specific race and ethnicity disparities in HIV. In 2010 Black YMSM between the ages of 13-24 were accounted for close to 30% higher incidence of HIV morbidity than their White counterparts (Wejnert et al., 2015).

Age and HIV was further explored during the study as researched articles have indicated an increase in HIV incidence among the MSM population specifically within the Black YMSM younger than age 25 population and Black MSM over 25 years old. Wejnert et al. (2015) conducted a study that displayed HIV prevalence which further indicated a higher prevalence rate of HIV among Black MSM greater than 25 years.

Conclusion and Summary

In the literature review, I presented evidence of HIV infection in the United States as a national problem. I included information that allowed me to address the gap in exploring venue attendance and social environment relevant to HIV incidence in the Black MSM population. There were not many articles that explored social venues of the study population. Additional articles reviewed, highlighted racial/ethnic disparities observed in specific population subgroups most noted were among Black MSM.

On a national level, strategies and initiatives to mitigate the overarching prevalence and incidence of HIV were focused on treatment as a viable method to prevent HIV. Historically, HIV intervention and prevention efforts were effective to stabilize overall prevalence. However, tailored prevention and intervention methods are required to address the possible endemic among Black MSM. Exploration of social and structural barriers must be considered to further determine SDH that demonstrated a relationship with racial disparities and increased HIV incidence among Black MSM.

Researched articles were limited to Black MSM, age, stigma, and the national initiative to address HIV and racial disparity; however, there was an expressed gap in the literature relevant to social constructs that must be considered as possible factors with HIV incidence. Black MSM in the Southern city MSA was the most affected subgroup for those living with HIV and for those identified at higher risk. Addressing social and structural environment related to HIV, whether through testing, prevention efforts, or treatment was deemed imperative to overcome barriers in the identified subgroup.

Researchers could use results from testing relationships among variables of HIV, age, venue attendance, and neighborhood's perceived social environment to further explore HIV disparity. Research articles reviewed were limited in determining the reasons for HIV disparity in social environments for Black MSM living in the MSA. There were a few articles that considered age and HIV incidence, however, there were fewer to scarce articles that explored venue attendance and social environment and if a relationship existed between those variables and HIV incidence.

Many articles provided insight of the outcome which was increased incidence of HIV; however, there were not many articles that explored the relationship of HIV incidence that justified the observed racial disparity among Black MSM and HIV infection of those living in the Southern MSA. Therefore, although articles were informative and clearly depict disparity of disease among ethnically diverse MSM, based on the research I conducted. I surmise the need for subsequent research in the Black MSM population in the Southern MSA based on my findings.

Limited articles regarding age disparity and racial disparity were reviewed; however, there were no clear rationale for increase in HIV incidence in specific age groups for the Black MSM population in Southern city MSA. If specific determinants and their relationship with age, venue attendance, social environment and HIV are openly considered, strategies and goals may prove significant in reducing the gap of HIV disparities and to improve the U.S. HIV epidemic specifically with attention to racial disparity (CDC, 2014).

The literature review process allowed me to demonstrate that HIV prevalence has become stable. However, HIV incidence has continued to affect Blacks more than Whites; specific to the Black MSM subgroup. Racial disparity was noted, and HIV prevalence was at a higher rate than White MSM. Articles reviewed further concluded that social constructs and structural factors have presented as challenges in having open dialogue regarding risk behavior, intervention and prevention methods (Vaughan, Rosenberg, Shouse, and Sullivan, 2014).

I used research articles to highlight the initiative at a national level to address the overall HIV/AIDS epidemic; however, more research and attention is required to determine if relationships among selected variables may be useful in tailoring intervention and prevention methods. I observed a gap in the literature regarding Black MSM and social constructs. I used data from articles to review and discuss racial disparity and HIV from a national perspective. In the study, I drilled down from a national perspective to observe the HIV epidemic more specific to the MSA and explore variables of age, venue attendance, and neighborhood's perceived social environment with HIV incidence.

In Chapter 3, I included the research design and approach, the appropriateness of the method, and justification for approaches selected for this correlational study using secondary data. In Chapter 3, I elaborated on the research design and variables chosen for the study. I discussed how the research design related to HIV morbidity with a description of the population and subgroup population affected. A description of the survey, data collection process, and data analysis was also included.

Chapter 3: Research Method

The purpose of the quantitative, correlational study was to determine if there was a relationship between age, venue attendance, neighborhood's perceived social environment, and HIV among the Black MSM population in the MSA. Despite the racial and ethnic diversity of the Southern city, Black MSM as a subgroup population has been most affected by new cases of HIV. A cross-sectional survey design was determined appropriate for statistical analysis to determine the relationship of predictors and HIV incidence among the subgroup of Black MSM.

Researchers have explored racial disparities in HIV infections; however, factors that have contributed to such disparities among the MSM population were ambiguous in the literature. Sullivan et al. (2015) mentioned that one's personal risks were not sole validation for racial disparity in HIV infection between Black and White MSM. Therefore, I developed this study to explain the incidence of HIV among Black MSM in the MSA.

incidence of HIV among the Black MSM subgroup population despite stabilized HIV prevalence in the United States. By identifying factors demonstrated to have a relationship with increased HIV incidence for the most affected subgroup, tailored evidence-based interventions may prove beneficial and aligned with the national strategy to address HIV morbidity. My findings and analysis may be useful in closing the gap regarding racial disparity and HIV. The findings from this study can be used to address variables that may have a relationship with increased rates of newly diagnosed HIV cases among Black MSM.

Chapter 3 includes an introduction to the research methods and research design used in the study, as well as an overview of the research design and research methods (including independent and dependent variables). I discuss the secondary data source, study population, sampling, appropriate sample size, eligibility criteria, and data collection procedure. I conclude Chapter 3 by providing a statistical overview and discussions of the test of significance and data analysis.

Research Method and Design

In the quantitative study, I used a cross-sectional survey approach based on the theoretical framework of SCT. SCT was used to determine the extent of a relationship between variables such as age, venue attendance, neighborhood's perceived social environment and HIV status with consideration given to cognitive factors and behaviors of Black MSM. I collected secondary demographic, partner-specific, and HIV data to obtain a sampling frame for MSM in the Southern city MSA. These data were initially collected by Emory University CFAR, *Involve[MEN]t study*. I identified a quantitative correlational design using a cross-sectional survey approach as most appropriate to collect a large amount of data for the subgroup population of Black MSM and their HIV status.

A quantitative research design allowed me as the researcher to gain insight based on variables using a deductive approach. I was able to analyze data using variables from the sampling frame of MSM in the Southern city MSA. Data collected from this study allowed me to determine the relationship between identified variables and HIV incidence. I also conducted tests of significance for the hypotheses.

Methodology

Population

According to the Georgia DPH (2011), the Southern city MSA has been considered a rapidly growing city for racial and ethnic diversity. Although those who identified as White made up close to 60% of the population in the MSA, those who identified as Black comprised slightly over 30%; another 10% were identified as Hispanic/Latino; slightly less than 5% are identified as Asian (4.4%) and Native American (0.2%; DPH, 2011). The Southern city MSA, including two high morbidity counties, has one of the largest populations of gay, lesbian, and bisexual individuals and same-sex couples in the country, ranked third after Seattle and San Francisco (DPH, 2011).

The target population size for the original study was 810 Black and White MSM. The population for the research study was Black and White non-Hispanic MSM currently living in the Southern city MSA. Eligible participants were sexually active MSM who were not in a primary partnership relationship, HIV-status unknown or HIV negative at baseline, and between the ages of 18-39. In the original study conducted by Emory, earlier participants did not have an age cap; however, based on the subgroup demographics of HIV disparity, an age cap was added to eligibility for the study. Participants for a prior conducted study were established as the sampling framework for the subgroup of Black and White MSM living in the MSA and will serve as the secondary data subject population for the study.

Sampling and Sampling Procedures

I used secondary datasets to conduct this study and to demonstrate if there was a relationship between criterion and predictors. To ensure the dataset was appropriate, I determined statistical power for the existing dataset. According to Creswell (2005), recommended statistical power is .80. Statistical power and the sample size was calculated using G*Power 3.1.3. The target sample size based on G*Power was a minimum of 43 participants.

The original secondary data were robust, with a sample size of 460 Black MSM and 350 White MSM. The robust secondary dataset was used to satisfy the minimum of 43 participants required for my study. I conducted a fixed model logistic regression with a single regression coefficient, one tail, and 3 predictors. Based on preliminary statistical determination of power, the effect size of 0.15, an alpha level of 0.05 calculated a sample size of 43 participants that yielded an actual power of 0.80.

Procedures for Recruitment, Participation, and Data Collection

Informed Consent and Confidentiality

I drew secondary data from an ongoing prospective cohort study at Emory University approved by Emory University IRB (protocol 42405). Approval for me to use existing secondary data was required and received from Emory University's IRB. A Memorandum of Understanding (MOU) regarding my use of secondary data from their ongoing studies was established with Emory University, Rollins School of Public Health, the Epidemiology Department and me as part of the IRB approval process. Approval

from Walden University's IRB (02-16-18-0318746) was also required and received prior to initiating research for the study.

According to Sullivan et al. (2014), written, informed consent was obtained from those participants deemed eligible and those who agreed to enroll in the primary data collection for the ongoing study. Written informed consent covered specimen collection and interviews conducted for data collection. Secondary data received were de-identified to ensure confidentiality. I was required to access the data in an Emory University controlled environment to eliminate the risk of breached confidentiality. Password and secured access were also required for use of secondary datasets.

Data Collection Technique

During the primary data collection process, participants completed a baseline 1.5-hour computer assisted self-interview questionnaire adapted from prior modified instruments (Sullivan et al., 2014). Data were collected from participants based on demographics, psychosocial scales, community characteristics, individual-level HIV-related behaviors, and a dyadic inventory of the most recent sex partner not to exceed 6 months (Sullivan et al., 2014). For my study, I extrapolated datasets from original data based on the criterion of HIV incidence and predictors such as age, venue attendance, and neighborhood's perceived social environment. Permission to use these datasets was granted by Emory University with specific stipulations as stated in the MOU to include successful completion of its collaborative institutional training (CITI) program module.

Data Collection Appropriateness

I designed the study was to determine if relationships existed between three independent variables of age, venue attendance, and neighborhood's perceived social environment and a dependent variable, HIV status, among MSM in the MSA. According to McCusker and Gunaydin (2015), quantitative researchers use raw numerical and statistical data to objectively and efficiently test hypotheses. I collected secondary data from the *Involve[MEN]t* study, an existing prospective cohort study of the Emory CFAR.

Criteria for participant eligibility was established before the baseline interviews. Recruitment venues were MSM communities in the MSA and Facebook. The initial data collection included non-Hispanic Black and White MSM currently living in the MSA, not in a primary partnership relationship and not having a previous HIV-positive test result.

According to Sullivan et al. (2014), participants completed an online computer assisted self-interview questionnaire. The supplemental survey instrument was provided during the baseline visit of the *Involve[MEN]t* study and consisted of two sections; one section was participant–specific and the other included sexual partnership and network questions. All participants received an HIV antibody screening with approved FDA HIV rapid test regardless of self-reported HIV status. A confirmatory Western blot test was performed on participants who tested positive on the preliminary rapid test.

Secondary data I used for my study were initially collected in phases by the primary collectors. The recruitment phase was July 2010 through December 2012, and the participant follow-up phase was July 2010 through March 2014. Statistical analysis and dissemination started in May 2009 during the active phase, which included planning

and focus groups until 2012. Prevalence findings were determined January 2013 through December 2014, and incidence findings were determined January 2014 through December 2014.

Instrument Selection Appropriateness

I selected a survey design for conducting the study; as mentioned by Creswell (2009) advantages of using a survey design is that it is economical, efficient, and allows collected data to be generalized to a population based on the behavior of a population. The survey design I used in the study, aligned with confidential self- administered online supplement baseline survey instrument and baseline interviews collected for the longitudinal data collection period.

According to Emory University (2016), Emory's CFAR has received funding from National Institute of Health Center for AIDS Research (P30AI050409) since 1998. The CFAR at Emory University receives additional funding from the Georgia Research Alliance and internal offices of Emory University. CFAR is a resource for HIV and MSM populations in Southern city MSA. Data collected by researchers for CFAR captured specific variables not captured at the state and federal level. Data collected by these researchers used specific criteria tailored for the survey instrument.

CDC created the NHBS in 2003 to capture behavioral surveillance of those at high risk for HIV (CDC, 2016). A modified instrument developed by NHBS and *Involve[MEN]t* was used by researchers from an existing survey from the NHBS among MSM for the *Involve[MEN]t* study. NHBS is a valuable resource for collecting and monitoring the impact of HIV/AIDS Strategy and can be used to support the national

initiative to decrease HIV incidence and reduce HIV disparity (CDC, 2016). The *Involve[MEN]t* Baseline survey instrument was used for the study.

The *Involve[MEN]t* instrument is a behavioral survey instrument used to collect sex partner inventory and provided residence information for the purpose of geo-coding (Sullivan et al. 2014). The online supplement baseline survey instrument was sectioned into two parts, participant-specific and sexual partnership and network questions with a total of 285 questions. The modified existing instrument was approved for use and deemed appropriate for collecting data in the quantitative study for the MSM population.

Instrument Reliability

Based on the secondary dataset, 810 men (460 Black and 350 Whites) were recruited for the study between June 2010- December 2012 (Sullivan et al., 2014). The recruitment process included venue-based and online sampling from *Involve[MEN]t*, an

on-going prospective cohort study with Emory University. Interviewers for NHBS were trained and use standardized, anonymous questionnaires to collect data on HIV behaviors, HIV testing, and preventive methods (CDC, 2016).

Age, online and physical venue attendance, neighborhood's perceived social environment and HIV were three of the many variables analyzed in the initial study. Reliability was not clearly discussed by the author for the modified existing survey instrument. Reliability of the behavioral instrument was further addressed in Chapter 3.

Operationalization

Table 2

Table of Variables

Variable name	Variable type	Measurement of variable	Information source	Response options
Age	Independent	Ratio	RQ1	18-39
Venue attendance	Independent	Nominal	RQ2	Online or physical
Social environment	Independent	Nominal	RQ3	Zip code
HIV status	Dependent	Nominal	RQ4	HIV results

Threats to Validity

Internal validity was established by using a modified standard interview process by trained staff. Participants also completed a baseline survey that consisted of a computer assisted self-interview questionnaire with an approximate duration of 1.5 hours. Demographics, psychosocial scales, community characteristics, individual-level HIV-related behaviors, and a dyadic inventory of most recent 5 sex partners in the last 6 months were established domains for data collection (Sullivan et al., 2014).

Interview and online survey questionnaires were content appropriate for the study as established. According to Sullivan et al. (2014) during the primary data collection process an existing and approved instrument by the NHBS was used to for data collection. According to Field (2009), construct validity reflects the construct of the study through self-report measures and questionnaires. Duration for the primary study was 2 years with subsequent visits at 3, 6, 12, 18, and 24 months.

A behavioral assessment, HIV and STI testing and counseling were conducted at each visit with all follow-up concluding in March 2014. At baseline and during study visits, participants were screened for HIV antibodies through a rapid HIV test. Western

blot test is an HIV confirmatory test and was selected as such for this study. The exception to this test occurred in one case during the study where two rapid tests were used to confirm HIV infection. Additional HIV labs were performed on participants who tested positive to include linkage to care services. HIV testing was performed on stored blood from baseline screening for those who tested positive within the initial three months of testing.

HIV incidence was calculated based on baseline test results. For participants that tested negative for antibodies and remained negative, person-time was calculated by date of enrollment versus initial test and final date of study (Sullivan et al., 2014). However, participants categorized as sero-converters, the previous visit, and date of new diagnosis was used. Acute HIV- infected participants were assigned a date of 12 days prior to enrollment and placed in the category of sero-converters (Sullivan et al., 2014).

External Validity

In determining external validity for this study, I established content validity by the primary collectors of data through the use of an existing instrument to collect behavioral information from participants. Items that were intended to be measured were measured with the online supplement 1 baseline survey instrument. The instrument was modified from an existing instrument used by NHBS.

The study population was representative of the MSM population of the Southern city MSA. Results from the survey concluded that external validity correlates with the established criteria for the study. In the study, Black and White MSM were recruited and venues selected for recruitment included social media not limited to venue-time-space

(VDT) sampling. According to Sullivan et al. (2014), baseline data from the *Involve[MEN]t* study included content relevant to individual, dyadic, sexual network, and community-level factors to establish a framework.

Data Analysis

In the quantitative correlational study, I determined the relationship, if any existed, between ages of participants, venue attendance, neighborhood's perceived social environment, and HIV incidence. Most recent HIV test results were used to determine HIV incidence. The dependent variable in the study was incidence of HIV infection as measured by most recent HIV test results of MSM. Independent variables for the study are age (MSM between the ages of 18 and 39), venue attendance (online venues and physical venues), and neighborhood's perceived social environment (location participants reside as permanent address within the MSA attachment, self-esteem/morale, and personal safety). Variables were treated as continuous within the analysis.

RQ1: To what extent, does age relate to MSM HIV incidence, controlling for the effects of high-risk behavior in the Black MSM Population in a Southern city U.S.?

$H_0$1: Age is not related to MSM HIV incidence, controlling for the effects of high-risk behavior in the Black MSM population in a Southern city U.S.

H_a1: Age is related to MSM HIV incidence, controlling for the effects of high-risk behavior in the Black MSM population in a Southern city U.S.

All assumptions were met for continuous outcomes. Continuous outcomes were normally distributed. Statistical test used for analysis were independent samples *t* test to compare the HIV groups.

RQ2: What is the relationship between online and physical venue attendance and HIV incidence in the Black MSM population in a Southern city U.S.?

$H_0$2: There is not a relationship between online and physical venue attendance and HIV incidence in the Black MSM population in a Southern city U.S.

H_a2: There is a relationship between online and physical venue attendance and HIV incidence in the Black MSM population in a Southern city U.S.

Statistical tests I used for analysis were chi-square, frequency and cross-tabulation statistics to analyze the distribution of categorical variables in the sample of participants. Study variables did not meet the assumption of normality. The chi-square test allowed me to determine the association between categorical predictor variables and categorical outcome variables. Cross-tabulation statistics were used to describe the relationship between categorical variables.

RQ3: To what extent, if any, does neighborhood's perceived social environment correlate with HIV incidence in the Black MSM population in a Southern city U.S.?

$H_0$3: Neighborhood's perceived social environment is not related to HIV incidence in the Black MSM in a Southern city U.S.

H_a3: Neighborhood's perceived social environment is related to HIV incidence in the Black MSM in a Southern city U.S.

Statistical tests I used for the analysis were chi-square, frequency, and cross tabulation statistics to analyze the distribution of categorical variables in the sample of participants. Study variables did not meet the assumption of normality. The chi-square test allowed me to determine the association between categorical predictor variables and

categorical outcome variables. I used cross-tabulation statistics to describe the relationship between categorical variables

When statistical significance at an alpha value of 0.05 was detected with chi-square, unadjusted odds ratios (OR) with 95% confidence intervals (95% CI) were calculated as a measure of strength of association. Skewness and kurtosis statistics were conducted on all continuous distributions to check for the assumption of normality. If either statistic was above an absolute value of 2.0, then I assumed the distribution was non-normal.

I used the Levene's Test of Equality of Variances to check for the assumption of homogeneity of variance. Independent samples *t* tests were used when both statistical assumptions were met to compare independent groups on normally distributed continuous outcomes. Logistics regression analysis was performed to understand multivariate associations between predictor variables when predicting for the presence of HIV incidence in the population.

Adjusted odds ratios (AOR) with 95% CI were reported for the regression model. Linearity, normality, and homoscedasticity for the regression model were checked using residual analysis and p-p plots. I assumed statistical significance at an alpha value of 0.05. I conducted all statistical analyses using SPSS Version 22 (Armonk, NY: IBM Corp.).

The study population was described as Black and White non-Hispanic MSM population living in the MSA between the ages of 18-39. I used the non-parametric chi-square test in the study to determine the relationship, if any, between selected categorical

variables. I discussed the measure of central tendency in Chapter 4. Results of the chi-square test may be generalized based on meeting non-parametric tests assumptions.

Field (2009) mentioned the importance of checking assumptions for a chi-square test. Assumptions must be met and assisted with generalizations of results. Some assumptions were met for this study based on the predictor variables. Selected variables identified as age, online and physical venue attendance, and neighborhood's perceived social environment are categorical and contributed to only one cell of the contingency table; expected frequencies for identified variables are greater than five.

According to Huck (2012), a logistic regression model can be used to explore relationships among categorical and continuous variables relative to predictors and outcomes. The logistic model allowed me to explore the relationships among study variables with the purpose to explain or predict the relationship. As stated by Huck (2012) the odds-ratio measures the strength of the relationships when using the logistic regression model. The correlational analysis allowed me to further assess the relationship strength between variables should a relationship exist. The logistic regression model was an appropriate test that allowed me to explain the relationship between HIV results as the dependent variable; age, venue attendance, and neighborhood's perceived social environment as multiple independent variables.

Venue-based and online-sampling of 810 men (460 Black and 350 White) were recruited for the preliminary study. As mentioned in the sampling section, I conducted a fixed model logistic regression with a single regression coefficient, one tail, and 3 predictors. An effect size of 0.15 will constitute a small to medium effect and is

determined statistical significance; 43 participants were determined sufficient from G*Power calculation. The actual power of .80 and significance level of 0.05 are both considered statistical standards (Field, 2009).

Threats to Validity

I determined threats to external validity may be related to the geographical location of the study population of Black MSM living in the MSA. In my research, I used data from the Black and White MSM subgroup living in Southern city MSA to analyze data.

Ethical Procedures

Agreement to gain access to secondary data was through an established MOU between me and Emory University initiated by the Dr. Patrick Sullivan, Project Director for release of the baseline datasets from the *Involve[MEN]t* research study. The terms of the MOU were that I may conduct secondary analyses of these existing data to answer the following research questions:

RQ1: To what extent, does age relate to MSM HIV incidence, controlling for the effects of high-risk behavior in the Black MSM Population in a Southern city U.S?

RQ2: What is the relationship between online and physical venue attendance and HIV incidence in the Black MSM population in a Southern city U.S.?

RQ3: To what extent, if any, does neighborhood's perceived social environment correlate with HIV incidence in the Black MSM population in a Southern city U.S.? Data provided to conduct the study are restricted to study staff responsible for conducting analysis for *Human Immunodeficiency Virus Disparity in Black Men who have Sex with*

Men project. Data use agreement specified thirteen stipulations as indicated in the MOU (see appendix). Emory created a de-identified dataset from the baseline datasets from MSM who consented to participate. Emory University used a secure file transfer software to send the dataset and documentation to me. I was not permitted to maintain *Involve[MEN]t* data securely on network drives with access control limited to study staff of *Human Immunodeficiency Virus Disparity in Black Men who have Sex with Men* project approved by the IRB. Data may not be stored on laptops or personal computers unless they are encrypted and password protected. Ethical issues have not been identified within my work environment; there was not a conflict of interest or power differentials and incentives are not provided for use of secondary data.

Summary

In chapter 3, I determined a correlational quantitative design as appropriate to explore the relationship, if any exists, between age, venue attendance, and neighborhood's perceived social environment, and HIV incidence in the Southern city Black MSM subgroup population. I used secondary datasets from Emory CFAR's existing prospective cohort study in the MSA. I explored whether a relationship existed between age, venue attendance, and neighborhood's perceived social environment as selected predictors to HIV incidence as an outcome for the subgroup population of Black MSM between the age 18 and 39 years of age living in the Southern city MSA.

In Chapter 3, I discussed the overview of study characteristics, sampling, and geographical appropriateness for the subgroup population. Although I used secondary datasets for the study, I addressed informed consent and confidentiality. Informed

consent and confidentiality provided a safeguard to participants and researchers for HIV antibody screening and sensitive content associated with content for online survey questionnaires and interviews. I discussed instrument appropriateness; however, the primary data collectors from the original study used an existing instrument that was modified from an instrument developed by the NHBS. The modification was approved by Emory IRB for use in prospective cohort studies.

In Chapter 3, I included a description for how data were collected, to include data appropriateness, and data analysis. The rationale for selecting a logistic regression method was discussed for using more than one variable as a predictor of the outcome. In Chapter 4, I will provide a review of findings from the study. Data analysis and results will be discussed in Chapter 4. Illustrative figures and tables will be used to depict the findings from the narrative.

Chapter 4: Results

The purpose of this study was to explore the relationship, if any, between ages of participants, venue attendance, neighborhood's perceived social environment and HIV incidence among Black MSM in the Southern city MSA. Data were originally collected by the Emory University Epidemiology Department for the *Involve[MEN]t* study. The *Involve[MEN]t* study was a 2-year prospective cohort study that examined Black and White non-Hispanic MSM populations in MSA using various social and behavior indicators and HIV status.

Participants completed a baseline 1.5-hour computer assisted self-interview questionnaire adapted from prior modified instruments (Sullivan et al., 2014). Primary data collected included demographics, psychosocial scales, community characteristics, individual-level HIV related behaviors, and dyadic inventory of sex partners within the last 6 months (Sullivan et al., 2014). I used this data to answer the following research questions with corresponding hypotheses:

RQ1: To what extent, does age relate to MSM HIV incidence, controlling for the effects of high-risk behavior in the Black MSM Population in a Southern city U.S.?

$H_0$1: Age is not related to MSM HIV incidence, controlling for the effects of high-risk behavior in the Black MSM population in a Southern city U.S.

H_a1: Age is related to MSM HIV incidence, controlling for the effects of high-risk behavior in the Black MSM population in a Southern city U.S.

RQ2: What is the relationship between online and physical venue attendance and HIV incidence in the Black MSM population in a Southern city U.S.?

$H_0$2: There is not a relationship between online and physical venue attendance and HIV incidence in the Black MSM population in a Southern city U.S.

H_a2: There is a relationship between online and physical venue attendance and HIV incidence in the Black MSM population in a Southern city U.S.

RQ3: To what extent, if any, does neighborhood's perceived social environment correlate with HIV incidence in the Black MSM population in a Southern city U.S.?

$H_0$3: Neighborhood's perceived social environment is not related to HIV incidence in the Black MSM in a Southern city U.S.

H_a3: Neighborhood's perceived social environment is related to HIV incidence in the Black MSM in a Southern city U.S.

In Chapter 4, I provide an overview of recruitment and data collection for the original datasets from the *Involve[MEN]t* study. My use of secondary data was approved by the IRBs of both Emory University and Walden University. In what follows, I report baseline and demographic descriptive statistics. I concluded Chapter 4 with results and a summary of data analyses.

Recruitment and Data Collection

The targeted population consisted of Black and White MSM in the Southern city MSA. Specific population area included two high morbidity counties because these counties have experienced a heightened incidence of newly infected HIV cases (City of Atlanta [Fulton/DeKalb Counties] Jurisdictional HIV Prevention Planning Group, 2012). Recruitment for the initial study was conducted through physical and online MSM

communities. Data collection was conducted via online surveys and face-to-face interviews within MSM communities by the Emory University CFAR.

Secondary data were available for my use after completing IRB requirements with Emory University. Original secondary data were robust, with a sample size of 460 Black MSM and 350 White MSM. For the study, I used the entire dataset to answer the research questions.

Written informed consent was obtained from participants deemed eligible by the Emory University researchers during the initial data collection process (Sullivan et al., 2014). Written informed consent covered specimen collection and interviews conducted for data collection. Participants were provided with the purpose of the initial study and intent for use of data with future or further research.

Study Population and HIV Results

Black and White MSM living in the MSA were included as participants for the study. Criteria for participant eligibility were: non-Hispanic Black and White MSM, age 18-39, currently residing in the MSA, not in a primary partnership relationship, and not HIV positive at the time of recruitment. 460 Black MSM and 350 White MSM were included in the study; however, some participants were excluded as they did not meet eligibility criteria.

Table 3 contains descriptive statistics for between-subject comparison for Black and White MSM participants, continuous outcomes, and HIV incidence. There were 810 participants in the study between 18 and 39. 460 participants self-identified as Black, non-Hispanic, and 350 participants self-identified as White, non-Hispanic.

Table 3

Descriptive Statistics for Between-Subjects Comparisons

Predictor variable	Level	No HIV	HIV	*p*-value
Facebook*		13 (4.7%)	4 (0.7%)	< 0.001***
Craigslist*		17 (3.1%)	0 (0.0%)	0.002***
Black Gay Chat*		13 (1.9%)	4 (3.0%)	0.50
Bars*		4 (3.2%)	2 (0.5%)	0.02***
Gyms*		5 (1.4%)	1 (0.5%)	0.67
Bath houses*		6 (1.2%)	0 (0.0%)	1.0
Race*				
	White	348 (99.4%)	2 (0.6%)	Referent
	Black	445 (96.7%)	15 (3.3%)	0.008***
Hood Attachment**		2.50 (1.02)	2.31 (0.95)	0.48
Morale**		2.42 (1.00)	2.24 (0.90)	0.46
Safety**		2.41 (1.02)	2.29 (1.05)	0.66
Age**		27.99 (6.70)	24.47 (6.60)	0.03***

Note: * Frequency (percentage), ** Mean (standard deviation), *** $p < 0.05$.

I used a cross-tabulation procedure to explore race and HIV incidence. Black MSM were found to have a 3.3% incident rate of HIV in comparison to White MSM who had a 0.6 % incident rate of HIV. White MSM were .17 times less likely to have HIV (95% CI 0.04-0.75) in comparison to Black MSM. Table 4 displays a chi-square test for race and HIV incidence.

Table 4

Race and HIV Incidence Chi-Square

	Value	df	Asymp. Sig. (2-sided)	Exact Sig. (2-sided)	Exact Sig. (1-sided)
Pearson Chi-Square	6.997[a]	1	.008		
Continuity Correction[b]	5.749	1	.016		
Likelihood Ratio	8.162	1	.004		
Fisher's Exact Test				.011	.006
Linear-by-Linear Association	6.988	1	.008		
N of Valid Cases	810				

Note. a. 0 cells (0.0%0 have expected count less than 5. The minimum expected count is 7.35. b. Computed only for a 2x2 table.

Results of the Data Analysis

For each research question, I conducted statistical analyses to determine if a relationship existed between HIV incidence and identified determinants for MSM in the MSA. De-identified secondary data from Emory was maintained in SAS and exported into SPSS for further analysis. I used SPSS Version 22 to conduct statistical analysis to determine if relational statistical significance existed between identified predictors and dependent variables. For continuous outcomes, all statistical assumptions were met and independent *t* tests were used to compare the HIV groups. Three continuous outcomes were non-significant difference between HIV-positive and HIV-negative groups on neighborhood's perceived social environment residents' attachment ($p = 0.48$), self-esteem/morale ($p = 0.46$), and personal safety ($p = 0.66$).

Research Question 1. The first research question and associated hypotheses were as follows.

RQ1: To what extent, does age relate to MSM HIV incidence, controlling for the effects of high-risk behavior in the Black MSM Population in a Southern city U.S.?

$H_0$1: Age is not related to MSM HIV incidence, controlling for the effects of high-risk behavior in the Black MSM population in a Southern city U.S.

H_a1: Age is related to MSM HIV incidence, controlling for the effects of high-risk behavior in the Black MSM population in a Southern city U.S.

Effects of high-risk behaviors of study participants were controlled by established study criterion. Selected study participants met controlled high-risk behavior as they self-identified with the local MSM community, engaged in high-risk sexual behavior with

male partners, and participated in MSM social communities online and in physical venues. Participants in not in a main partner relationship was a criterion that also controlled for high risk behavior within the original prospective study.

To address the first research question, I used independent samples *t* tests to compare the HIV groups and to determine if a relationship existed between age and HIV incidence. Participants' age was the continuous independent variable and HIV incidence was the dependent variable. One finding that aligned with existing literature and may be useful to close the gap with HIV racial disparity, was that HIV-positive MSM were significantly younger (M = 24.47 years old, SD = 6.60) than HIV-negative MSM (M = 27.99 years old, SD = 6.70, p = 0.03). Means and standard deviation were reflected in Table 3.

Research Question 2. The second research question and associated hypotheses were as follows.

RQ2: What is the relationship between online and physical venue attendance and HIV incidence in the Black MSM population in a Southern city U.S.?

$H_0$2: There is not a relationship between online and physical venue attendance and HIV incidence in the Black MSM population in a Southern city U.S.

H_a2: There is a relationship between online and physical venue attendance and HIV incidence in the Black MSM population in a Southern city U.S.

To address the second research question, I used chi-square statistics. Chi-square analysis showed a significant main effect for Facebook use and HIV occurrence, $p <$ 0.001. Facebook users were 0.15 times less likely to have HIV (95% CI 0.05 – 0.47) than

those participants that did not use Facebook. There were no occurrences of participants who used Craigslist having HIV, $p = 0.002$. Odds Ratio (*OR*) with 95% CI could not be calculated for this analysis due to no occurrence of HIV. There was a non-significant association of between Black Gay Chat online platform and HIV, $p = 0.50$.

MSM who attended bars or restaurants were significantly less likely (*OR* 0.14, 95% CI 0.04 – 0.77) to have HIV versus MSM who did not attend bars or restaurants, $p = 0.02$. There was not a significant association between MSM attending gyms ($p = 0.67$) or bath houses ($p = 1.0$) and HIV incidence. As displayed in Table 3, White MSM were 0.17 times less likely (95% CI 0.04 – 0.75) to have HIV than Black MSM, $p = 0.01$. Frequencies and percentages for these groups can be found in Table 3.

Research Questions 3. The third research question and associated hypotheses were as follows.

RQ3: To what extent, if any, does neighborhood's perceived social environment correlate with HIV incidence in the Black MSM population in a Southern city U.S.?

$H_0$3: Neighborhood's perceived social environment is not related to HIV incidence in the Black MSM in a Southern city U.S.

H_a3: Neighborhood's perceived social environment is related to HIV incidence in the Black MSM in a Southern city U.S.

To address the third research question, I used an independent samples *t* test and logistic regression analysis to determine significance. Continuous categorical variables that I entered into the logistic regression model included, neighborhood's perceived social environment, residents' attachment, self-esteem/morale, safety, and age. HIV

incidence was used as the outcome variable and was coded as 0 = No HIV occurrence and 1= HIV occurrence. Statistical assumptions of the model were checked and met according to residual analysis and p-p plots.

Findings from the independent samples *t* test found there were non-significant differences between the HIV groups for neighborhood's perceived social environment residents' attachment, $p = 0.48$, self-esteem/morale, $p = 0.46$, and safety, $p = 0.66$. The AOR with 95% CI and p-values for all predictor variables can be found in Table 5.

Table 5

Adjusted Odds Ratios with 95% Confidence Intervals

Predictor variable	*B*	AOR (95% CI)	*p*-value
Facebook	-2.10	0.12 (0.03 – 0.55)	0.006*
CraigsList	-16.71	-	0.99
Black Gay Chat	1.47	4.34 (0.91 – 20.72)	0.066
Race	-1.40	0.25 (0.05 – 1.17)	0.078
Hood attachment	-0.31	0.73 (0.33 – 1.61)	0.44
Morale	-0.10	0.90 (0.38 – 2.15)	0.82
Safety	0.38	1.47 (0.70 – 3.06)	0.31
Age	-0.10	0.90 (0.81 – 1.00)	0.049

Note. * $p < 0.05$.

Summary

Chapter 4 contained secondary data from the Emory University CFAR, *Involve[MEN]t study*. Permission and approval was established through MOU with Emory University, Rollins School of Public Health, Department of Epidemiology and me to performed statistical analysis for my study. I presented statistical analyses to address three research questions and related hypotheses. In Chapter 4, I presented sample demographics and descriptive statistics for the study population. In Chapter 4, I also

included frequency, cross tabulation, chi-square statistics, and logistic regression as appropriate for continuous and categorical variables.

Results of these statistical tests indicated only Facebook as an online venue for MSM had a significant relationship with HIV incidence, $p = 0.006$, when controlling for all variables. There were non-significant relationships between age and HIV incidence. There was an interesting finding of significant difference between MSM that were HIV positive being younger which is consistent with literature in Chapter 2.

Another interesting finding was MSM that attended Black Gay Chat as an online venue had a higher rate of HIV; not statistically significantly higher, p= 0.50, users 3.0% versus, non-users 1.9%. However, when controlled for the other variables, MSM Black Gay Chat users almost becomes statistically significant (p = 0.066) and these study participants are now almost 4.34 times more likely than MSM participants that do not use Black Gay Chat to have HIV.

Race was coded as 1= Black MSM and 4= White MSM. I found results between race and HIV incidence to be consistent with existing research reviewed in Chapter 2. Race was close to being significant, p = 0.078; White MSM were almost significantly less likely than Black MSM to have HIV. For RQ1, I reject the null hypothesis. For RQ2, I reject the null hypothesis for physical venues and online venues CraigsList and Black Gay Chat. However, MSM participants that use Facebook would benefit from further research as I found this predictor to be significant. For RQ3, I reject the null hypothesis. In Chapter 5, I will discuss the interpretation of findings, significance of results, and recommendations.

Chapter 5: Discussion, Conclusions, and Recommendations

HIV incidence has increased as depicted in recent studies for the subgroup of Black MSM in comparison to other subgroup MSM populations. In the Black MSM population, there had been an increased in the number of new cases of HIV (Sullivan et al., 2015). Although researchers have provided evidence of increased HIV incidence related to Black MSM, evidence of risk behaviors and social economic status has not been fully explored to determine the relationships, if any, between these variables and health disparities.

The general problem I identified for this study was an increase of new HIV infections in the Black MSM population. On a granular level, Black MSM living in the Southern city MSA were further identified as high risk and contributed to high incidence of newly infected cases in the Southern city (City of Atlanta [Fulton/DeKalb Counties] Jurisdictional HIV Prevention Planning Group, 2012).The specific problem I explored in the study was the lack of knowledge in determining the extent, if any, of a relationship between HIV incidence of MSM living in the MSA and independent variables such as age, online and physical venues attendance, neighborhood's perceived social environment.

The purpose of the quantitative, correlational study was to identify the relationship, if any, between age, online and physical venues attendance, neighborhood's perceived social environment, and HIV among Black MSM in the MSA. Identified relationships between predictors and outcome may be used to develop strategies in addressing HIV incidence at the local level. I conducted this research on the MSM

population in the MSA to provide insight on relationships between social and behavior variables. My findings provided new knowledge regarding factors that should be considered when exploring intervention strategies to address new HIV infections among the MSM population in the Southern city. In Chapter 5, I summarize research findings based on statistical analysis, discuss implications, and offer recommendation for future research in this content area.

Interpretation of the Findings

I received approval from Emory University to use secondary data from the *Involve[MEN]t* study. I used these data to answer three research questions. Frequency and cross-tabulation statistics were used to analyze the distribution of categorical variables in the sample of participants. I used chi-square statistics to test for association between categorical predictor variables and categorical outcomes, and a logistic regression analysis to test for association between continuous categorical variables. These statistical tests aided in answering the following research questions:

RQ1: To what extent, does age relate to MSM HIV incidence, controlling for the effects of high-risk behavior in the Black MSM Population in a Southern city U.S.?

$H_0$1: Age is not related to MSM HIV incidence, controlling for the effects of high-risk behavior in the Black MSM population in a Southern city U.S.

H_a1: Age is related to MSM HIV incidence, controlling for the effects of high-risk behavior in the Black MSM population in a Southern city U.S.

RQ2: What is the relationship between online and physical venue attendance and HIV incidence in the Black MSM population in a Southern city U.S.?

$H_0$2: There is not a relationship between online and physical venue attendance and HIV incidence in the Black MSM population in a Southern city U.S.

H_a2: There is a relationship between online and physical venue attendance and HIV incidence in the Black MSM population in a Southern city U.S.

RQ3: To what extent, if any, does neighborhood's perceived social environment correlate with HIV incidence in the Black MSM population in a Southern city U.S.?

$H_0$3: Neighborhood's perceived social environment is not related to HIV incidence in the Black MSM in a Southern city U.S.

H_a3: Neighborhood's perceived social environment is related to HIV incidence in the Black MSM in a Southern city U.S.

A robust participation pool of 810 was identified in the provided dataset comprised of 460 Black MSM and 350 White MSM living in the MSA. Age of participants ranged between18 and 39.

Research Question 1

I used an independent samples test to answer RQ1. The independent variable was age and the dependent variable was HIV incidence. Statistical analysis on these data indicated there was a significant relationship between age and HIV incidence as measured by a p value of 0.032. Therefore, the null hypothesis was rejected, $p < 0.05$.

Research Question 2

I performed a chi-square analysis and logistic regression to determine if a relationship existed between online and physical venues and HIV incidence. Predictors

for online venues were identified as Facebook, Craigslist, and Black Gay Chat. Three physical venues were identified as bars or restaurants, gyms, or bath houses.

Based on chi-square analysis, a significant main effect was found for Facebook online venue attendance and HIV incidence, $p < 0.001$. When I explored participants attendance on Facebook, I found that Facebook attendees were 0.12 times less likely to have HIV (95% CI 0.03-0.55) versus those MSM participants who did not attend Facebook as an online venue. Therefore, the null hypothesis was rejected for this predictor, $p < 005$.

There were no occurrence of Craigslist as an online venue and HIV incidence. There was non-significant association between MSM participants' Black Gay Chat online venue attendance and HIV incidence, $p = 0.50$. MSM who attended bars and restaurants were significantly less likely (*OR* 0.14, 95% CI 0.04-0.77) to have HIV than MSM who did not attend bars and restaurant as a physical venue. There was not a significant relationship between MSM who attended gyms ($p = 0.67$) or bath houses ($p = 1.0$) and HIV incidence. Therefore, I could not reject the null hypothesis, $p < 0.05$.

Research Question 3

I used a logistic regression analysis and independent samples test to determine if a relationship existed between neighborhood's perceived social environment and HIV incidence. Predictors for neighborhood's perceived social environment were identified as neighborhood's attachment, self-esteem/morale, and neighborhood's safety. An independent samples test showed non-significant difference between predictors:

attachment, $p = 0.48$; self-esteem morale, $p = 0.46$; and neighborhood's safety, $p = 0.66$. Therefore, I could not reject the null hypothesis, $p < 0.05$.

Theoretical Framework and Research Results

Researchers have used SCT in similar research to determine health risk in various populations. According to Bandura (1986), behavior patterns and cognition may be factored into outcomes. Racial disparity was observed in the Black MSM community despite intervention efforts and an observably stable national HIV incidence level (CDC, 2014).

According to Safren et al. (2010), social-cognitive models can be used to explain relationships for those at risk for HIV infection. In this study, I used SCT to examine social and behavior determinants that may or may not demonstrate a relationship between age, venue attendance, neighborhood's perceived social environment and HIV incidence. There are six constructs involved in SCT; however, for this study, I explored two: behavior capability and self-efficacy.

I used behavioral capability to explore the attendance of MSM in online and physical venues in the last month. Neighborhood's perceived social environment was aligned with the behavioral capability construct, and social behavior and environment. These predictors were indicators for behavioral capability and identified risk behaviors related to HIV outcome. I used self-efficacy to explore the behavioral and environmental factors within study population and the outcome of recent HIV test results. Neighborhood's perceived social environment included resident attachment, self-

esteem/moral, and personal safety. These predictors were indicators for self-efficacy and HIV infection outcome.

Secondary data I used from participants' on-line questionnaires and face-to face responses were aligned with the SCT model. Behavioral capability and self-efficacy as SCT constructs further applied to predictors of online and physical venue attendance and neighborhood's perceived social environment. For example, neighborhood's perceived social environment related to self-esteem/moral may subsequently lead to self-efficacy and behavioral influence of HIV results.

Limitations

I observed several limitations within the research study. The potential for unauthentic self-reported identifiers and behaviors when completing the online questionnaire and face-to-face interviews was expected as some participants may not support full disclosure. However, the questionnaire indicated criteria as self-reported for all applicable categories. The questionnaire was conducted online, and participants were de-identified; however, respondents' selections may not have been forthcoming and, all answers may not have been authentic.

According to Oldenburg et al. (2015), structural stigma may contribute to the premise of social behaviors and health disparity. Oldenburg et al. (2015) further asserted that prevention strategies are compromised in more stigmatized environments. In the MSA, there are some neighborhoods that have a perceived association with high-risk and alternative lifestyle behaviors, sexually transmitted infections (STI), and HIV morbidity.

The geographical location was also a limitation as the Southern city has been known to have a transient population. There are many individuals who live in other areas yet, claim residence in MSAwith the various modes of transportation into the city. Although, the study population geographical area included the MSA of several counties, study participants self-reported residents as legitimate per resident criteria. Therefore, the limitation included those who self-reported a physical address living in MSA.

During the original study, participants were solicited through social media and MSM communities. Although the original method of recruitment rendered a robust pool of 810 eligible participants, I identified this as a limitation. There were some participants that completed the survey and were not included in the constrained age range of 18-39. Participation in the original study was voluntary for the duration of the *Involve[MEN]t* study. The limitation of selected MSM communities may not be generalizable as Southern city MSM social environment may be different from those in other MSM communities in other areas.

Recommendations for Future Research

Further research is warranted to explore relationships between age and Facebook as an online venue with HIV incidence. Future studies may address other categories of diverse venue attendance to include observing longitudinal studies and variable of attendance for those attended venues greater than the last month. It may prove valuable to future researcher to use a multivariate approach to investigate isolated venues attendance to determine if significance differences exist.

As concluded in Chapter 4, neighborhood's perceived social environment is not related to HIV incidence in the Black MSM population in the Southern city. Although race was not a primary predictor of outcome; I noted racial disparity in the study related to Black MSM in comparison to White MSM in the MSA. Social stigma and associated behavior may be further explored as it may or may not related to racial disparity. Therefore, I would recommend a qualitative study to potentially investigate self-esteem and moral for those newly infected with HIV and self-identified race.

Recommendations for Policy

Based on my findings with further research, policy at the national and local level may be influenced. Policy may potentially influence funding for additional HIV/AIDS research within the MSA. The Southern city may potentially serve as a hub for concentrated research with consideration of increased HIV incidence in two high morbidity counties.

Emory's CFAR and local MSM communities may continue to drive research that may potentially influence local policy as it relates to HIV research. Researchers from the CDC also located in the Southern city, may serve as a key surveillance resource. The Georgia DPH may serve as a key resource with identifying geographic alignment with MSM communities and disease morbidity. Overall concerted efforts with additional research may prove beneficial for influencing local policy and funding streams to address HIV incidence in MSA.

Social Implications

Approximately 40% of HIV diagnoses were among Black MSM when compared to all high-risk transmission groups (CDC, 2012). Identifying specific relationships that can be identified as predictors may prove beneficial in training, tailoring prevention strategies, and informing policy makers around HIV strategies at the local and potentially the national level. Social implications I identified for the study based on concluded findings include tailoring existing interventions with strategies to address self-esteem and moral, exploring selected online and physical venues within the Black MSM population living in the MSA.

Another social implication that may prove worthy to further explore is diversity on social environment that potentially influence behavior, individual self-esteem, and morale. In the MSA, there are several venues available for socialization. Drilling down to the core of associated stigma and socialization within one's environment may further assist with developing social and behavioral structured interventions.

Recommendations for Practice

Based on my finding from this research, public health practitioners will need to explore innovative approaches to gain access to MSM online communities. Tailored interventions will be required to address the potential risk of HIV with certain online venue attendance. If interventions are aligned with behavior and alternative venue attendance, then HIV morbidity and overall HIV incidence may strategically be reduced.

Public health practitioners for practice and research may use this information to close the gap with unknown variables and further observe the value of a multivariate approach to research and intervention strategy.

Summary

I discussed the observed increase in HIV incidence at the national level. There has also been an increase of new HIV infections among non-Hispanic MSM observed in the Southern city MSM population. MSM communities are not limited to physical venues, as online venues have increased with social media and serves as a conduit for meeting and expanding social networks.

I found age as a predictor for HIV incidence to not be significant overall; however, a consistent finding was the mean age of 25 when compared to existing literature. Overall, five of the six predictors for online and physical venues indicated non-significant relationships. However, I found a significant relationship between Facebook as an online venue and HIV incidence. I found neighborhood's perceived social environment to have a non-significant relationship with HIV incidence.

Conclusion

HIV continues to be observed at increased rates within the Black MSM population (CDC, 2012). According to Sullivan et al. (2015), structural factors not limited to social and sexual networks must be explored to gain insight into disparities among Black and White MSM. My findings from the study may be used with consideration to conduct subsequent research. Further research to explore the relationship between online venues as social environment and HIV incidence may allow local health

officials, community-based organizations and policy makers in the fight against HIV to develop more tailored strategies and interventions with addressing the HIV epidemic in the Southern MSA.

The purpose of the quantitative study was to identify the relationships, if any between age, venue attendance, and neighborhood's perceived social environment and HIV incidence in the Black MSM population in the MSA. I conducted several statistical tests to analyze data and answer three research questions. My findings concluded with a significant relationship between Facebook as an online venue with HIV incidence. I rejected the null hypothesis for this predictor and outcome, $p < 0.05$. Age, and other online and physical venue attendance, neighborhood's perceived social environment, and HIV incidence were non-significant. I could not reject the null hypothesis for these variables, $p < 0.05$.

Although I identified if a relationship existed between all predictors and the outcome of HIV incidence, there is an opportunity for additional areas of research to be explored. I addressed limitations for the study; despite noted limitations, results may be used by researchers to examine racial disparity, social and behavioral structural environments, and HIV incidence. The results may also be used to drive research specific to the Southern city MSA, MSM population and local policy makers to tailor policy specific to geographical locations identified for MSM communities.

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