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Substance Use, Mental Health Problems and Missed Appointments by Race, Gender, and Sexual Orientation among HIV-Infected Individuals

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Abstract

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by

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MS, Southern University A&M College, 2014

BS, Southeastern Louisiana University, 2012

Dissertation Submitted in Partial Fulfillment

of the Requirements for the Degree of

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Abstract

Human Immunodeficiency Virus (HIV) disproportionately affects African American men who have sex with men. According to the Centers for Disease Control and Prevention, in 2020 African American adult and adolescent African American men accounted for 42% (16,002) of all HIV diagnoses (37,968). Furthermore, while substance use is common among this population, in previous studies very few individuals with HIV have reported receiving substance abuse treatment or discussing substance use with HIV medical providers. The purpose of this study was to examine the differences in substance use/mental health problems by race, gender, and sexual orientation among HIV-infected individuals. This study also examined the association of perceived discrimination when receiving HIV medical care and the appointments missed for HIV-related medical care. The theoretical framework was grounded in the social ecological model. Using multiple regression on data from a survey titled "Positive Connections: Connecting HIV-Infected Patients to Care, 2004–2006," the study sample included 96 low-income People Living with HIV/AIDS (PLWHA). Ad hoc analysis was then conducted after correcting the small sample size's power effect in the transgender population. Results showed a difference in substance use/mental health problems and missed appointments by sexual orientation among HIV-infected individuals. However, race and gender showed no association with substance use/mental health problems and missed appointments. Implications from this research show the influence of sexual orientation on substance use/mental health problems and missed appointments, tailored medical services are necessary to cater to the healthcare needs of HIV patients.

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Dedication

I dedicate this research to the legacy of my parents, Casper Anderson Jr. & Elouise Gross Anderson. My parents gave their all and sacrificed so I could have a better life. I promised my father when he passed in 2009 that I would do everything in my power to make him proud. My mother who passed a week before my final defense, was here every step of the way. She instilled her strength in me, and with that I know all my dreams are possible. I thank God for the parents he blessed me with.

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Chapter 1: Introduction to the Study

Introduction

Despite extraordinary advances that have been made in the campaign against Human Immunodeficiency Virus (HIV) over the past 3 decades, HIV continues to disproportionately affect specific groups of the population, specifically men who have sex with men (MSM; Centers for Disease Control and Prevention [CDC], 2015). African Americans are most affected by HIV, in 2018, adult and adolescent African Americans accounted for 42% (16,002) of all 37,968 HIV diagnoses (CDC, 2020). African Americans are at higher risk of HIV exposure, not because they engage in more risk-associated behaviors, but because the prevalence of HIV is much greater among Black communities than among any other racial/ethnic group (CDC, 2018). While prevention efforts have helped reduce the annual number of new HIV diagnoses among African Americans over the last decade, progress has not been uniformly experienced across the Black community.

In 2018, gay, bisexual, and other MSM accounted for 69% of all new HIV diagnoses in the United States and six dependent areas which included: American Samoa, Guam, the Northern Mariana Islands, Puerto Rico, the Republic of Palau, and the US Virgin Islands (CDC, 2020). The high percentage of gay and bisexual men who are living with HIV means that, as a group, they have a greater risk of being exposed to HIV. Most gay and bisexual men get HIV from having anal sex without using condoms or without taking medicines to prevent HIV. Anal sex is the riskiest type of sex for contracting HIV or passing it on to others. There are other factors that may influence the extent of HIV

vulnerability within the community of African American MSM. These include risk-related sexual behavior norms, attitudes, and intentions; substance use; poverty and disadvantages (weak immunity and social discomforts); and psychosocial domains including internalized homonegativity or homophobia, self-perceived masculinity, HIV conspiracy beliefs or mistrust, religiosity, and resilience (Kelly et al., 2016).

For African American MSM, living and coping with HIV is not an easy task. There are two avoidant coping strategies linked to African American MSM diagnosed with HIV, behavioral disengagement and using substances, which enable the individual to not think about the stress of living with HIV (Bogart et al., 2018). These coping mechanisms result in negative mental and physical outcomes. While widely recognized, the substance use and mental health problems in populations living with HIV and AIDS are not often discussed amongst patients. Substance use as a risk factor is evident not only in the transmission of HIV, but in treatment adherence and course of disease. Substance use and abuse are common among HIV positive individuals, with nearly 50% of persons living with HIV/AIDS reporting current or past histories of drug or alcohol disorders (Durvasula & Miller, 2014). Substance use is associated with key health behaviors and outcomes including nonadherence, immunosuppression, increased sexual risk behaviors, and increased burdens on health care systems.

Persons living with HIV/AIDS tend to underutilize substance use treatment. In one sample of 951 HIV seropositive adults, while 71% reported substance use, only 24% reported receiving substance abuse treatment, and fewer than 50% reported discussing substance use with HIV medical providers, despite patient-provider discussions about

substance use associated with a greater likelihood of entering treatment (Durvasula & Miller, 2014). The path of substance use treatment has ramifications for both HIV care and prevention; seeking help for a substance use diagnosis may represent an opportunity for testing, education, and connection to primary care (Durvasula & Miller, 2014).

Peer group interventions have been documented to alleviate these issues of HIV related substance use problems. Peer group interventions can be defined as the process of giving and receiving professional, clinical assistance from individuals with similar conditions or circumstances to achieve long-term recovery from psychiatric, alcohol, and/or other drug-related problems (Tracy & Wallace, 2016). There are various organizations that develop peer group interventions such as the AION Recovery. AION Recovery's Joint Commission Accredited Programs use a peer-support group model. Individuals are able to contact these organizations to enroll in these interventions. Peer interventions emphasize changing norms and building self-efficacy or confidence to perform behaviors as important in fostering changes in behavior. Peer group participants partake in a series of semi structured sessions facilitated by trained members of the target group. Peer groups use skill building, rehearsal with feedback, group support, and values clarification discussions to develop new group norms and reinforce behavioral skills (Norr et al., 2012). There have been gaps in the literature that determine if there is a difference in substance use problems by race, gender, and sexual orientation among HIV-infected individuals. Researchers also examined perceived discrimination when receiving HIV medical care and missed HIV-related medical care appointments.

Problem Statement

A substance use/mental health problem is a medical condition caused by using or taking a substance in increasing amounts and going to great lengths to obtain the substance, which results in memory problems, negative thoughts, behavioral changes, mental illness, and psychosis (Ali et al., 2015). It involves withdrawal symptoms when the substance is stopped, or if the individual is unable to stop or reduce the use of the substance. It is substance use that interferes with a person's relationships with family and friends, interferes with a person's ability to fulfill work, school, or family obligations, or results in legal problems and dangerous behavior (Ali et al., 2015). Other mental health conditions such as anxiety and depression may also play a role. Substance use/mental health problems may also start when people try to manage unpleasant feelings and emotions (e.g., anger, stress, and sadness). People who are subject to discrimination may also be at risk for substance use problems. With HIV, a virus that weakens the immune system by destroying white blood cells, various substance use and mental health problems can exist during diagnosis and treatment (CDC, 2014). In 2018, adult and adolescent Blacks/African Americans accounted for 42% of all HIV diagnoses. Among those, 74% were men, MSM remaining the primary means of transmission among men of this racial/ethnic group (CDC, 2016).

African American men who have sex with men suffer disproportionately from substance use/mental health problems and perceived discrimination when receiving HIV medical care when compared to individuals of other races, genders and sexual orientations. African American MSM experience discrimination from multiple facets of

their identity, including HIV-serostatus, minority race/ethnicity, and sexual minority status (Bogart et al., 2013) which can contribute to poorer health outcomes compared to other populations living with HIV. Perceived discrimination has been found to be a key factor in chronic stress-related substance use/mental health problems among racial/ethnic minority groups by influencing unhealthy behaviors such as cigarette smoking, alcohol/substance use, improper nutrition, and refusal to seek medical services (Hausmann et al., 2011). Perceived discrimination is described as the perception of differential and negative treatment because of an individual's membership in a demographic group and is associated with a host of negative mental and physical health outcomes (Hausmann et al., 2011). This discrimination manifested among HIV positive patients plays a critical role in the racial/ethnic disparities related to the treatment of HIV. Accumulating evidence demonstrates that physicians who exhibit unconscious prejudice and discrimination toward patients of a specific racial/ethnic group tend to provide them with less than adequate health care (Earnshaw et al., 2013). These issues can serve as barriers to accessing services and open communication between physician and patient leading to internalized displacement. In HIV, internalized ostracism makes healthcare access more difficult because African American MSM do not feel comfortable in medical facilities.

Nationally, persons who are HIV positive are more likely to abuse alcohol and use recreational drugs (notably marijuana, cocaine and other stimulants) than persons who are HIV negative (Edelman et al., 2014). For example, an analysis of 6,351 patients with a mean age of 50 years old from the Veterans Aging Cohort Study (VACS) found that

HIV-infected patients more commonly reported problematic drug use, cocaine/stimulant use, opiate/heroin use, and marijuana use compared to demographically matched uninfected patients (Edelman et al., 2014). African American MSM use alcohol or illegal drugs as a coping mechanism at a higher rate to deal with the weight of being diagnosed with HIV compared to individuals of other race, gender, and sexual orientation. Most observers of the disparities concluded that they exist because prevention messages, supplies, and/or interventions do not effectively reach those at greatest risk of infection (Williams et al., 2013). To better reach those at greater risk, peer group therapy has been introduced as a solution to possibly address the substance use/mental health problems that HIV-positive African American homosexual men face. These group meetings are led by peers who are supervised by agency or clinic program staff. They are designed to give patients an opportunity to engage face-to-face with their assigned peer, meet other peers and patients who are taking ART, and share experiences with the group (CDC, 2020). Patients can receive information on peer group therapy from treatment facilities and various organizations that aid in the fight against HIV/AIDS. Intervention length and structure depends on the type of diagnoses and target population. Such an approach may involve the delivery of part or all of an intervention by same age or older peers in informal or formal settings, such as community centers, street settings, nightclubs, school classrooms or youth clubs, using pedagogical or 'diffusional' methods (i.e. where peer-led education occurs as part of the normal communication within social groups; McArthur et al., 2016). Group meetings may also focus on life issues that may affect

adherence, including disclosure, romantic relationships, substance use, and mental health issues.

Group therapy interventions show feasibility, acceptability, and favorable effects on coping among HIV positive African American MSM, a group highly affected by substance use problems (Bogart et al., 2018). With this study, I examined the differences in substance use/mental health problems by race, gender, and sexual orientation among HIV-infected individuals. This information should help provide a solution for individuals infected with HIV who experience various substance use problems and medical discrimination. I also examined perceived discrimination when receiving HIV medical care and the appointments missed for HIV-related medical care.

Purpose of the Study

The purpose of this study was to examine the differences in substance use/mental health problems by race, gender, and sexual orientation among HIV-infected individuals. This study also examined the difference in the appointments missed for HIV-related medical care by perceived discrimination when receiving HIV medical care, race, sexual orientation, and gender. Secondary data involving specific information on the barriers to receiving and staying in care, such as participants' relationship with care providers, stigma, recent drug use, and mental health were also assessed.

Research Questions

This study was based on the following three research questions:

Research Question 1 (RQ1): Does substance use/mental health problems, measured by illicit drug use/binge drinking/depression differ by race, gender, and sexual orientation among HIV-infected individuals?

Null Hypothesis 1 ($H_0$1): Substance use/mental health problems, measured by illicit drug use/binge drinking/depression does not differ by race, gender, and sexual orientation, HIV-infected individuals.

Alternative Hypothesis 1 (H_a1): Substance use/ mental health problems, measured by illicit drug use/binge drinking/depression differs by race, gender, and sexual orientation among HIV-infected individuals.

Research Question 2 (RQ2): Is there an association between substance use/ mental health problems, measured by illicit drug use/binge drinking/depression and perceived discrimination when receiving HIV medical care, race, sexual orientation, and gender among HIV-infected individuals?

Null Hypothesis 2 ($H_0$2): There is no association between substance use/ mental health problems, measured by illicit drug use/binge drinking/depression and perceived discrimination when receiving HIV medical care, race, sexual orientation, and gender among HIV-infected individuals.

Alternative Hypothesis 2 (H_a2): There is an association between substance use/ mental health problems, measured by illicit drug use/binge drinking/depression and perceived discrimination when receiving HIV medical care, race, sexual orientation, and gender among HIV-infected individuals.

Research Question 3 (RQ3): Is there an association between appointments missed for HIV-related medical care and perceived discrimination, race, sexual orientation, and gender, among HIV-infected individuals?

Null Hypothesis 3 ($H_0$3): There is no difference in appointments missed for HIV-related medical care and perceived discrimination, race, sexual orientation, and gender, among HIV-infected individuals.

Alternative Hypothesis 3 (H_a3): There is a difference in appointments missed for HIV-related medical care and perceived discrimination, race, sexual orientation, and gender, among HIV-infected individuals.

Theoretical Framework

The theoretical base for this study was the social-ecological model (SEM) The SEM helps to understand factors affecting behavior and provides guidance for developing successful programs through social environments. SEMs emphasize multiple levels of influence (such as individual, interpersonal, organizational, community, and public policy) and the idea that behaviors both shape and are shaped by the social environment (Kumar et al., 2012). This is a framework that can be used to interpret how these peer group interventions lead to better health outcomes. This model implies that individuals establish a two-sided correlation with their surrounding environment where they are influenced by negatively or positively (Salihu et al., 2015). The SEM has been responsible for guiding epidemiologic studies among key populations at risk for HIV in diverse sociocultural contexts (Baral et al., 2013). Successful HIV prevention strategies for key populations require effective integration of evidence-based biomedical,

behavioral, and structural interventions. In terms of HIV positive individuals, this theory explains how the peer group interventions bridge the gap between substance use/mental health problems and successful outcomes in these individuals' health.

Nature of the Study

In this study, I utilized quantitative secondary data from a study with a cohort design to examine if there is a difference in substance use/mental health problems by race, gender, and sexual orientation among HIV-infected individuals. It involved specific information on the barriers to receiving and staying in care, such as participants' relationship with care providers, stigma, recent drug use, and mental health. I also examined the association of perceived discrimination when receiving HIV medical care and appointments missed for HIV-related medical care. In Chapter 3, I will provide an in-depth discussion of methods used in study this population. Data from the Positive Connections Project were evaluated to answer the question about the differences in substance use/ mental health problems by race, gender, and sexual orientation among HIV-infected individuals.

Definitions of Terms

African American: A person born in the United States having an origin of Black racial groups in Africa (U.S Census of Bureau, 2010).

Human Immunodeficiency Virus (HIV): African American virus that targets and alters the immune system, increasing the risk and impact of other infections and diseases. (CDC, 2019).

Men Who Have Sex with Men (MSM): African American also known as homosexuals, are male persons who engage in sexual activity with members of the same sex, regardless of how they identify themselves (UNAIDS, 2013).

New England: A region comprising six states in the northeastern United States: Maine, Vermont, New Hampshire, Massachusetts, Rhode Island, and Connecticut (Bradford, 2010).

Peer Group Interventions: Group meetings led by peers, who are supervised by agency or clinic program staff, designed to give patients an opportunity to engage face-to-face with their assigned peer (CDC, 2020).

Sexual Orientation: A person's identity in relation to the gender or genders to which they are sexually attracted; the fact of being heterosexual, homosexual, etc. (CDC, 2016).

Substance Use/Mental Health Problems: A medical condition caused by using or taking a substance in increasing amounts and going to great lengths to obtain the substance, which results in memory problems, negative thoughts, behavioral changes, mental illness, and psychosis (Ali et al., 2015).

Scope

This quantitative study used secondary data from a study with cohort design to examine if there is a difference in substance use and mental health problems comparing race, gender, and sexual orientation. Various factors could contribute to substance use/mental health problems but this study sought to assess whether these previously

mentioned factors make any difference in substance use and mental health problems. Ninety-six HIV positive individuals were recruited to participate in this study.

Assumptions

The participants of the Positive Connections study were recruited from New England which consists of six states in the northeastern United States: Maine, Vermont, New Hampshire, Massachusetts, Rhode Island, and Connecticut (Bradford, 2010). In 2019, the population of New England consisted of 14.85 million. I assumed that the respondents answered the questions truthfully, the data were not tainted or corrupted, the data were collected in an ethical manner and did not cause any harm to participants, and the instrument used to record the data was accurate. I assumed that the researchers of the Positive Connections study would secure adult participants who met the criteria and who would be willing to participate in the study. The assumptions that are present in this study were carefully considered during the data analysis.

Limitations

One limitation of this study is the usage of secondary data in which, I as the researcher, have no control over specific questions that participants were asked. Another limitation of this study is that it was not feasible to get an accurate count of the number of HIV-infected individuals in the United States. The sample may not be representative of all HIV-infected individuals in the United States. It would not be possible to get an accurate count of all possible subjects because some individuals may not be open with their sexuality and with being diagnosed with HIV. Another limitation is the methodology used to investigate the relationship between the variables. Being that this

information is overly sensitive, there may have been some difficulties obtaining sufficient participants given the population subject matter.

Significance of the Study

The results of this study will provide much-needed insights if there is a difference in substance use/mental health problems by race, gender, and sexual orientation. It may also create awareness of the link between perceived discrimination and appointments missed for HIV-related medical care. Many clinics offer posttest counseling, during which a health professional or public-health worker can discuss the HIV resources available for individuals. Insights from this study would aid health professionals on the proper strategies to consider when advising this population about the unhealthy coping strategies that can tempt a person after their initial diagnosis — for example, using alcohol or illegal drugs, having unsafe sex, or not seeking treatment.

Summary

In Chapter 2, I will present a literature review on studies relative to substance use/mental health problems. Chapter 2 provides detailed information on HIV and factors that contribute to substance use/mental health problems in reference race, gender and sexual orientation. Chapter 3 provides a detailed account of the quantitative method of research. Data collection, management, and data analysis strategies are also presented in Chapter 3. Chapter 4 contains the participants, themes, and answers to the research questions. Chapter 5 contains an interpretation of the study findings, study limitations, and the implication for social change.

Chapter 2: Review of Literature

Within the United States, HIV prevalence is higher among marginalized groups of people including people of color, MSM, and those who engage in other stigmatized behaviors, such as injection drug use (CDC, 2019; Pellowski et al., 2013). The problems that many HIV-positive people experience both contribute to an increased risk of HIV infection and reflect infection ramifications. For instance, HIV-positive African American MSM are more likely to experience substance use/mental health problems, stigmatization, and economic insecurity, which in and of themselves are risk factors for HIV infection (Mosack et al., 2016). This chapter provides an overview of research related to substance use/mental health problems. In each section, I will present a detailed examination of the knowledge pertaining to the phenomena: literature search strategy and terms, theoretical foundations (SEM), factors that contribute to substance use/mental health problems as experienced by race, gender and sexual orientation and the reasoning for the research study.

Literature Search Strategy

The literature search for this study commenced in the spring of 2019. The research topic was broad at that time because the topic was a comprehensive study of substance use/mental health problems. The focus was subsequently narrowed to include only race, gender, and sexual orientation. The population of the study became more refined due to progress in the literature review. The literature was accessed through the following databases from the Walden University Library: ProQuest, EbscoHost, and SAGE Journals, as well as in a Thoreau multi-database search. Websites used for the

literature review included the CDC, the Department of Health and Human Services, , the U.S. Census of Bureau, and the World Health Organization.

The following key terms were used to gather information about substance use/mental health problems: *HIV, Gay, Homosexuals, MSM, AIDS, Black, inequalities in health in the USA, health inequities, the health of African Americans, the minority health, access to health care, racism and health, community health, health intervention and strategies, socioeconomic status effects on health, racial health disparities, racism effects on health, perceived racial discrimination in health care facilities, HIV and African American MSM, group interventions, peer groups, interventions, group settings and counseling, peer group intervention and treatment, and HIV prevalence, substance use, substance abuse, addiction, mental health,* and *psychosocial factors.* The inclusion criteria included scholarly articles published within the 2015 to 2020 These articles were peer-reviewed and written in English; they were original studies where participants were individuals infected with HIV, engaged in peer group interventions, and experienced substance use/mental health problems. The exclusion criteria included but were not limited to studies published before 2015, papers about treatment and laboratory-based science, and if they were not peer reviewed. The initial search generated 76 articles. I selected several articles because they fit within the aforementioned inclusion criteria and the rest were excluded due to not fitting within the 5 year timeframe criteria or they did not apply to the study. Therefore, I included the results from the 23 chosen studies in this literature review.

Theoretical Foundation

Social–Ecological Model (SEM)

For the purpose of this study the SEM was used. The SEM is a framework put in place in order to understand the multifaceted levels within a society and how individuals and the environment interact within a social system (Baral et al., 2013). Different factors and determinants exist at all levels of health, making prevention, control, and intervention most effective when the model is addressed from all levels. The SEM was first introduced as a conceptual model for understanding human development by Urie Bronfenbrenner in the 1970s and later formalized as a theory in the 1980s (Kilanowski, 2017).The SEM takes into consideration the individual and their affiliations to people, organizations, and their community at large to be effective. There are five stages to this model that include: (a) individual, (b) interpersonal, (c) organizational, (d) community, and (e) public policy.

The social ecological perspective implies that interventions targeting multiple levels of influence reinforce each other and consequently should yield greater and more sustainable effects than interventions targeting only one level of influence (McCormack et al., 2017). The SEM expands the lens of health literacy beyond the individual to look at the delivery of health information, the materials and tools provided to the public, the communication skills of public health and healthcare professionals, the attributes of health-related institutions, and the health policies that influence the systems in which they work. There are multiple factors that influence as well as potential interventions that may improve health literacy and patient engagement; these exist at each level of the SEM. A

health literacy social ecological model (HLSEM) could lead to more sustainable changes over time by creating supportive environments for people as they access and seek to understand health information, interact with health professionals, and move through their community and organizational contexts (McCormack et al., 2017). These supportive environments can encourage, foster, and sustain patient engagement, because authentic engagement relies on the ability of a patient to obtain, understand, use, and communicate basic health information.

Stage One: Individual

The individual level of the SEM describes the individual factors that play a role in person health outcomes, such individual factors can be characteristics of the individual and the community (Cramer & Kapusta, 2017). There is also socio-demographic factors such as age, race, ethnicity, education, and income. Psychosocial factors such as social support, stress, and coping are also involved. Lifestyle factors play a role such as physical activity, alcohol use, and smoking. The individual level is concerned with an individual's knowledge and skills. Knowledge about HIV related substance use problems helps the individual understand more about it. It helps inform them about how they became susceptible to the virus, how serious the virus is, and the overall threat of the virus. Knowledge is not enough to change attitudes most of the time but, it helps a great deal by influencing key attitudes and decisions individuals make. Acquiring this knowledge in peer group settings can influence the substance use problems that African American MSM face.

Stage Two: Interpersonal

In the SEM, the interpersonal level refers to social influence from friends and family and norms within social networks (Cramer & Kapusta, 2017). The dynamics of interpersonal relationships are complex and vary for everyone; however, the intersecting marginalization that Black lesbian, gay, bisexual, transgender, and queer or questioning (LGBTQ) people experience weighs additionally on relationships. Family, friends, peers, and co-workers may offer support and belonging as it pertains to some, but not all, aspects of a person's identity. For instance, a family member may offer support in the face of racism stressors, but not be accepting of LGBTQ identity. Similarly, a White co-worker may relate to a person's LGBTQ identity, yet engage in racial microaggressions (e.g., jokes and slights), or not acknowledge how White privilege may be playing a role in career advancement at work (Haynes & Dale, 2017). In addition, relationships may be built via shared membership in organizations such as religious institutions where some messages may be empowering and soothing, while others are painful and anti-LGBTQ. For some Black LGBTQ people, it is therefore an ongoing challenge to: (a) decide whether to end certain relationships or set boundaries on the extent of the relationships and amount of contact, (b) try to maximize the benefits (and simultaneously cope with adversity) from various parts of their interpersonal network, and (c) find relationships where they can be completely accepted in all their intersecting identities as a Black LGBTQ person (Haynes & Dale, 2017). Interpersonal relationships have major influences on health behaviors including consulting a healthcare provider and receiving HIV treatment. In the context of HIV treatment uptake, people who believe that family

and friends want them to be treated are more likely to accept the treatment. Furthermore, as the number of people getting the treatment in one's environment increases, representing the social norm, treatment uptake increases.

Stage Three: Organizational

The organizational level can reach more people in different sectors of the community (McCormack et al., 2017). Healthcare providers are often named by individuals living with HIV as important sources of stigma. Programs for training healthcare workers should address culturally specific stigma drivers, including personal fears of infection, prejudice towards vulnerable groups, and misconceptions or lack of knowledge about HIV transmission, prevention, treatment, and universal precautions. Programs also should address how the effect of stigma, discrimination, substance usage, breaches of confidentiality, and negative attitudes can negatively impact patients' lives, health, and ability to follow treatment regimens.

Stage Four: Community

In this model, a community refers to the culmination of the various organizations in an area, these organizations can pool resources and ideas together in order to improve community health (Golden et al., 2015). For example, the "Let's Stop HIV Together" campaign, launched by the CDC, raises awareness about HIV and its impact on the lives of all Americans, and fights stigma by showing that persons with HIV are real people—mothers, fathers, friends, brothers, sisters, sons, daughters, partners, wives, husbands, and co-workers. The campaign offers facts about HIV, links to testing sites across the United States, guidance for taking action against stigma, and online stories about people living

with HIV (PLWH), and the people who care for them also the U=U campaign has been gaining momentum and strength from supportive organization who recognize the importance of education on the fact that if a person has remained on HIV medication and has a continued undetectable viral load, the virus is not transmissible. Organizations could coordinate health events designed to educate and equip affiliates with knowledge and materials to help prevent the spread of HIV in the community and these substance use problems African American MSM community face.

Stage Five: Public Policy

At the public policy level, the governing bodies oversee the prevention effort. They do this by establishing agencies and laws at every level of government to do research on the spread of HIV and figure out more effective ways of dealing with the problem (Golden et al., 2015). The government should and enforce the laws. This level of the SEM is important because it affects a larger portion of the population than the other levels. Having policies in place for African American HIV positive MSM to report discrimination in employment, health care, education, and other areas is essential in the United States and abroad. Reports can be anonymous, and all reports result in mediation, investigation, and legal resolution by human rights and legal organizations.

The SEM was used to better understand the HIV related substance use/mental health problems of individuals infected with HIV face. A major strength of the social ecological approach to health in this study is that it was possible to offer strategies of behavioral change and environmental enhancement (Chimphamba et al., 2012). The ecological framework states that health is influenced by multiple factors of the physical

and sociocultural environment, that these multiple factors and the environment interact, and that prevention is most effective when coordinated across levels (individual level, interpersonal level, organizational level, community level, and policy). At the individual level, the participants of the peer group interventions can alter their attitudes and beliefs about past negative experiences, stigma, discrimination, and embarrassment from the society as African American MSM. Their knowledge of substance use problems can also be enhanced to better their lives. At the interpersonal level, African American MSM can share their HIV and sexual orientation information with friends, family, and others without feeling any fear or embarrassment. Alternatively, family and social networks can provide social support and reinforce social norms and behavior that serve as protective factors and reduce substance use problems. At the organizational level, healthcare providers can be trained to accommodate these individuals. This will ease feelings of perceived discrimination when African American MSM receive any type of medical care. The community level shows that environments can either promote health and well-being or be a source of substance use problems. Interpretation of community norms may increase or mitigate the risk level for substance use problems within the community. At the public policy level, laws and policies of any state can be made for shaping the risk of this population as well as the general. These policies and their financing and implementation either promote or decrease the community's ability to provide preventive or harm reduction services to its constituents by passing laws making such actions legal or illegal or by providing or disrupting funding mechanisms supporting these programs.

African American MSM will have the support local government of the implementation of these policies.

HIV

HIV is a health issue in the United States that is problematic for African Americans. According to the CDC (2020), approximately 1.1 million people in the United States were living with HIV at the end of 2016, and of those people, about 14% did not know they had HIV. HIV continues to have a disproportionate impact on certain populations, particularly racial and ethnic minorities and gay and bisexual men. According to the CDC (2020), in 2018 the HIV incidence was estimated at 36,400 infections, the rate was 13.3 (per 100,000 people). The rate for males 22.1 (per 100,000 people) was five times the rate for females (4.8). For race/ethnicity, the highest rate was for Blacks/African Americans (45.4), followed by the rates for Hispanics (22.4) and persons of multiples races (19.3) per 100,000 people. The largest percentages of HIV infections were attributed to male-to-male sexual contact (67% overall and 82% among males). Among all African Americans, males accounted for 75% of HIV infections. Most of the infections (82%) were attributed to homosexual sex contact.

According to the CDC (2020), the prevalence rate of HIV among males in 2018 (679.3) per 100, 000 people was four times the rate among females (186.5). The highest prevalence rate was that among African Americans (1,434.3) per 100,000 people, followed by the rates among persons of multiple races (1,125.5), Hispanics (593), Whites (198.7), American Indians (196) and Asians (109.2). In 2018, an estimated 482,900 African American adults and adolescents were living with HIV infection, including

67,800 (14%) whose infection had not been diagnosed. An estimated 679,800 adult and adolescent males were living with HIV infection attributed to male-to-male sexual contact, including 107,900 (15.9%) whose infection had not been diagnosed. The number of males living with HIV infection attributed to male-to-male sexual contact was highest among Whites (241,800), followed by African Americans (218,600) and Hispanics (173,000). CDC (2019) reported 16,350 deaths in 2017 among adults and adolescents diagnosed with HIV in the US and dependent areas.

As a result of the effectiveness of current therapies, HIV has evolved from an acute and usually terminal illness to a chronic one that requires ongoing symptom management strategies to reduce anxiety, fatigue, depression, HIV-related symptoms, and adverse effects of medication (Gaston et al., 2015). African Americans have been disproportionately affected by HIV/AIDS since the epidemic's beginning, and that disparity has deepened over time. Although they represent only 12% of the United States population, African Americans account for a much larger share of HIV diagnoses (43%), people estimated to be living with HIV disease (42%), and deaths among people with HIV (44%) than any other racial/ethnic group in the United States. Several challenges contribute to the epidemic among African Americans, including poverty, lack of access to health care, higher rates of some sexually transmitted infections, smaller sexual networks, lack of awareness of HIV status, and stigma.

Many African Americans may be HIV-positive and not know it, so they continue to spread the virus while also getting sicker. In 2017, there were 7,054 African American out of 12,344 HIV deaths, the number of deaths among African Americans with an HIV

diagnosis decreased 8% between 2010 and 2017 (CDC, 2018). Despite these declines, HIV was the sixth leading cause of death for African American men ages 25–34. Some African Americans still mistakenly believe that HIV is a White, gay disease. That makes it hard to teach them about HIV or get them to talk about their HIV status. Part of the problem may be a lingering distrust in the African American community of government sources of information and research. The historic Tuskegee Syphilis Study did harmful medical testing on African Americans, without their knowledge, for 40 years. From a historical perspective, the Tuskegee syphilis study is widely recognized as a reason for mistrust because of the extent and duration of deception and mistreatment and the study's impact on human subject review and approval (Jaiswal & Halkitis, 2019). However, the history of medical and research abuse of African Americans goes well beyond Tuskegee. Harriet Washington eloquently described the history of medical experimentation and abuse, demonstrating that mistrust of medical research and the health care infrastructure is extensive and persistent among African Americans and illustrating that more than four centuries of a biomedical enterprise designed to exploit African Americans is a principal contributor to current mistrust (Scharff et al., 2015).

HIV among African American MSM

Unfortunately, similar success in reducing HIV diagnosis among African American gay and bisexual men, who represent most new diagnoses among African Americans has not been successfully achieved. In 2016, more than half (58% or 10,226) out of 17,533 African Americans diagnosed with HIV were gay or bisexual men (CDC, 2017). Between 2011 and 2015, HIV diagnoses among African American gay and

bisexual men overall remained stable but increased 30% among African American gay and bisexual men between the ages of 25 and 34 years (CDC, 2017). In addition, the nation continues to miss the annual National HIV/AIDS strategy (NHAS) target for reductions in HIV diagnosis disparities among young African American gay and bisexual men. In July 2010, the White House released the NHAS, a comprehensive roadmap for reducing the impact of HIV (CDC, 2020). The strategy set clear priorities and targets for HIV prevention and care in the United States and calls on government agencies and their public and private partners to align efforts toward a common purpose. NHAS recognizes the connection between prevention, care, and treatment in reducing new infections and improving the health of people living with HIV (CDC, 2020). The strategy also emphasizes the central importance of reducing disparities in HIV prevention and care and in reducing the stigma and discrimination associated with HIV.

Not surprisingly, many go through shock, grief, anger, sadness, and fear when they are diagnosed with HIV (Gardner, 2016). This happens even though new medications can help patients to live longer and have productive lives with the virus. To manage these stressful demands, individuals may employ different coping efforts, including problem-focused strategies directed at changing a stressful situation, or emotion-focused strategies directed at changing the way one thinks or feels about a stressful situation (Mutumba et al., 2015). Coping strategies include medication adherence, concealment or limited disclosure of HIV status, treatment optimism, social support, rationalizing, social comparison, spirituality/religiosity, avoidance, and distraction. Another emotion-focused coping strategy identified among men who have

sex with men of color, used when discrimination cannot be avoided proactively, is disengagement—which can take the form of denial, escape through substance use (Bogart et al., 2018).

Substance Use/Mental Health Problems

Substance use/mental health problems are overly complex medical condition because they affect the brain, they are not just about willpower (Ali et al., 2015). Since there is a lot of stigma (shameful feelings) associated with substance abuse problems, health care professionals are not using terms such as "addiction," "addict," and "drug abuse" as much. Instead, they are using "substance use/mental health problems" and "people with substance use/mental health problems." Marijuana, synthetic marijuana, depressants, stimulants, hallucinogenics, opioids, and over-the-counter medications are the most abused substances. The causes of substance use/mental health problems are not clear, although there are many factors that are thought to play a role. Heredity (genetics) appears to be involved, as the risk of substance use problems is higher for people with family members with these problems. A person's environment, such as school, work, friends, family, and cultural and religious beliefs, can also affect substance use/mental health problems (Ali et al., 2015). Recreational use is typically started in small doses with occasional use and progresses over time to frequent use and sometimes abuse disorder. Some recreational drugs are more addictive than others based on how quickly their effects are felt and whether they cause tolerance to build or withdrawal symptoms. Other mental health conditions such as anxiety and depression may also play a role. Substance use may also start when people try to manage unpleasant feelings and emotions (e.g.,

anger, stress, and sadness). People who are subject to discrimination may also be at risk for substance use problems.

Substance use/mental health problems, which are problematic patterns of using alcohol or another substance, are strongly associated with HIV and other sexually transmitted diseases (Millar et al., 2017). Injection drug use (IDU) can be a direct route of HIV transmission if people share needles, syringes, or other injection materials that are contaminated with HIV. However, drinking alcohol and ingesting, smoking, or inhaling drugs are also associated with increased risk for HIV. These substances alter judgment, which can lead to risky sexual behaviors that can make people more likely to get and transmit HIV. For people living with HIV, substance use can hasten disease progression, affect adherence to antiretroviral therapy (HIV medicine), and worsen the overall consequences of HIV. The use of drugs and alcohol is a well-established predictor of HIV-medication adherence problems among HIV positive people generally (Millar et al., 2017).

Mimiaga et al. (2013) sought to better understand substance use behaviors and deleterious health consequences among individuals with HIV. The study sample consisted of all HIV-infected patients aged 18 years or older who completed a Centers for AIDS Research Network of Integrated Clinical Systems (CNICS) clinical assessment of patient reported outcomes as part of a routine clinical care visit before April 201. The researchers examined a multicenter cohort of HIV-infected patients (N = 3,413) receiving care in four United States cities (Seattle, Birmingham, San Diego, and Boston) between December 2005 and April 2010 in the CNICS (Mimiaga et al., 2013). Generalized

estimating equations were used to model specific substance use outcomes. Gender specific differences were also observed, with male patients having increased odds of polydrug, marijuana, amphetamine, and crack-cocaine use relative to female patients. Odds of opiate use, by contrast, were lower among men than women. After adjusting for potential confounders, there were racial differences in polydrug, marijuana, amphetamine, crack-cocaine, and injection drug use. Relative to White participants, Latino/Hispanic and African American participants had decreased odds of marijuana, amphetamine, and injection drug use but increased odds of crack-cocaine use. HIV disease characteristics, adherence to antiretroviral medications, comorbid psychosocial health factors, and sexual risk are all associated with substance use and these factors vary according to the substance used (Mimiaga et al., 2013). A limitation was the use of a cross-sectional study, researchers were unable to consider temporality in modeling exposures and substance use outcomes. For example, although they found that depression was associated with substance use, the researchers were unable to empirically investigate the possibility of whether psychological distress was driving substance use, whether substance use was driving psychological distress, or whether a bidirectional, synergistic relationship was present. These results underscore the need to continue to develop and implement prevention programs that address substance use, medication nonadherence, and unprotected sex among patients enrolled in primary care, which will improve virological outcomes among HIV-infected patients as well as decrease transmission to their sexual partners (Mimiaga et al., 2013).

Among African American MSM with HIV, depression and substance use/mental health problems are particularly problematic. Depression is associated with HIV medication nonadherence among African American MSM, with consequences for both health outcomes and onward HIV transmission. Similarly, substance use is associated with sexual risk behaviors that can lead to onward HIV transmission (Gamarel et al., 2017). HIV stigma (i.e., social devaluation and discrediting associated with HIV plays an important role in depression and substance use problems among adults living with HIV; Earnshaw et al., 2013), and may likewise be an important driver of these psychosocial and behavioral health outcomes among African American MSM.

A few behavioral, structural, and environmental factors make it difficult to control the spread of HIV among people who use or misuse substances. People who are alcohol dependent or use drugs often have other complex health and social needs. Research shows that people who use substances are more likely to be homeless, face unemployment, live in poverty, and experience multiple forms of violence, creating challenges for HIV prevention efforts (Durvasula & Miller, 2014). Stigma and discrimination are also associated with substance use. Often, illicit drug use is viewed as a criminal activity rather than a medical issue that requires counseling and rehabilitation. Fear of arrest, stigma, feelings of guilt, and low self-esteem may prevent people who use illicit drugs from seeking treatment services, which places them at greater risk when diagnosed with HIV. Lack of access to the health care system is another factor. Since HIV testing often involves questioning about substance use histories, those who use substances may feel uncomfortable getting tested, as a result, it may be harder to reach

people who use substances with HIV prevention & treatment services (CDC, 2019). Evidence suggests that internalized stigma has a particularly deleterious effect on psychosocial and behavioral health among PLWH (Earnshaw et al., 2018). Internalized stigma includes endorsing negative beliefs and feelings about PLWH and applying them to self. Among adults, internalized stigma is associated with greater risk of depression and substance use.

Perceived Discrimination by Patients When Receiving Medical Care

Discrimination has been described as an unfair or unjustified group-based difference in behavior that systematically disadvantages members of another group (Abramson et al., 2015). As with other factors related to disparities in health and healthcare, the sources of perceived discrimination are multifaceted. These include conscious and unconscious prejudice and stereotyping by providers, the reality that minorities in the United States are likely to receive worse care than their White counterparts, differences in sensitivity to potential racism and its verbal (and nonverbal) cues, differences in unmet medical needs, prior experiences that shape patients' identities, and orientations to health care (Abramson et al., 2015), and even a sense that “reverse discrimination” against Whites may be a factor (Shavers et al., 2012).

In addressing the different levels at which racial or cross-cultural inequities may occur, Shepherd et al. (2018) pointed to: (a) differential care within the health system, (b) differential access to the health system, and (c) differences in health-risk exposures and life opportunities. Differential care refers to biased beliefs or attitudes held and/or treatment decisions made by health professionals based on a patient’s race/culture. While

racial classifications are often constructed based on phenotypical distinctions, culture refers to aspects of life (i.e., norms, customs, beliefs, behaviors, social institutions) that an individual share with others within a defined population. A body of evidence suggests that minority groups of color receive a poorer standard of health care (Feagin & Bennefield, 2014). There is also evidence of both health care provider racism and unconscious racial biases (FitzGerald & Hurst, 2017; Hall et al., 2015; Maina et al., 2017).

The effects of perceived discrimination have also been linked with use of alcohol and illicit drugs in that substance use has been identified as a means of coping with the stress of everyday discrimination (Clark, 2014). For example, Hunte and Barry (2012) found that every one unit increase in everyday discrimination predicted increases of alcohol and drug use disorders. Repeated or ongoing experiences of discrimination can be a chronic stressor, elevating distress and negative physical arousal, which in turn, can deplete psychological resources (Gee et al., 2007) and lead to stress-sensitive disorders, such as generalized anxiety disorder, major depressive disorder, alcohol-use disorder, and illicit drug-use disorder.

African Americans Perceived Discrimination

Among African Americans, discrimination has been linked to multiple factors related to serious health conditions such as hypertension, self-reported poor health, and breast cancer, as well as potential risk factors for disease, such as obesity, high blood pressure, and substance use (Moody et al., 2016). Discrimination has been identified as a mediator of the relationship between race and allostatic load (Tomfohr et al., 2016). For

African Americans who use drugs, discrimination due to both race and drug use may be particularly salient. One path by which discrimination is thought to influence health is via increased engagement in unhealthy behaviors to cope with discrimination related stress (Tomfohr et al., 2016). Bliech et al. (2019) sought to examine the experiences of racial discrimination among African American adults in the United States, which broadly contribute to their poor health outcomes. Data were obtained from an original, nationally representative, probability-based cellphone and landline survey of United States adults, conducted from January 26 to April 9, 2017 (Bliech et al., 2019). The full sample included 3,453 United States adults aged 18 years and older, and the author examined the subsample of 802 non-Hispanic African American or Black and 902 non-Hispanic White United States adults. Overall, 92% of African Americans reported that they believed discrimination against African Americans exists in America today, compared to 55% of Whites reporting they believed discrimination exists against Whites (Bliech et al., 2019). A majority of African American adults also reported being the targets of interpersonal discrimination, as 52% reported hearing microaggressions, and 51% reported hearing racial slurs. In uncontrolled comparisons, African Americans were significantly more likely than Whites to report experiencing discrimination in all areas. African American adults report personally experiencing widespread discrimination across social institutions and interpersonally, including in seeking health care, unfair treatment in by the police, and being targets of racial slurs or microaggressions (Bliech et al., 2019). African Americans reported experiencing racial discrimination at significantly higher levels than Whites, regardless of gender, socioeconomic status, or the racial composition of their

neighborhood. A plausible explanation for the difference between women and men may be the pervasive 'gendered and racialized stereotypes' in the United States society, which depict African American men as deviant and violent (Yoon et al., 2019). Among a sample of African American adults, the common emotional responses to perceptions of racial discrimination included feeling angry, feeling hurt, and feeling frustrated, whereas some of the behavioral responses included speaking up and prayer. Unfortunately, discrimination in the health care setting is not uncommon for African American patients and is associated with poorer health status. Perceived past discrimination affects adherence to medical recommendations, treatment utilization, and engagement in mental health and substance abuse treatment (Coles, & Cochran, 2016).

Perceived Discrimination by Gender

The harmful effects of perceived discrimination (PD) may vary by gender, with males being more vulnerable than females to the effects of PD on depression and substance use (Assari, 2015) and females being more sensitive to the effects of PD on other health behaviors, such as obesity and eating disorders. Some scholars have documented gender differences in experience and response to discriminatory events. While African American males are more likely to be discriminated against on the street [for example get stopped by the police], African American females may be more commonly discriminated against in the workplace. In line with gender differences in coping in response to stress, African American males and females may differ in their likelihood to use substances to cope racism-related stress (Lewis et al., 2017). Shervin et al. (2019) tested gender differences in the association between baseline perceived

discrimination during adolescence and subsequent substance use (marijuana use (MU)) during young adulthood within African American population. The conducted study was a cohort of 595 African American (278 male and 317 female) ninth grade students were followed for 13 years from 1999 (mean age 20) to 2012 (mean age 33). Participants were selected from an economically disadvantaged urban area in the Midwest, United States. The independent variable was perceived discrimination measured in 1999. The outcome was average substance use between 2000 and 2012 (based on eight measurements). The researchers used the Daily Life-Experiences Scale to measure PD in the year 1999, this is a 20-item measure that asks respondents to report if they experienced racism-related life events or micro-stressors in the past year (Shervin et al., 2019). Linear regression was used for statistical analysis. Results showed that males reported more baseline PD than females, males also reported more substance use over the follow-up years compared to females (Shervin et al., 2019). Researchers have found that the effects of PD on several undesired mental health outcomes from psychological distress and depression to suicide and substance use differ by sex. Exposure to PD during late adolescence may have a larger role on MU of male than female African American young adults. Although it was found that males are more vulnerable to the effects of PD on MU, PD should be prevented regardless of race, gender, and other social identities (Shervin et al., 2019). While PD is pervasive among African Americans, exposure to PD increase the risk of MU for African American males.

Perceived Discrimination for HIV Positive MSM

Gay men regularly experience both individual and structural prejudice and discrimination, which have been shown to negatively impact well-being (Doyle & Molix, 2014). Perceived discrimination on the basis of sexual orientation, was found to be a risk factor for suicidality among sexual and gender minorities in high-income countries. Discrimination against people with HIV may occur at all levels of the community including to and from health workers. Almost invariably, such discrimination is the result of a lack of education about HIV/AIDS or misperceptions that are also common in the wider community. Experiencing discrimination may increase risk of HIV infection among MSM. Discrimination experiences have been linked to unhealthy behaviors such as smoking, alcohol use, and overeating (Smart Richman et al., 2016). Discrimination experiences may be particularly influential on health behaviors when the unfair treatment occurs within health care settings via interference with patient–provider communication. In both HIV-negative and positive MSM, perceived discrimination is significantly positively associated with alcohol problems. (Wray et al., 2016).

Perceived Discrimination for African American MSM with HIV

Perceived discrimination and disclosure of same-sex sex behaviors to health care providers may act as barriers for African American men who have sex with men (Maskut et al., 2019). Perceived discrimination, which has been associated with poor mental health in prior research, contributes to greater depression and PTSD symptoms among HIV positive African American MSM, who are at high risk for discrimination from multiple stigmatized characteristics (HIV serostatus, race/ethnicity, and sexual

orientation). Black MSM who experienced more perceived discrimination had worse health outcomes, (Bogart et al., 2013). With these things in mind, African American MSM must navigate through their lives battling these issues. Because the processes of perceiving and reporting discrimination are complex, it is reasonable to expect that those processes themselves might have health implications. For example, in some contexts, reporting discrimination could be empowering and cathartic, resulting in better health, whereas in others, it could result in backlash and additional stress (Maskut et al., 2019).

Peer Group Interventions

Peer group intervention, where the intervention is offered to small groups in semi structured sessions facilitated by trained peer leaders (Crittenden et al., 2015). Peer group leaders are not chosen because they are opinion leaders, although they often are influential in their communities. Peer group interventions have been shown to be efficacious for different target groups, settings, and countries (Duan et al., 2013). The intervention sessions involve group discussions, games, and other activities to convey factual information, role play to enhance skill building, and development of personal risk-reduction plans (Herbst et al., 2014). Intervention length and structure depends on the type of diagnoses and target population. Such an approach may involve the delivery of part or all of an intervention by same age or older peers in informal or formal settings, such as community centers, street settings, nightclubs, school classrooms or youth clubs, using pedagogical or ‘diffusional’ methods (i.e. where peer-led education occurs as part of the normal communication within social groups; McArthur et al., 2016). Participants’ knowledge, attitudes, and behaviors are assessed by self-interview and at a variety of

postintervention follow-ups. Meta-analyses and systematic reviews documented peer group interventions reduce risky behaviors, HIV and sexually transmitted infections. A peer-based approach, interpreted as being more effective because peers share a common sociocultural identity, often come from the same social network, and face the same challenges in adopting safer behaviors (Crittenden et al., 2015). Peer based interventions are appropriate for reaching both high risk groups and the general population. However, bringing these interventions to scale has been viewed as difficult because of the need to reach everyone.

Peer Group Interventions for MSM

Effective behavioral intervention strategies are needed to promote safer sex among MSM, and one approach is the use of peers to deliver HIV prevention interventions (Ye et al., 2014). Peer group interventions have been beneficial in the advancement of MSM. Peers have been deployed to help MSM negotiate complex prevention, care, substance abuse, and social service systems (Shangani et al., 2017). These MSM peer educators are thought to be more likely to influence the behaviors of their peers since they are seen as credible and less judgmental role models. They also have good access to hidden populations who may have limited interaction with more traditional health programs. This can increase trust and support of the MSM participants receiving the education from the peer educator, this trust of the peer educator can increase the perceived social support an individual's experiences (Curren et al., 2018).

Some group interventions have focused on specific MSM subpopulations, including targeting interventions to specific ethnic/racial communities. The Many Men,

Many Voices (3MV) project is a small-group intervention that specifically targets African American MSM. The intervention addresses factors that influence the behavior of African American MSM that include: (a) cultural, social, and religious norms; (b) interactions between HIV and other STDs; (c) sexual relationship dynamics; and (d) the social influences that racism and homophobia have on HIV risk behaviors (CDC, 2020). Two trained peers co-facilitate the intervention sessions and serve as role models to support risk-reduction efforts. The intervention can be delivered as seven weekly sessions or as a 3-day weekend retreat. The weekend intervention consists of six consecutive 2- to 3-hour sessions delivered during a weekend retreat. Men were eligible if they self-identified as a African American MSM, were 18 years of age or older, willing to attend and participate in an HIV/sexual transmitted infection prevention intervention retreat delivered outside of New York City without their primary partner or boyfriend and discuss male-to-male sexual behavior in a group setting, had not previously participated in the Many Men, Many Voices intervention, reported their HIV serostatus as HIV negative or unknown, and resided in New York City with no plans to relocate within 6 months (CDC, 2020). 3MV participants reported significantly greater reductions in any unprotected anal intercourse with casual male partners; a trend for consistent condom use during receptive anal intercourse with casual male partners; and significantly greater reductions in the number of male sex partners and greater increases in HIV testing (Herbst et al., 2014). Limitations of the efficacy study included the use of self-reported sexual risk behaviors, limited generalizability of findings based on delivery of the intervention as a 3-day weekend retreat rather than as weekly intervention sessions, and

whether 3MV was effective in reducing risk behaviors under real world conditions (Herbst et al., 2014). This targeted intervention reduced unprotected anal intercourse, increased condom use, reduced number of partners and increased testing among African American MSM, thereby stressing the effectiveness of interventions that are adapted to specific communities and settings (Hosek et al., 2013).

Peer Group Interventions for HIV Prevention

Peer led HIV interventions typically involve enlisting members of a specific at-risk group to influence and support members to maintain healthy sexual behaviors, change risky sexual behaviors, and modify norms in ways conducive to healthier lifestyles. Peer based interventions to promote HIV behavioral and clinical outcomes have shown promise, based on recent systematic reviews. For example, peer led programs have been demonstrated to effectively support adherence to ART and sustain retention in care over time (Genberg et al., 2016). Peer led approaches may also be advantageous for other components of the continuum of HIV care, such as linking MSM who are aware of their HIV positive status to care services (Genberg et al., 2016), and for other hidden at risk populations.

Given the large burden of disease among African American MSM, historically there has been a dearth of research on HIV interventions for African American MSM. Intervention research and development for African American MSM have not kept up with the devastating effects that HIV has had on the lives of these men. However, several studies have taken a dive into researching this phenomenon. The Brothers Building Brothers by breaking barriers intervention was implemented to focus on developing

participants' appreciation for their intersectional identities, creating and strengthening bonds with other African American MSM living with HIV (Hussen et al., 2018). It also hones strategies for connecting to others in their social networks and communities. The intervention does not only focus on HIV. It also aimed to develop resilience at the exploration of African American gay identity, development of critical self-reflection and coping skills, exploring strategies for navigating family and intimate relationships, and developing strategies for navigating clinical spaces and plans for community participation (Hussen et al., 2018).

Peer Group Interventions for HIV Infections

Peer support models have been identified as a priority area by policymakers to improve care transitions for people living with HIV. Eaton et al. (2019) developed a peer based intervention for people living with HIV who used substances, had challenges with antiretroviral adherence and would be discharged from hospital to community. This study was conducted in Toronto, Canada, at Casey House, a hospital for people living with HIV, in collaboration with the AIDS Committee of Toronto (ACT), a community-based HIV organization. The study was a community based, quasi-experimental pilot intervention study designed to assess feasibility, acceptability and connection to a community based HIV organization (Eaton et al., 2019). The study used descriptive quantitative data and qualitative methods to evaluate feasibility and acceptability, and linkage to community supports of a pilot peer intervention that involved people living with HIV in the study's design and conduct. The study population consisted of people: (a) who were HIV-positive; (b) actively used illicit substances; (c) an inpatient at CH; (d)

initiated/restarted antiretroviral therapy while they were inpatient at CH; (e) were discharged back to the community; (f) English-speaking; (g) could access a phone; and (h) provided informed consent (Eaton et al., 2019). The intervention was feasible to recruit and coordinate, and led to participant connection to ACT services. The first two intervention components (goal-setting and PV meeting) were highly acceptable to participants, while the third (post-discharge phone calls) was well received by half of completers but the other half had challenges engaging by phone. Throughout the interviews, participants stated how much they appreciated that people living with HIV collaborated in the study's design, delivered the intervention and conducted their interviews. Without randomization and control and with a small sample, there remains uncertainty regarding the two promising intervention components, goal setting and peer meeting (Eaton et al., 2019). Other peer support studies have found significant effects in larger samples by focusing on a single issue of concern. To be effective, group interventions may need to address the other types of stigma that co-occur among people with HIV. Group interventions to improve health among people with HIV might benefit from fostering resilience among people living with HIV by teaching them adaptive strategies (e.g., support-seeking) for coping with the stress of all types of discrimination, as well as teaching strategies for the avoidance of maladaptive coping.

Peer Group Interventions for Perceived Discrimination

Research studies released showed that perceived discrimination is a proven factor in several unhealthy behaviors including alcohol use, cigarette smoking, improper nutrition and substance use (Sims et al., 2016). It is also a key factor in individuals'

refusal or reluctance to seek medical treatment. In common with any public health intervention, programs to reduce perceived discrimination must be based on a series of decisions, in this case: the scope to mental disorders to be included, whether explicitly or implicitly; the level of intervention, whether structural, interpersonal, or self-stigma; and whether to take a whole population approach versus choosing target groups (Gronholm et al., 2017). In the latter, it is important to consider which groups are priority targets in terms of either the frequency and/or severity of the impact on people with mental health problems. It is also to determine what approach should be taken in an intervention for a given group at a given level should take and how to evaluate the impact. Interventions focus on whether discrimination is perceived , endorsed, received, or enacted (Gronholm et al., 2017).

HIV positive African American MSM are subjected to discrimination, stigma, and hate crimes related to their multiple identities—racial identity, HIV status, and sexual orientation—each of which are associated with worse health outcomes for this group (Dale et al., 2016). For example, research on a convenience sample of HIV positive African American MSM found high frequencies of all three types of discrimination experiences (race/ethnicity, 40%; HIV status, 38%; and sexual orientation, 33%) and, further, that greater perceived discrimination was significantly related to lower HIV medication adherence over 6 months, greater AIDS symptoms, lower likelihood of having an undetectable viral load, and higher likelihood of having visited a hospital emergency department (Bogart et al., 2013). African American MSM with HIV may seek others who are similar to help cope, in group interventions, a community is created of

similar individuals helps to protect the self from discrimination by restricting the circle of people to those who are also marginalized. Bogart et al. (2018) sought to use community stakeholder input and cultural adaptation to develop and pilot-test a cognitive behavioral therapy (CBT) intervention for African American sexual minority men that aimed to improve coping responses to discrimination. CBT is a psychosocial intervention that aims to improve mental health. It focuses on challenging and changing unhelpful cognitive distortions and behaviors, improving emotional regulation, and the development of personal coping strategies that target solving current problems (Waller et al., 2015). Still Climbin' was culturally tailored using community stakeholder input and formative qualitative research. Still Climbin' is a study in which the Fenway Institute partnered with the Boston Children's Hospital and the Multicultural AIDS Coalition to address discrimination and mistrust among African American men living with HIV. Still Climbin' consists of eight weekly group sessions and a graduation session based on principles of CBT (Bogart et al., 2018). Sixty-four HIV positive African American sexual minority men were recruited from community venues; 38 were randomized to the intervention and 26 to a wait-list control group. These intervention groups led by a trained facilitator (master's-level social worker who was an African American gay man with expertise in group therapy with African American sexual minority men) and a trained peer cofacilitator matched in identities with participants (HIV positive, African American, and bisexual; Bogart et al., 2018). To assess coping with discrimination, participants completed surveys that assessed various coping strategies (i.e., active, planning, positive reframing, acceptance, humor, religion, using emotional support, using

instrumental support, self-distraction, denial, venting, substance use, behavioral disengagement, and self-blame). The intervention effects on improved coping in response to discrimination, including functional (problem-solving) coping, humor, and cognitive/emotional debriefing, a culturally relevant form of coping that includes self-protective strategies (Bogart et al., 2018). Intervention participants rated the sessions positively in response to closed and open ended questions. Although the study showed feasibility of recruitment, randomization, and follow up assessments, retention was relatively low in the group sessions, and participants did not consistently complete the take home activities (Bogart et al., 2018). Competing life demands and structural issues, including health, transportation, and housing issues, made group attendance difficult for some of the men.

Peer Group Interventions on Reducing Substance Use/Mental Health Problems

Although several psychosocial interventions for substance use disorders have been validated through randomized clinical trials, a deeply entrenched gap remains between science and practice. Potential benefits of group therapy include providing positive peer support from others with similar problems, reducing stigma, fostering greater accountability, providing corrective feedback about interpersonal problems, and instilling hope through seeing the successes of others (Wendt & Gone, 2018). Linking PLWH with peer mentors is an efficacious approach to HIV related behavior change. Successful peer mentors who are demographically similar PLWH, can serve as credible role models and challenge negative peer norms about HIV care and ART (Gwadz et al., 2017). Meeting approximately weekly face-to-face or by phone, the role of the peer

mentor will be to: (a) provide informal counseling; (b) model healthy HIV behavior; (c) provide practical tips for managing care/ART based on his/her personal experience; and (d) provide resources to address barriers to care/ART.

Treatments that build upon existing resources have the potential to increase access for the large group of individuals with co-morbid depression symptoms who enter the substance abuse treatment system. Given the high rates of substance disorders and the strong relationship between depressive symptoms and relapse, the need to address both disorders for clients entering the substance abuse treatment system is critical. These peer group interventions were developed and tested with input from community substance abuse treatment providers and lead to greater reductions in depressive symptoms and reduced substance use as compared to usual care treatment.

Mackenzie et al. (2012) aimed to shed light on whether and how HIV positive injection drug users conceptualized themselves as change agents through the identity of peer mentor at and across the three related domains of individual, interpersonal, and community-level change. The researchers conducted a qualitative analysis of in-depth post-intervention interviews with 68 HIV positive heterosexually active IDUs who participated in the Intervention for Seropositive Injectors –Research and Evaluation (INSPIRE) study. INSPIRE was a randomized controlled trial of a 10-session peer mentoring intervention, designed to assess the four primary outcomes of sexual risk, injection-related risk, use of HIV care, and adherence to HIV medications (Tracy & Wallace, 2016). Eligibility criteria included having had an opposite-sex partner in the 3 months prior to the study and having injected in the 12 months prior to the study. Based

on a harm reduction framework, participants in the intervention were trained to discuss: (a) safer sex, (b) drug use, (c) medical care and adherence to medications with their peers; (d) disclosure of HIV serostatus; and (e) to address consistent condom use, sterile needle use, or other risk reduction strategies as appropriate (Mackenzie et al., 2012). Many participants described that the most significant form of personal change that they experienced in relation to peer mentoring was coming to greater acceptance of their HIV status (Mackenzie et al., 2012). Participants took seriously the potential impact of their peer mentoring, understanding it in terms of HIV prevention through their ability to bring their shared experience and knowledge to helping others with disclosure, identifying needed health and social services, and managing drug use and sexual risk. A limitation of this study is that the data were collected between 1 and 2 years after the end of the study, likely affecting participants' ability to recall details and specific events related to peer mentoring (Mackenzie et al., 2012). These discussions of peer mentoring may reflect only the most profound and lasting effects of this peer mentoring intervention. These findings provide support for continued development of and research on sustained, peer-driven mentoring programs for HIV prevention among HIV-positive IDUs as one mechanism for creating change in the conjoined individual, social, and structural context in which IDUs continue to be vulnerable to HIV/AIDS.

Summary of Literature Review

In this literature review chapter, I presented various prominent themes that were obtained from published literature. This research study was designed to study substance use/mental health problems and the difference by race, gender, and sexual orientation. In

the literature review, I explored the SEM (McCormack et al., 2017) in relation to how African American MSM with HIV coping with the virus while battling factors that contribute to substance use/mental health problems. It also dived into the substance use/mental health problems by race, gender, and sexual orientation among HIV-infected individuals. Participants of these peer groups described how such involvement would improve the quality of their relationships and their family systems' shift toward improved health behavior decision-making; how supporters' involvement in the health care context in particular would facilitate the flow of medical communication both between and among health care providers, patients, and informal caregivers; and ultimately, how such involvement would lead to improved treatment outcomes.

Despite growing scholarship on substance use/mental health, there remains a dearth of information on the difference in substance use/mental health problems, measured by illicit drug use/binge drinking/depression differs by race, gender, and sexual orientation among HIV-infected individuals. This gap in the literature is concerning given the hyperendemic within African American MSM communities and the subsequent likelihood that HIV positive African Americans MSM are supported by or are supporting other HIV positive individuals. I believe a better understanding of the problems and the nature of informal social support provided in response to these problems' HIV positive African Americans experience in contemporary United States is critical to develop effective and culturally relevant support interventions. By focusing on HIV positive African American individuals who participated in the peer group intervention, were able to examine support that HIV positive individuals desired from and provided to each

other, as well as support desired and received from agency or center program staff. The research aimed at filling a gap of the substance use/mental health problems by race, gender, and sexual orientation among HIV-infected individuals. Chapter 3 provides a detailed explanation of analytical procedures conducted to explore this study.

Chapter 3: Research Method

Introduction

The purpose of this study was to examine if substance use/mental health problems differ by race, gender, and sexual orientation among HIV-infected individuals. The exploration of HIV related substance use/mental health problems was conducted while discovering barriers to receiving and staying in care, such as participants' relationship with care providers, stigma, recent drug use, and mental health. I also examined the association in the appointments missed for HIV related medical care by perceived discrimination when receiving HIV medical care, race, sexual orientation, and gender. In this chapter, I will describe the study's research design and rationale for the design, methods of participant recruitment, criteria for participants' recruitment, ethical procedures used to safeguard all participants' information, data collection procedure, and my role as a researcher.

Research Design

In this study, I used quantitative secondary data with a cross sectional research design to examine if substance use/mental health problems in comparison with other race, gender, and sexual orientation. Quantitative research describes variables, tests relationships between them, and examines cause and effect associations between variables (Burns et al., 2015). Quantitative research generates numerical data, is predominantly informed by positivist or postpositivist paradigms, and is underpinned by several assumptions (Davies & Fisher, 2018). These include, among others, the belief in a single truth or reality, objectivity, and deduction. As such, quantitative research seeks to

find the true answer by testing hypotheses using objective and impartial scientific methods (Davies & Fisher, 2018).

To understand the differences in substance use/mental health problems by race, gender and sexual orientation, a secondary data analysis from a cross sectional study was conducted. This study used data collected from the Positive Connections: Connecting HIV-Infected Patients to Care of 2010 (Bradford, 2010) to answer the proposed research questions. The Positive Connections study conducted an intervention linking near peer interventionists with underserved HIV-infected individuals. The study sample included 96 low-income people living with HIV/AIDS (PLWHA). Participants in this study included MSM, heterosexuals, lesbians, and other individuals infected with HIV/AIDS. The survey respondents reported that their greatest perceived barriers to care were personal, structural, and financial (Coleman et al., 2010). The inclusion criteria for the study were: (a) gay, bisexual, or heterosexual individuals with HIV/AIDS, (b) were 18 years old or older, and (c) were not incarcerated at the time of the study. The Positive Connections study data were collected by ways of various methods that included agency sponsored surveys and clinical records. All data collection was approved by the Institutional Review Board. Participants' information was collected by face-to-face interviews, telephone interviews, record abstracts mail questionnaires, and on-site questionnaires.

The original research study, Positive Connections, tested the Health Systems Navigation (HSN) model, an intervention linking near peer interventionists with underserved HIV-infected individuals to assist them to become engaged and retained in

HIV medical care through supportive services and facilitated referrals (Bradford, 2010). Working with a core group of local AIDS service organizations to identify unstable and out of care HIV positive individuals, the HSN enrolled and provided health system navigation to participants. The principal goal was to enhance the probability that individuals from historically underserved populations would become engaged and retained in high quality, culturally competent HIV care. The theoretical basis for this intervention included individual behavior change models, social and community networks, and provider cultural competence. The original project also sought to improve the understanding and the measurement of health care access problems by seeking to determine which problems have indicators and which do not, and to identify steps that can be taken to develop a reliable access monitoring system (Bradford, 2010). The concept of HSN was developed by the Multicultural AIDS Coalition. Health navigators are behavioral health peers, paraprofessionals, and professionals who are trained to help people with a serious mental illness self-manage their physical healthcare and wellness needs (Corrigan et al., 2014). The intervention is based on a behavioral model of health service for vulnerable populations that has been adapted for people with serious mental illness and emphasizes the recovery model. A trained health navigator can make a meaningful difference in the lives of people with serious mental illness. Trained health navigators implement the intervention's three-tier approach that includes: (a) integrating different systems of care, (b) educating consumers about health care and self-care, and (c) building cognitive and behavioral skills that promote healthy lifestyles and improve health outcomes (Corrigan et al., 2014).

There have been very few publications using the Positive Connections dataset. Ferguson (2017) used the Positive Connections dataset to explore the impact of social capital on the Health-related quality of life (HRQoL) of underrepresented populations with HIV/AIDS. It measures three proposed proxies for social capital: (a) provider engagement, (b) socioeconomic status (SES), and (c) HIV/AIDS stigma and investigates their effects on HRQoL using the indicators of overall health, mental health, and HIV/AIDS care. It also measures covariates that have been tied to HRQoL among low-income, underserved PLWHA, such as race, sexual orientation, gender, and substance abuse. Using logistic regression models, the researcher explored provider engagement, SES, HIV/AIDS stigma, and their impact on HRQoL (measured by overall health, mental health and HIV/AIDS care) with the covariates of race, gender, sexual orientation, and substance abuse (Ferguson, 2017). The results show that provider engagement is a significant predictor of HIV/AIDS care, meaning that a person's likelihood of getting HIV/AIDS care, but not the person's overall or mental health, is related to provider engagement. The selection of this research design was based on critical details. Unlike other studies that focused on PLWHA, Positive Connections contained a sample of underrepresented PLWHA and addressed the problems that these individuals face in their daily lives while coping with HIV/AIDS. Underrepresented PLWHA consists of MSM, IDUs, and ethnic and racial minorities, African Americans, Asians, Hispanics/Latinos, Native Americans, and other Pacific islanders (Corbie-smith et al., 2012). In the Positive Connections study, such problems included stigma, low SES, lack of access to durable social networks, a high dropout rate from HIV/AIDS treatment, a tendency to miss

follow-up appointments, impediments to receiving care, and financial barriers that prevented PLWHA from accessing high-quality healthcare. The original researchers posited that it was important for HIV/AIDS patients to engage in follow-up care in order to experience an improved quality of life.

A cross sectional research design was used to analyze the research questions. Cross-sectional studies are observational studies that analyze data from a population at a single point in time (Wang & Kattan, 2020). They are often used to measure the prevalence of health outcomes, understand determinants of health, and describe features of a population. The cross-sectional research design explored whether substance use/mental health problems, measured by illicit drug use/binge drinking/depression differs by race, gender, and sexual orientation among HIV-infected individuals. Lastly, the research design determined the difference in appointments missed for HIV related medical care by perceived discrimination when receiving HIV medical care, race, sexual orientation, and gender, among HIV-infected individuals. A cross sectional design was appropriate for this study because it is a type of observational research that analyzes data of variables collected at one given point in time across a sample population or a pre-defined subset (Setia, 2016). This study type is also known as cross sectional analysis, transverse study, or prevalence study. Although cross sectional research does not involve conducting experiments, researchers often use it to understand outcomes.

Population

In this study, I requested authorization for the Positive Connections project database which was conducted at the Ann Arbor, Michigan: Inter-university Consortium

for Political and Social Research. Positive Connections tested the HSN model, an intervention linking near peer interventionists with underserved HIV-infected individuals to assist them to become engaged and retained in HIV medical care through supportive services and facilitated referrals (Bradford, 2010). In order to accomplish this task, the entire dataset was obtained which consisted of 103 HIV-infected individuals. Eligible participants for the study consisted of HIV-infected persons 18 years old and older who are identified by local HIV/AIDS service organizations as unstable and out of care HIV positive individuals. Participants were referred and recruited into the study through community based organizations that provide services to people living with HIV. The original study was primarily interested in HIV-infected people who were unstable and out of care.

Inclusion and Exclusion Criteria

The population for the study included agency-sponsored surveys, clinical records of gay, bisexual, or heterosexual individuals with HIV/AIDS, 18 years old or older, and were not incarcerated at the time of the study. I excluded cases with over 25% of the missing values.

Sample size

The study sample size was established by conducting an a priori analysis using G*Power version 3.1.9.7 statistical software. The power analysis was carried out to determine the sample size with the following parameters of the G* Power software: The Z test, logistic regression statistical test, binomial distribution, power of .8, alpha level of

.05, and effect size as odds ratio of 3. Based on the results of the analysis, 96 participants were the minimum number of subjects needed for this study to yield significant results.

Data access and collection process

The dataset used for the purpose of this study is available from The Inter-university Consortium for Political and Social Research (ICPSR) to conduct the proposed research. The ICPSR advances and expands social and behavioral research. It serves as a global leader in data stewardship and providing rich data resources and responsive educational opportunities for present and future generations. The dataset was downloaded and was analyzed using the IBM Statistical Package for the Social Sciences (SPSS) Statistic version 25 software. An account was created with ICPSR to gain access to the dataset and permission to utilize it in my research after agreeing to abide by the guidelines for using the data.

Dependent Variables

The dependent variables of this study were as follows:

1. Appointments missed for HIV related medical care was defined as a categorical variable that was determined by participants' response to the question, In the last 6 months, how many appointments for HIV-related medical care did you miss? Depending on the responses, responses were either be classified as "zero" vs. "once or more."
2. Substance use/mental health problems were derived from questions on illicit drug use or binge drinking, and depression using the follow steps.

a. Illicit drug use or binge drinking was defined as a categorical variable that was determined by participants' response to the question, any illicit drug use or binge drinking over last 6 months? Responses were yes or no.
b. Depression was defined as a categorical variable that was determined by participants' response to the question, have you felt downhearted and depressed? Depending on the responses, responses were either be classified as all the time; most of the time; some of the time; a little of the time; none of the time.
c. Depression variable was recoded as Depression2. Responses were defined as 1= as all the time; most of the time; some of the time and 2 = a little of the time; none of the time.
d. The substance use/mental health problems nominal variable was created by combing illicit drug use or binge drinking and depression2 which answered participants' response to the question, any illicit drug use or binge drinking over last 6 months and have you felt downhearted and depressed? Responses were defined as 1= yes/as all the time; most of the time; some of the time and 2 = no/a little of the time; none of the time.

Independent Variables

The independent variables in this study were as follows:

1. Gender was defined as either male, female, or transgender. This was determined by participants' responses to the question, what do you consider your gender to be?
2. Race was defined as a grouped variable. Categories were White; Black or African American; Asian; Native Hawaiian or Pacific Islander; Native American or Alaskan Native; more than one race; other. This was determined by asking the question, what is your race/ethnicity?
3. Perceived discrimination: perceived discrimination when receiving HIV medical care is a categorical variable with response of yes; no; don't know. This came from the original the question, "In the past six months, did you ever experience discrimination when you went to get HIV medical care?
4. Sexual orientation of respondents was defined as a grouped variable i.e. heterosexual/straight; homosexual/gay; homosexual/lesbian; bisexual; other; prefer not to identify. This was determined by asking the question, what do you consider to be your sexual orientation?
5. Substance use/mental health problems was derived from questions on illicit drug use or binge drinking, and depression using the follow steps.
    a. Illicit drug use or binge drinking was defined as a categorical variable that was determined by participants' response to the question, any illicit drug use or binge drinking over last 6 months? Responses were yes or no.

b. Depression was defined as a categorical variable that was determined by participants' response to the question, have you felt downhearted and depressed? Depending on the responses, responses would either be classified as all the time; most of the time; some of the time; a little of the time; none of the time.
c. Depression variable was recoded as Depression2. Responses were defined as 1= as all the time; most of the time; some of the time and 2 = a little of the time; none of the time.
d. The substance use/mental health problems nominal variable were created by combining illicit drug use or binge drinking and depression2 which answered participants' response to the question, any illicit drug use or binge drinking over last 6 months and have you felt downhearted and depressed? Responses were defined as 1= Yes/as all the time; most of the time; some of the time and 2 = No/a little of the time; none of the time.

Data Analysis Plan

In this quantitative study, I used secondary data sourced from respondents who met the inclusion criteria, through a structured question questionnaire. The dataset was downloaded and analyzed using the IBM SPSS Statistic version 25 software. I employed quantitative data analysis methodology: (a) descriptive statistics to describe the characteristics of the study population and (b) logistic regression and chi square.

Research Questions

RQ1: Does substance use/mental health problems, measured by illicit drug use/binge drinking/depression differ by race, gender, and sexual orientation among HIV-infected individuals?

$H_0$1: Substance use/mental health problems, measured by illicit drug use/binge drinking/depression does not differ by race, gender, and sexual orientation, HIV-infected individuals.

H_a1: Substance use/ mental health problems, measured by illicit drug use/binge drinking/depression differs by race, gender, and sexual orientation among HIV-infected individuals.

RQ2: Is there an association between substance use/ mental health problems, measured by illicit drug use/binge drinking/depression and perceived discrimination when receiving HIV medical care, race, sexual orientation, and gender among HIV-infected individuals?

$H_0$2: There is no association between substance use/ mental health problems, measured by illicit drug use/binge drinking/depression and perceived discrimination when receiving HIV medical care, race, sexual orientation, and gender among HIV-infected individuals.

H_a2: There is an association between substance use/ mental health problems, measured by illicit drug use/binge drinking/depression and perceived discrimination when receiving HIV medical care, race, sexual orientation, and gender among HIV-infected individuals.

RQ3: Is there an association between appointments missed for HIV-related medical care and perceived discrimination, race, sexual orientation, and gender, among HIV-infected individuals?

$H_0$3: There is no difference in appointments missed for HIV-related medical care and perceived discrimination, race, sexual orientation, and gender, among HIV-infected individuals.

H_a3: There is a difference in appointments missed for HIV-related medical care and perceived discrimination, race, sexual orientation, and gender, among HIV-infected individuals.

Statistical Tests and Results Interpretation

Descriptive statistics analysis was conducted to describe the characteristics of the study population. Descriptive statistics are utilized to understand the study population and comparability between the study groups. Descriptive statistics, unlike inferential statistics, seek to describe the data, but do not attempt to make inferences from the sample to the whole population (Narkhede, 2018). Descriptive statistics were used to provide the standard deviations, means, ranges and frequencies of demographic variables including gender, ethnicity and sexual orientation.

Research Question 1 Data Analysis

A multiple binary logistic regression was conducted to test whether substance use/mental health problems, measured by illicit drug use/binge drinking/depression differs by race, gender, and sexual orientation among HIV-infected individuals.

Research Question 2 Data Analysis

A multiple binary logistic regression analysis was conducted to determine if there is an association between substance use/ mental health problems measured by illicit drug use/binge drinking/depression and perceived discrimination when receiving HIV medical care, race, sexual orientation, and gender among HIV-infected individuals. .

Research Question 3 Data Analysis

A binary logistic regression was conducted to determine if there is an association between appointments missed for HIV related medical care and perceived discrimination, race, sexual orientation, and gender among HIV-infected individuals.

Ethical Procedures

Institutional Review Board (IRB) approval from Walden University was obtained prior to any formal data analysis for the purpose of this study. The dataset was retrieved from ICPSR data that the public has free access to. The dataset did not contain any personal identifiers and was provided in the SPSS format ready for analysis. This dataset was saved to a USB drive and secured, only accessible by the investigator. Once analyses were completed, the database was returned, and further use will require additional authorizations. All analyses and reporting of information were presented in a comprehensive and table format to ensure confidentiality of participants.

During data collection of the original research, participants completed an informed consent form the relevant IRB approval. ICPSR accepts data with identifying information under conditions consistent with the informed consent of the study participants and the relevant IRB approval. ICPSR staff work with data depositors to

address disclosure risks. Once data are deposited with ICPSR, staff employ stringent procedures to protect the confidentiality of individuals and organizations whose personal information may be part of the archived data collection. However, ICPSR data undergo a confidentiality review and are altered when necessary to limit the risk of disclosure. ICPSR also routinely creates ready-to-go data files along with setups in the major statistical software formats as well as standard codebooks to accompany the data.

Summary

In Chapter 3, I defined the methodology of this research study. The research study design and sampling procedures used to collect data were explained in detail. Different statistical analysis methods that were used to test the research questions and the hypotheses were explored. In this chapter, I also explained how the study survey questionnaire was developed and how each question would be measured. Furthermore, in this chapter, I described ethical procedures and informed consent forms that were used to avoid ethical dilemma. Moreover, I also discussed data management and security. In Chapter 4, I will present the results of data analyses obtained using SPSS software and describe these in detail.

Chapter 4: Results

Introduction

Chapter 4 describes the results of this quantitative epidemiological study using secondary data. The purpose of this study was to examine the differences in substance use and mental health problems by race, gender, and sexual orientation among HIV-infected individuals. I designed this study to assess whether substance use and mental health problems, measured by illicit drug use/binge drinking/depression differs by race, gender, and sexual orientation among HIV-infected individuals. I also looked at the association between participants' substance use/mental health problems measured by illicit drug use/binge drinking/depression and responses to perceived discrimination when receiving HIV medical care and appointments missed for HIV-related medical care. This study was guided by three research questions:

1. Do substance use/mental health problems, measured by illicit drug use/binge drinking/depression differ by race, gender, and sexual orientation among HIV-infected individuals?
2. Is there an association between substance use/mental health problems, measured by illicit drug use/binge drinking/depression and perceived discrimination when receiving HIV medical care, race, sexual orientation, and gender among HIV-infected individuals?
3. Is there an association between the number of appointments missed for HIV-related medical care and perceived discrimination, race, sexual orientation, and gender, among HIV-infected individuals?

In this chapter, I will describe the data-coding and analysis process. The chapter includes sections on how I gained access to the secondary data, followed by the section on results, which include descriptive and inferential statistics of the variables evaluated in this study. I answered the research question using a quantitative analytic method through binary logistic regression models. The results of this study provides much needed insights into substance use and mental health problems differing by race, gender, and sexual orientation among HIV-infected individuals. I also examined the association of the perceived discrimination experience of HIV-infected individuals by measuring appointments missed for HIV-related medical care and create awareness for this issue.

Data Access

Upon Walden University IRB approval to gain access to the data, the Positive Connections secondary dataset was accessed and downloaded from ICPSR website and analyzed in SPSS. Data access and analysis for this study only started when I received approval to carry out this study by Walden University's IRB. The Walden University's IRB approval number for the study is 12-09-20-0519832. I formatted the data to ensure consistency and participant confidentiality using codes to label respondent information as described in Chapter 3.

Missing data and data cleaning

Since missing data reduces the power of a study, subjects with missing data, identified as blank spaces and coded as missing values, were removed from the final sample through listwise deletion. Fractional consideration, calculated as proportion of missing data in a variable, was applied, excluding variables with more than 25% of these

missing values from the analysis to avoid the introduction of bias and to draw unreliable conclusions of associations between dependent and independent variables (see Madley-Dowd et al., 2019). The process of coding the variables and excluding the missing data, allows for restriction to the cases that responded to all the relevant questions. This is known as complete data analysis, which would allow generation of reliable estimates.

Study Results

In this cross-sectional study, after listwise deletion of seven subjects with missing values from the original data set (N=103), the sample size was 96 HIV-infected persons 18 years old and older who are identified by local HIV/AIDS service organizations as unstable and out of care HIV-positive individuals, representing 94% of the original sample. The characteristics of the study participants are presented in Table 1. Results of descriptive statistics and multiple logistic regressions were presented for each research question. Further, an Ad hoc analysis was then conducted after excluding the two subjects in the transgender population.

Table 1

Demographic Characteristics of Study Participants

Demographic	Frequency	Percent
Sexual orientation	58	6.4
Heterosexual	29	3.2
Homosexual/gay	9	9.4
Bisexual		
Gender		
Female	28	29.2
Male	66	68.8
Transgender	2	2.1
Race		
White	41	42.7
Black	28	29.2
Other	27	28.1
Perceived discrimination		
No	85	88.5
Yes	11	11.5
Appointments missed		
No	40	41.7
Yes	56	58.3
Substance use and mental health problems		
No	65	67.7
Yes	31	32.3
Total	96	100

As shown in Table 1, participant sexual orientation was skewed with majority of the subjects (60%) being heterosexuals. There was poor gender representation with only two (2.1%) transgender subjects in the sampled population. Racial representation was relatively equal with slight differences in subject population across the three ethnic categories adopted in the study. Overall, most participants (*n*=56) indicated having missed their treatment appointments, with a small proportion (32.2%) reporting mental health challenges and substance use.

RQ1: Do substance use and mental health problems measured by illicit drug use/binge drinking/depression differ by race, gender, and sexual orientation among HIV-infected individuals?

Table 2

Cross-Tabulation with Chi-Square test for Race, Gender, Sexual Orientation and Substance Use/Mental Health Problems

Variable	Outcome *N* (%)		Sig.
	Yes	No	
Gender			.893
Female	26 (92.9)	2 (7.1)	
Male	62 (93.9)	4 (6.1)	
Transgender	2 (100)	0	
Race			.912
White	39 (95.1)	2 (4.9)	
Black	26 (92.9)	2 (7.1)	
Other	25 (92.6)	2 (7.4)	
Sexual orientation			.412
Heterosexual	56 (96.6)	2 (3.4)	
Homosexual/Gay	26 (89.7)	3 (1.3)	
Bisexual/Other	8 (88.9)	1 (11.1)	

In examining the association between the different independent variables and substance use/mental health problems, the chi-square results show no association between gender (p=.893), race (p=.912), and sexual orientation (p =.412) with substance use/mental health problem. These findings suggest that patient's gender, race, and sexual orientation have no statistically significant influence on substance use and mental health problems among HIV patients.

Multiple Logistic Regressions

I conducted multiple logistic regressions to test the association between independent variables and dependent variables. The results for when each independent variable was considered are shown in Table 3.

Table 3

Multiple Analysis-Logistic Regression (Substance Use and Mental Health Problems)

							95% CI for Exp (B)	
	B	S.E.	Wald	df	Sig	Exp(B)	Lower	Upper
Gender								
Female			1.121	2	.571	1.107		
Male	.102	.576	.031	1	.86	7.035	.358	3.427
Transgender	1.951	1.843	1.12	1	.29		.19	26.754
Race								
White			.094	2	.954			
Black	.13	.549	.056	1	.813	1.139	.388	3.337
Other	-.047	.572	.007	1	.935	.954	.311	2.93
Sexual orientation								
Heterosexual			2.623	2				
Homosexual/Gay	.711	.558	1.622	1	.203	2.035	.682	6.074
Bisexual	-.882	1.139	.6	1	.439	.414	.044	3.858
Constant	-1.045	.535	3.814	1	.051	.352		

Multiple logistic regression was conducted to assess if substance use and mental health problems differ by race, gender, and sexual orientation among HIV-infected individuals. The full model, containing all the predictor variables, was not significant ($X2$, n=96 = 4.175, p>.05), indicating no overall effect of race, gender, and sexual orientation on substance use and mental health problems among HIV-infected individuals.

Gender: The odds of substance use and mental health problems among HIV-infected individuals differed on gender categories. The odds of substance use and mental health problems among males and transgender are 1.107 and 7.035 times greater than for females. However, these values were not statistically significant, as reflected by the *p*-values greater than .05 and confidence intervals that cover 1. These findings suggest gender was not statistically significantly associated with substance use and mental health problems, adjusting for race and sexual orientation. However, the wide confidence interval for the transgender category, owing to its small sample size, indicates the impreciseness of the estimate associated with its limited power to detect any effect suggesting the uncertainty of the results to explain the relationship.

Race: The odds of substance use and mental health problems among HIV-infected individuals differed with the racial group. Blacks are 1.139 times more likely to engage in substance use and experience mental health problems than White. Other racial groups are less likely (odds = .954) than Whites to engage in substance use and experience mental health problems. However, these values were not statistically significant, as reflected by

the *p*-values greater than .05 and confidence intervals that cover 1. These findings indicate that race was not statistically significantly associated with substance use and mental health problems, adjusting for gender and sexual orientation.

Sexual orientation: The odds of substance use and mental health problems among HIV-infected individuals varied on sexual orientation. Homosexuals/gays are 2.035 times more likely to engage in substance use and experience mental health problems than heterosexuals. Bisexuals/others are .414 times less likely to engage in substance use and experience mental health problems than heterosexuals. However, these were not statistically significant, as reflected by the *p*-values greater than .05 and confidence intervals that cover 1. The findings indicate that sexual orientation was not statistically significantly associated with substance use and mental health problems, adjusting for race and gender.

RQ2: Is there an association between substance use problems measured by illicit drug use/binge drinking/depression and perceived discrimination when receiving HIV medical care, race, sexual orientation, and gender among HIV-infected individuals?

Table 4

Cross-Tabulation with Chi-Square test for Race, Gender, Sexual Orientation, Perceived Discrimination and Substance Use/Mental Health Problems

Variable	Outcome *N* (%)		Sig.
	Yes	No	
Gender			.57
Female	5 (17.9)	23 (82.1)	
Male	7 (1.6)	59 (89.4)	
Transgender	0	2 (100)	
Race			.632
White	6 (14.6)	35 (85.4)	
Black	2 (7.1)	26 (92.9)	
Other	4 (14.8)	23 (85.2)	
Sexual orientation			.444
Heterosexual	8 (13.8)	50 (86.2)	
Homosexual/Gay	2 (6.9)	27 (93.1)	
Bisexual/Other	2 (22.2)	7 (77.8)	
Perceived discrimination	11 (11.5)	85 (88.5)	.354

In assessing the relationship between substance use/mental health problems and perceived discrimination when receiving HIV medical care for race, sexual orientation, and gender among HIV-infected individuals, the results show no statistically significant association between the variables. The analysis shows that gender (p=.57), race (p=.632), and sexual orientation (.444) had no association with perceived discrimination. Also, perceived discrimination (.354) did not influence substance use/mental health problems. These findings suggest that a patient's race, sexual orientation, and gender do not influence perceived discrimination when receiving HIV medical care. Neither does perceive discrimination influence substance use/mental health problems.

Table 5

Multiple Analysis-Logistic Regression (Substance Use/ Mental Health Problems and Perceived Discrimination)

							95% CI for Exp(B)	
	B	S.E.	Wald	df	Sig.	Exp	Lower	Upper
Gender								
Female			.913	2	.634	1.109	.356	3.456
Male	.103	.58	.032	1	.859	5.893	.155	224.27
Transgender	1.774	1.857	.913	1	.339			
Race								
White			.54	2	.973			
Black	.081	.555	.021	1	.883	1.085	.366	3.218
Other	-.059	.578	.01	1	.919	.943	.303	2.929
Sexual orientation								
Heterosexual			2.235	1	.327			
Homosexual/Gay	.679	.566	1.438	1	.23	1.972	.65	5.98
Bisexual/ Other	-.785	1.148	.468	1	.494	.456	.048	4.33
Perceived discrimination	-.654	.836	.612	1	.434	.520	.101	2.677
Constant	-.959	.543	3.114	1	.078	.383		

Multiple logistic regression was conducted to assess the association between substance use/mental health problems and perceived discrimination when receiving HIV medical care for race, sexual orientation, and gender among HIV-infected individual.

Gender: The odds of perceived discrimination among HIV-infected individuals differed on gender categories. The odds of perceived discrimination among males and transgender were 1.109 and 5.893 times greater than for females. However, these values were not statistically significant, as reflected by the *p*-values greater than .05 and confidence intervals that cover 1. These findings suggest gender was not statistically significantly associated with perceived discrimination, adjusting for race and sexual orientation. However, the wide confidence interval for transgender suggests the

uncertainty of the results to explain the relationship, owing to its small sample size's limited power to detect any effect.

Race: The odds of perceived discrimination among HIV-infected individuals differed on the racial group, with Blacks 1.085 times more likely to perceive discrimination than Whites. Other racial groups are less likely (odds = .943) than Whites to perceive discrimination. However, these values were not statistically significant, as reflected by the *p*-values greater than .05 and confidence intervals that cover 1. These findings indicate that race was not statistically significantly associated with perceived discrimination, adjusting for gender and sexual orientation.

Sexual orientation: The odds of perceived discrimination among HIV-infected individuals differed with sexual orientation. Homosexuals/gays are 1.972 times more likely to perceive discrimination than heterosexuals. Bisexuals/others are .456 times less likely to perceive discrimination than heterosexuals. However, these were not statistically significant, as reflected by the *p*-values greater than .05 and confidence intervals that cover 1. The findings indicate that sexual orientation was not statistically significantly associated with perceived discrimination, adjusting for race and gender.

Perceived discrimination: Perceived discrimination was not a predictor of substance use problems among HIV-infected individuals. The relationship was not statistically significant, as reflected by the *p*-values greater than .05 and confidence intervals that cover 1. These findings suggest that the substance use problem was not statistically significantly associated with perceived discrimination, adjusting for gender, race, and sexual orientation.

The full model, containing all the predictor variables, was not significant (X^2, n= 96) = 4.847, p>.05), indicating no overall effect of race, gender, sexual orientation, and perceived discrimination when receiving HIV medical care on substance use/mental health problems.

RQ 3: Is there an association between appointments missed for HIV related medical care and perceived discrimination, race, sexual orientation, and gender among HIV-infected individuals?

Table 6

Cross-Tabulation with Chi-Square Test for Race, Gender, Sexual Orientation, Perceived Discrimination and missed appointments

Variable	Outcome *N* (%)		Sig.
	Yes	No	
Gender			.871
Female	17 (6.7)	11 (39.3)	
Male	37 (56.1)	29 (43.9)	
Transgender	1(5)	1 (5)	
Race			.109
White	19(46.3)	22 (53.7)	
Black	17 (6.7)	11 (39.3)	
Other	19 (7.4)	8 (29.6)	
Sexual Orientation			.067
Heterosexual	39 (67.2)	19 (32.8)	
Homosexual/Gay	13 (44.8)	16 (55.2)	
Bisexual/Other	4 (44.4)	5 (55.6)	
Perceived discrimination	11 (11.5)	85 (88.5)	.787

In assessing the relationship between patient race, gender, sexual orientation, perceived discrimination, and missed appointments among HIV-infected individuals, the results show no statistically significant relationship between the variables. The analysis

shows that gender (p=.871), race (p=.109), sexual orientation (.067), and perceived discrimination (p=.787) had no association with missed appointments for HIV related medical care. These findings suggest that patient's race, sexual orientation, and gender do not influence missed appointments for HIV related medical care.

Table 7

Multiple Analysis-Logistic Regression (Appointments Missed)

							95% CI for Exp(B)	
	B	S.E.	Wald	df	Sig.	Exp(B)	Lower	Upper
Gender								
Female			.056	2	.97			
Male	.129	.546	.056	1	.81	1.138	.391	3.315
Transgender	22.187	27865	.0	1	.99	4473.646	0	
Race								
White			2.869	2	.238			
Black	.624	.533	1.368	1	.242	1.866	.656	5.3
Other	.899	.572	2.474	1	.116	2.458	.801	7.539
Sexual orientation								
Heterosexual			3.913	2	.141			
Homosexual/Gay	-.761	.551	1.907	1	.167	.467	.159	1.376
Bisexual/Other		.926	2698	1	.1	.219	.036	1.341
Perceived discrimination	.013	.69	0	1	.985	1.013	.262	3.92
Constant	.145	.505	.082	1	.774	1.157		

Model coefficient n=96 X^2=11.823 p value = .107

a. Variable(s) entered on step 1: Gender2, RACE, SexOrientation, Perdiscrim.

Multiple logistic regression was conducted to assess the association between appointments missed for HIV related medical care and perceived discrimination, race, sexual orientation, and gender among HIV-infected individuals.

Gender: The odds of appointments missed among HIV-infected individuals differed on gender categories. The odds of appointments missed among males are 1.138 greater than for females and over 100 times for transgender. However, these values were not statistically significant, as reflected by the *p*-values greater than .05 and confidence intervals that cover 1. These findings suggest gender was not statistically significantly associated with appointments missed, adjusting for race, sexual orientation, and perceived discrimination. However, the wide confidence interval for transgender suggests the uncertainty of the results to explain the relationship, owing to its small sample size's limited power to detect any effect.

Race: The odds of appointments missed among HIV-infected individuals differed on race category, with Blacks and other racial groups being1.866 and 2.458 times more likely than Whites to have appointments missed. However, these values were not statistically significant, as reflected by the *p*-values greater than .05 and confidence intervals that cover 1. These findings indicate that race was not statistically significantly associated with missed appointments, adjusting for gender, sexual orientation, and perceived discrimination.

Sexual orientation: The odds of appointments missed among HIV-infected individuals differed on sexual orientation. Homosexuals/gays and bisexuals/others are

.467 and .219 times less likely to have appointments missed than heterosexuals. However, these were not statistically significant, as reflected by the *p*-values greater than .05 and confidence intervals that cover 1. The findings indicate that sexual orientation was not statistically significantly associated with appointments missed, adjusting for race, gender, and perceived discrimination.

Perceived discrimination: Perceived discrimination was not a predictor of missed appointments among HIV-infected individuals. The relationship was not statistically significant, as reflected by the *p*-values greater than .05 and confidence intervals that cover 1. These findings suggest that perceived discrimination was not statistically significantly associated with missed appointments, adjusting for gender, race, and sexual orientation.

The full model, containing all the predictor variables was not significant, (X^2, n= 96) = 11.823, p>.05), indicating that there is no association between race, gender, sexual orientation, and perceived discrimination when receiving HIV medical care on appointments missed.

Ad Hoc Analysis

None of the independent variables influenced HIV patients' outcomes, substance use/mental health problems, perceived discrimination, and missed appointments in the above analyses. These observations may be explained by the small and imbalanced sample size apparent in the transgender category (Leppink et al., 2016). This variable category's impact on the analysis is evident from the large error margin in the estimated confidence intervals. The error margins in the multivariate analysis are considerably more

significant than the desired margin of error (e = .05) indicated in sample size determination. In addressing this concern, the transgender subjects were removed from the analysis. This action's justification is that their inclusion negatively affects the estimated effect sizes (Nakagawa & Cuthill, 2007). The wide confidence interval indicates the uncertainty of the results to explain the relationship, associated with the small sample size's limited power to detect any effect. This exclusion criterion resulted in a reduced sample size, n=94, used in ad hoc data analysis at a significance level of .05, 88% power, and effect size of ≈ .4.

RQ1: Do substance use and mental health problems measured by illicit drug use/binge drinking/depression differ by race, gender, and sexual orientation among HIV-infected individuals?

As shown in Table 8, the transgender exclusion affected race and sexual orientation categories. In the race category, the two transgender subjects were White and other ethnic groups. The two respondents shared similar sexual characteristics as bisexual respondents. The analysis shows an association between sexual orientation (p =.034) and substance use/ mental health problems. The chi-square results show no association between gender (p=.854), and race (p=.915) with substance use/ mental health problem. These findings suggest that only patient’s sexual orientation statistically significantly influenced on substance use and mental health problems among HIV patients.

Table 8

Cross-Tabulation with Chi-square Test for Race, Gender, Sexual Orientation and Substance Use/Mental Health Problems

Variable	Outcome N (%)		Sig.
	Yes	No	
Gender			.854
Female	26 (92.9)	2 (7.1)	
Male	62 (93.9)	4 (6.1)	
Race			.915
White	38 (95)	2 (5)	
Black	26 (92.9)	2 (7.1)	
Other	24 (92.3)	2 (7.7)	
Sexual orientation			.034
Heterosexual	56 (96.6)	2 (3.4)	
Homosexual/Gay	26 (89.7)	3 (1.3)	
Bisexual/Other	6 (85.7)	1 (14.3)	

Multiple Logistic Regressions

Multiple logistic regressions were conducted to assess the association of substance use/mental health problems, perceived discrimination, and missed appointments when receiving HIV medical care for race, sexual orientation, and gender among HIV-infected individuals. While correcting for the small transgender population effect, only sexual orientation was significantly associated with substance use and missed appointments.

Substance Use and Mental Health Problems

Table 9

Multiple Analysis-Logistic Regression (Substance Use/ Mental Health)

							95% CI for Exp(B)	
	B	S.E.	Wald	df	Sig.	Exp(B)	Lower	Upper
Gender								
Female			.0867	2	.648			
Male	-7.254	47.762	0	1	.999	0	0	
Race								
White			1.278	5	.937			
Black	1.294	1.145	1.276	1	.259	3.646	.386	34.394
Other	.675	1.121	.363	1	.547	1.965	.218	17.697
Sexual orientation								
Heterosexual			3.913	2	.141			
Homosexual/Gay	-.681	.316	3.907	1	.03	1.467	1.059	3.376
Bisexual/Other	-1.152	.226	2.698	1	.026	1.219	1.136	2.941
Constant	18.56	2047.762	0	1	.999	267.148		

a. Variable(s) entered on step 1: Gender, Race, SexOrient.

Multiple logistic regression was conducted to assess if substance use and mental health problems differ by race, gender, and sexual orientation among HIV-infected individuals. The small population size of the transgender group was eliminated in the analysis to correct the potential effect errors associated with the limited power to detect effect change.

Sexual orientation: The odds of substance use and mental health problems among HIV-infected individuals varied on sexual orientation ($p<.5$). Homosexuals/gays and bisexual were 1.467 and 1.219 times more likely to engage in substance use and

experience mental health problems than heterosexuals. This finding was statistically significant, as reflected by the *p*-values (*p*=.03; p=.026) and confidence intervals that do not cover 1. The findings indicate that sexual orientation was statistically significantly associated with substance use and mental health problems, adjusting for race and gender.

RQ2: Is there an association between substance use problems measured by illicit drug use/binge drinking/depression and perceived discrimination when receiving HIV medical care, race, sexual orientation, and gender among HIV-infected individuals?

The transgender exclusion affected the proportion of subjects who did not experience perceived discrimination while seeking healthcare (Table 10). These subjects' exclusion did not affect the association between race, gender, sexual orientation, and perceived discrimination (*p*>.5). The chi-square results show no association between gender (*p*=.361), race (*p*=.608), and sexual orientation (*p* =.322) with perceived discrimination. Additionally, the study did not find a relationship between perceived discrimination and substance use/mental health problems. These findings suggest that patient's gender, race, and sexual orientation have no statistically significant influence on perceived discrimination. Neither did perceived discrimination have a statistically significant effect on substance use and mental health problems among HIV patients.

Table 10

Cross-Tabulation with Chi-Square test for Race, Gender, Sexual Orientation, Perceived Discrimination and Substance Use/Mental Health Problems

Variable	Outcome N (%)		Sig.
	Yes	No	
Gender			.361
Female	5 (17.9)	23 (82.1)	
Male	7 (1.6)	59 (89.4)	
Race			.608
White	6 (15)	34 (85)	
Black	2 (7.1)	26 (92.9)	
Other	4 (15.4)	22 (84.6)	
Sexual Orientation			.322
Heterosexual	8 (13.8)	50 (86.2)	
Homosexual/Gay	2 (6.9)	27 (93.1)	
Bisexual/Other	2 (28.6)	5 (71.4)	
Perceived discrimination	11 (11.7)	83 (88.3)	.348

Substance Use/Mental Health Problems and Perceived Discrimination

After correcting for small sample size in the transgender category, the multiple logistic regression assessed whether there is an association between substance use/mental health problems and perceived discrimination when receiving HIV medical care, race, sexual orientation, and gender among HIV-infected individuals. The outcome showed no statistically significant association for any variable group ($p>.05$, CI cover 1). These findings suggest that the studied patient demographic characteristics have no statistically significant influence on perceived discrimination when seeking healthcare among HIV-infected individuals. Also, perceived discrimination (.995) did not influence substance use/mental health problems among the HIV patients. These findings suggest that a patient's race, sexual orientation, and gender do not influence perceived discrimination

when receiving HIV medical care. Neither does perceive discrimination influence substance use/mental health problems.

RQ3: Is there an association between appointments missed for HIV-related medical care and perceived discrimination, race, sexual orientation, and gender among HIV-infected individuals?

Table 11

Cross-Tabulation with Chi-Square Test for Race, Gender, Sexual Orientation, Perceived Discrimination and missed appointments

Variable	Outcome N (%)		Sig.
	Yes	No	
Gender			.676
Female	17 (6.7)	11 (39.3)	
Male	37 (56.1)	29 (43.9)	
Race			.072
White	18 (45)	22 (55)	
Black	17 (6.7)	11 (39.3)	
Other	19 (73.1)	7 (26.9)	
Sexual Orientation			.038
Heterosexual	39 (67.2)	19 (32.8)	
Homosexual/Gay	13 (44.8)	16 (55.2)	
Bisexual/Other	2 (28.6)	5 (71.4)	
Perceived discrimination	6 (6.4)	88 (93.6)	.836

Race (white and others), sexual orientation (bisexual/other subcategories), and perception of discrimination were proportionally affected by the transgender subject exclusion. In assessing the relationship between race, gender, sexual orientation, perceived discrimination, and missed appointments after the transgender exclusion, the results show an association between sexual orientation and missed appointments ($p<.5$). However, the findings show no association between gender ($p=.676$), race ($p=.072$), and

perceived discrimination (p=.836) with patients missing appointments. The results suggest that patient's gender, race, and sexual orientation have no statistically significant influence on perceived discrimination. However, patients missing appointments had a statistical association with their sexual characteristics.

Missed Appointments

Table 12

Multiple Analysis-Logistic Regression (Appointments Missed)

							95% CI for Exp(B)	
	B	S.E.	Wald	df	Sig.	Exp(B)	Lower	Upper
Gender	14.906		327.39	2	.998		.130	1.28
Female			1.394	1	.498			
Male (1)	-1.76	1.605	1.203	1	.273	.172	.007	3.997
Race	-1.294	1.145	1.276	3	.259	.274	.029	2.588
White			2.788	1	.733			
Black (1)	-.864	.642	1.812	1	.178	.421	.12	1.483
Other (2)	-.346	.673	.265	1	.607	.708	.189	2.645
Sexual orientation								
Heterosexual			3.913	2	.08			
Homosexual/Gay	-2.061	1.551	1.097	1	.021	1.277	1.159	3.376
Bisexual/Other	-1.52	.926	2.698	1	.018	1.319	1.036	4.341
Constant	-.258	.323	.637	1	.425	.773		

a. Variable(s) entered on step 1: Gender, Race, SexOrient.

Sexual orientation: The odds of appointments missed among HIV-infected individuals differed on sexual orientation (p<.05). Homosexuals/gays and bisexuals/others were 1.277 and 1.319 times more likely to have appointments missed than heterosexuals. This association was statistically significant at the p-value (p=.021; p=.018) and confidence intervals greater than1. The findings indicate that sexual

orientation was statistically significantly associated with appointments missed, adjusting for race, gender, and perceived discrimination.

Summary

In Chapter 4, I reported the results of the study. I presented the results in tables as well as describe the results. In this study, I investigated the substance use and mental health problems and if participants missed appointments and their predictors in a total sample of 96 individuals infected with HIV. I tested the association between four main predictor variables (gender, race, sexual orientation, and perceived discrimination), substance use/mental health problems, and missed appointments in binary multiple logistic regressions. None of the predictors produced statistically significant associations for substance use problems and missed appointments, respectively. However, these findings may have been associated with the small sample size in the transgender population. The wide confidence interval for the transgender category in the results suggests the findings' uncertainty explains the relationship, owing to the limited power to detect variable effects. After adjusting for the sampling bias, only sexual orientation was significantly associated with substance use/mental health problems and missed appointments. Therefore, based on the findings, I rejected the null hypotheses that there is no difference in substance use/mental health problems and missed appointments by gender, sexual orientation, and race. In effect, there is a significant difference in substance use/ mental health problems and missed appointments by sexual orientation. In Chapter 5, I will discuss the results and compare them to the literature in greater detail. It

will also discuss the study limitations, study implications, recommendations for future studies, and the study concluded.

Chapter 5: Discussion, Conclusions, and Recommendations

This research study was driven by the need to investigate differences in substance use/mental health problems and missed appointments by race, sex, and gender among individuals infected with HIV. The limited research available has shown that substance use and mental health problems are linked to poor health outcomes. At the same time, individuals with HIV are prone to experience higher rates of illness, frequent hospitalizations, and other stressors that greatly affect their health (Riggs et al., 2016).

I used the quantitative data from Positive Connections, a study with 96 individuals diagnosed with HIV. I exported all data from the ICPSR website to SPSS for data analysis. In this study, I used descriptive statistics to examine the population characteristics and the frequency distributions of all independent variables with the dependent variables. Additionally, I used multiple logistic regression to examine the differences in substance use/mental health problems and missed appointments by race, sex, and sexual orientation among individuals infected with HIV. I also conducted multiple logistic regression to test the association between each independent variable (race, gender, sexual orientation, and perceived discrimination) and substance use/mental health problems. I also conducted multiple logistic regression to test the association between the appointments missed for HIV related medical care, perceived discrimination, race, sexual orientation, and gender among HIV-infected individuals. Last, given the effects of small population size on the transgender category, I conducted an Ad hoc test using multiple logistic regressions after excluding the transgender subjects in gender category.

Interpretation of Findings

The study's first purpose was to investigate the differences in substance use/mental health problems by race, gender, and sexual orientation among HIV-infected individuals. The findings from the study showed that 32.3% of the total study population experienced substance use or mental health problems, which may be attributable to joint consideration of substance use and mental health problems as an outcome variable. This study's findings show high proportion of mental health problems among HIV patients similar to the findings from a study by Tsuyuki et al. (2017) conducted with PLWH in medical care in the United States. Although the two studies sampled similar target populations, limited geographical considerations in the Tsuyuki et al. study may have accounted for the difference in results. In their study, nearly half (48%) reported recent depressive, anxiety, or panic symptoms, and almost 40% used illicit drugs. Some characteristics found in Tsuyuki et al.'s study can apply to the sample population for this study with populations diagnosed with HIV differing by race, gender, and sexual orientation.

In the present study, a high proportion of HIV patients (58.3%) reported to have missed appointments for HIV medical care, meaning that over half of study participants missed one or more appointments. This proportion is higher than that reported by Hightow-Weidman et al. (2017) in their study on adherence to scheduled medical appointments by HIV patients assessed over 12 months. The researchers dichotomized missed appointments into no missed HIV medical appointments or having one or more missed appointments. This disparity may be explained by the difference in study designs,

where Hightow-Weidman et al. adopted randomized control trial in their study. The results of their experimental study indicated that among those in care, 52.1% reported no missed visits in the past 12 months, 41 (24.6%) reported one missed visit, and 39 (23.4%) reported two or more. These results are consistent with findings from a linkage-to-care study of 1,891 adults living with HIV (27.8% perinatally infected; 72.2% behaviorally infected) which found that missed appointments were common among those with less education living in economically disadvantaged areas (Kahana et al., 2016).

I conducted African American binary multiple logistic regression to answer the first research question and establish how substance use and mental health problems differed from the race, gender, sexual orientation among individuals infected with HIV. The statistical output showed that there was no statistically significant association between race, gender, sexual orientation, and substance use/mental health problems. However, after excluding the transgender population, the findings indicate that sexual orientation was significantly associated with substance use/mental health problems and missed appointments. These findings are consistent with other earlier studies (Tsuyuki et al., 2017) that reported substance use and mental health problems differed by patient demographic and sexual orientation characteristics among HIV-infected individuals.

Contradictory findings were reported by Skalski et al. (2015), in their study on mental health and substance use among patients of a North Carolina HIV clinic. The researchers assessed predictor factors of mental health problems and compliance to HIV medications using secondary clinical data of 1,398 patients. The study established no differences in overall problematic drug use by race/ethnicity or sex. However, when

marijuana use was excluded, minority patients were more likely than White patients to report other drug use (i.e., cocaine, crack, heroin, methamphetamine, or painkillers) in the year prior to being surveyed. In their sample, there were no racial differences in current rates of depression. The study population was willing to disclose mental health distress, substance use, and suboptimal medication adherence to providers, highlighting the importance of routinely assessing these behaviors during clinic visits. Their findings suggest that treating depression may be an effective strategy to improve adherence to HIV medications.

Similarly, analyzing 481 HIV patients' primary data, Tsuyuki et al. (2017) found significant differences in substance use and mental health problems by sexual orientation of the study participants. The researchers used confirmatory factor analysis to measure a syndemic latent variable. They applied measurement invariance models to identify group differences in the data structure of syndemic co-morbidities among heterosexual men, heterosexual women, and MSM. The authors discovered that variables used to measure the syndemic fit each sub-group, supporting that substance use disorder, violence, and mental health coincide in HIV-infected individuals (Tsuyuki et al., 2017). Heterosexual men and MSM demonstrated similar syndemic latent variable loadings. However, comparison of the two sexual orientation categories showed high risk for mental health challenges among heterosexual men, with larger mean values on substance use disorder, anxiety, and depression than MSM contradicting the present study’s findings.

Heterosexual men and heterosexual women demonstrated significantly different syndemic variable factor loadings, indicating that anxiety and depression contribute more

(and substance use contributes less) to the syndemic in heterosexual men than heterosexual women. MSM and heterosexual women demonstrated similar syndemic latent variable factor loadings and intercepts. Still, they had significantly different factor residual variances indicating more variance in violent victimization and depression for MSM and more variance in stress for heterosexual women than what is captured by the observed syndemic indicators (Tsuyuki et al., 2017). Furthermore, heterosexual women had a larger syndemic factor mean than MSM, indicating that the syndemic burden is greater among heterosexual women than MSM. The study findings support that measurement invariance can elucidate differences in the syndemic to tailor interventions to sub-group needs.

A binary multiple logistic regression was conducted to answer the second research question, which examined if there is an association between substance use and mental health problems, measured by illicit drug use/binge drinking/depression and perceived discrimination, after adjusting race, sexual orientation, and gender among HIV-infected individuals. In the stepwise logistic regression model, the analysis showed no statistically significant association between substance use and mental health problems, measured by illicit drug use/binge drinking/depression and perceived discrimination, after adjusting race, sexual orientation, and gender HIV-infected individuals. However, excluding the transgender category, the results indicate that sexual orientation influences substance use and mental health problems among HIV patients. However, perceived discrimination did not influence substance use and mental health problems in the population. These findings contradict results from Crockett et al. (2018) study that

revealed HIV-related discrimination is a risk factor for substance use and mental health problems following previous research that has linked experiences of race discrimination and discrimination towards sexual minorities to tobacco use.

Furthermore, the Crockett et al. study results suggest that substance use is an outcome of an avoidant approach to cope with stress among people who experience discrimination. Bolstering resilience coping resources may be most effective in response to HIV-related discrimination and reducing coping avoidance approaches. Interventions appear to be most effective when tailored to the individual needs of PLWH, including mental health needs and socioeconomic barriers. The integration of psychologists, social workers, and other mental health professionals into the landscape of HIV care can help address motivation to quit, provide accessible interventions, and bolster support along with community-based resources (e.g., tobacco quit-lines, cessation groups embedded in gyms or churches) to supplement (Moscou-Jackson et al., 2014).

In assessing the association between missed appointments and perceived discrimination, adjusting race, sexual orientation, and gender among HIV-infected individuals, the binary regression results showed no significant relationship between the variables. In correcting for bias and sample size effect of the transgender category, the analysis showed a statistically significant effect of sexual orientation, with homosexuals/gays and bisexual/others more likely to miss appointments for HIV-related medical care than heterosexuals. These findings are consistent with the results in a study conducted by Batchelder et al. (2020) that investigated interrelationships between internalized stigmas related to HIV and substance use; sexual orientation, avoidance

coping; and missed HIV appointments 202 MSM living with HIV who use substances. The researchers concluded that HIV-related internalized stigmas and sexual orientation were associated with missed appointments (OR 1.47, 95% CI 1.15, 1.87).

Similar findings on HIV patients' missed appointments were reported by, Cressman et al. (2020) in a secondary analysis of data from 1,578 HIV patients. The researchers concluded that women experiencing discrimination typically had a higher prevalence of missing an HIV care appointment. Various factors play a role in determining differences in substance use and mental health problems among HIV-infected individuals. Adding the predictors to the saturated model was an attempt at observing the effects holistically since various factors can affect substance use and mental health problems, with other factors having a multiplicative effect. This interaction effect may be subject to future exploration whereby different factors can be linked to determine their effects on substance use and mental health problems. In contrast, Hightow-Weidman et al. (2017) concluded that substance use among HIV-infected MSM creates challenges in health care provision and has been previously associated with decreased engagement in care and poor adherence to care and medications. Substance use can lead to inaccurate perceptions of time, the inability to adhere to routines, and impaired decision-making, all-important barriers to retention in care. Future studies should examine both the patterns of use and the pathways in which both frequent and infrequent use impact care seeking and adherence behaviors. Co-location or integration of HIV care with substance use treatment to improve long-term health outcomes for MSM should be considered to address these issues.

Limitations of the Study

There were limitations that I observed in my study, which may have affected the results of the study. The first limitation of the study was using a cross-sectional study design. This research design limits drawing causal relationships. The second limitation is self-reported information, which can introduce several biases, including recollection and reporting biases. The third limitation is using the Positive Connections data; many researchers have not used it since the study concluded, and its validity has not been tested. Another limitation is the use of this sensitive information. Given the sample populations' cultural, educational, and language backgrounds, I believe that shame or embarrassment of answering certain questions might have affected the quality of data collection. Another limitation of the study is the use of a purposive sample. In this study, I estimated a sample size of 103 participants. However, excluding cases with missing values through listwise deletion to reduce the analysis effect of incomplete data (Madley-Dowd et al., 2019), 96 respondents were used in the study at a significance level of .05, 80% power, and effect size of .27 ≈ .3. Since the secondary data were captured from participants in a study of HIV patients in New England region, the limited geographical consideration negatively influence generalizability of the findings. Additionally, the potential attitude change over time influenced by changes in healthcare experiences and social perception of HIV limits broad application of the findings.

Further, after excluding the two subjects in the transgender category, 94 respondents were used in an Ad hoc analysis at a significance level of .05, 88% power, and effect size of ≈ .4. Hence, the study's findings cannot be generalized to the excluded

population or any other population that does not share the same characteristics with the sample population. Another limitation of this study was the limited representation of the sample population, with participants of the Positive Connections study recruited accounting for less than 1% of the approximately 40,000 HIV population (UNAIDS, 2020) in New England, which consists of six states in the northeastern United States: Maine, Vermont, New Hampshire, Massachusetts, Rhode Island, and Connecticut (Bradford, 2010). Overall, secondary data and categorization of substance use and mental health problems as one outcome variable limit the generalization of the study findings to individuals infected with HIV from other regions, with interpretation applying specifically to New England HIV patients. Another limitation was the generalization of the study to current day HIV-infected individuals. The generalization was weakened due to the Positive Connections dataset study time frame and location. The study was conducted from 2004 to 2006 in the New England area. Culture has drastically changed since the Positive Connections study was conducted. HIV has significantly improved over the past two decades. New tests, treatments, and technological advancements for HIV have greatly improved what was once a grim outlook. Many people who are HIV-positive can now live much longer, healthier lives when regularly taking antiretroviral treatment. Present-day HIV-infected individuals are also more open and honest about their diagnosis.

Recommendations

HIV-infected individuals remain an understudied population in the United States. Thus, given what previous studies have found and what I found, it is evident that there is

a need to explore the issue further to identify more predictors of substance use and mental health problems among this population. Even though, I used the Positive Connections data, its unrepresentative population and small sample size comprising only of North American population limits the study's generalization to other HIV-infected populations, indicating the need for future studies to consider representative data. I believe that there is a need to explore more appropriate datasets such as the CDC's HIV/AIDS surveillance database that contains information on HIV patients in United States. Therefore, more quantitative and qualitative research is needed for understanding the differences in substance use and mental health problems and different factors that determine among HIV-infected populations.

Additionally, due to the small sample size and purposive sample used in this study, future use of a larger and more representative sample size can produce more representative results. Studies on HIV patient challenges have shown that minority populations such as refugee groups, transgender, and bisexual individuals are considered a hidden or hard to reach population (Aidoo-Frimpong et al., 2021; Batchelder et al., 2021; Vitale & Ryde, 2018). Thus, most researchers use programmatic approaches when researching to reach these groups (Sulaiman-Hill & Thompson, 2018). Therefore, I recommend future primary research to consider adequate representation of these minority groups by combining non-probability sampling with other probability sampling approaches to reach more members of this population. Sulaiman-Hill and Thompson (2018) suggested that one feasible way of identifying potential participants in the hidden or hard-to-reach populations is through snowball sampling. Snowball sampling is a non-

probability (non-random) sampling method used when characteristics to be possessed by samples are rare and difficult to find (Ghaljaie et al., 2017). This sampling method involves primary data sources nominating another potential primary data source to be used in the research. In other words, snowball sampling method is based on referrals from initial subjects to generate additional subjects. At the individual-level, substance use serves as coping mechanism for the potential stress of HIV related discrimination, requiring implementation of substance use prevention programs. At the structural and community level, more empirical work is needed to test the effectiveness of stigma and discrimination reduction interventions that could help reduce health disparities, including substance use, among PLWH.

Implications

This study's findings advance understanding of the challenges on substance use and mental health problems among HIV-infected individuals in the United States. However, care must be maintained when using the information due to the exclusion of other subjects relevant in the population in the ad hoc analysis that limited the study's generalizability. Given the association of sexual orientation with substance use/mental health problems, and missed appointments for healthcare among the studied population, this study's findings can help different organizations develop tailored develop health promotion activities for this population. Social change is when one can enact positive change (Walden University, 2017). The findings can also drive policy change in HIV related healthcare and how it can differ by race, gender, and sexual orientation. Previous studies have shown that HIV-infected individuals lack coping skills (Gele et al., 2016).

The findings of this study illustrated that most HIV-infected individuals engage in substance use or mental health problems. Thus, there is a need for addressing this issue and work with this population to improve substance use and mental health problems.

In the study by Yang et al. (2017), few sexual orientation-related differences were observed among men. Gay/bisexual men were more likely than heterosexual men to report a recent suicide attempt. Among women, lesbian/bisexual women were more likely than heterosexual women to evidence positive 1-year and lifetime histories of depressive disorders. These findings suggest a small elevation in psychiatric morbidity risk among Latino and Asian American individuals with a minority sexual orientation. Additionally, substance use and mental health problems management is a relevant skillset that one can learn to cope with the virus; however, with little to no knowledge of substance use and mental health problems, it is difficult to know how to manage it. Although the results from the study by Yang et al. (2017) suggest that health care utilization and direct cost of care varied depending on individuals' language status, it is evident that improving health literacy among this refugee population with diverse languages, and providing appropriate HIV education, can help reduce HIV complications, which can reduce health care utilization, healthcare cost, and would improve the overall health outcomes of individuals infected with HIV (Yang et al., 2017).

Conclusion

In this study, I examined the differences in substance use and mental health problems by race, gender, and sexual orientation among individuals infected with HIV using the secondary data of the Positive Connections study, whose participants were

sampled and recruited from New England (Bradford, 2010). This study demonstrated a difference in substance use/mental health problems and missed appointments by sexual orientation among HIV-infected individuals. However, race and gender showed no association with substance use/mental health problems and missed appointments. However, all the predictor variables, race, gender, sexual orientation, showed no association with and perceived discrimination when receiving HIV medical care. Given the influence of sexual orientation on substance use/mental health problems and missed appointments, tailored medical services are necessary to cater to the healthcare needs of HIV patients.

Taking the results obtained from this study, future researchers should investigate substance use, mental health problems, and perceived discrimination among the transgender category to advance understanding of the healthcare challenges for minority populations. Though small, the sample population I used for this study was diverse. Thus, the results may be generalized to the population with the same characteristics. Substance use and mental health problems are an issue of health equity; it is evident that these problems do not just affect individuals infected with HIV; it also affects other health aspects and their families (Bhatta et al., 2014). Thus, the reported lack of differences in substance use and mental health problems knowledge demonstrates urgency and a call for action to tailor health care systems to accommodate individuals infected with HIV. Multiple stakeholders such as health care providers, health insurance companies, HIV community organizations, education sectors, private sectors, research institutions, and pharmaceutical companies, and policymakers should work together to address barriers

that HIV-infected individuals face, and develop interventions at individual and systematic levels, that reduce substance use and mental health problems. Additionally, there is a need for more research that supports the need to decrease substance use and mental health problems among individuals diagnosed with HIV in general.

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Appendix A: Interview Questionnaire

Health Resources and Services Administration (HRSA) SPNS Outreach Initiative

HRSA Outreach Intake Data Collection Instrument

STUDY ENROLLEE INFORMATION

Client ID __ __ __ __ __ __ CLIENTID

Intake Code __0__ RPTNUM **Date of Study Enrollment** (mm/dd/yyyy) __ __ / __ __ / __ __ __ __ ENRDATE

Staff ID __ __ __ __ STAFFID **Date of Data Collection** (mm/dd/yyyy) __ __ / __ __ / __ __ __ __ FORMDATE

Did the client enroll during Phase I? PICLIENT ☐ No 0 ☐ Yes 1 ☐ Don't Know 777 ☐ Missing 999

Interviewer Instructions:

***Intake Code** should be 0, for the intake interview.*

***Client ID** should be the following: your two letter project code assigned by CORE, followed by a 4 digit client identification number. Client identification numbers should be sequential, based on date of study enrollment, and begin with 1001. For example, the Well Being Institute would use WB1001 for its first enrollee, WB1002 for its second enrollee, WB1003 for its third enrollee, and so forth. Each client should receive an individual Client ID that remains the same throughout the life of the project. When reporting the 6, 12, 18, and 24 month follow-up interviews, the Client ID remains the same. No Client IDs should be re-used, even if an enrollee is no longer in the study.*

***Staff ID** should be the following: your two letter project code assigned by CORE, followed by a 2 digit staff identification number that is unique to each data collector. Staff identification numbers should begin with 01. For example, the Well Being Institute would use WB01 for one data collector, WB02 for another data collector, WB03 for a third data collector, and so forth. Each data collector should receive an individual Staff ID that remains the same throughout the life of the project. When reporting the 6, 12, 18, and 24 month follow-up interviews, the Staff ID for the **data collector who completed that interview** should be used. No Staff IDs should be re-used, even if a data collector is no longer part of the program. Rather, a new ID should be assigned for each new data collector.*

ENRDATE, *the date of study enrollment, is the date that the individual signed the consent form to enroll in the **study**. It is not the date that a client joined your program.*

FORMDATE, *the data collection date, is the date the interview is done. (This could be the same as ENRDATE, but not earlier.)*

All dates are of the form mm/dd/yyyy. As a general rule (for example, POSDATE*), if the client doesn't recall or can't estimate the day (dd), then 01 should be entered for dd. The same rule applies if the client doesn't recall or can't estimate the month (mm).*

Thank you for agreeing to talk with me today. We are going to cover many topics, including your health and your experiences with health care providers. Some of these questions may be about things you've already discussed with other people- we are asking you again because this interview is part of a national study that includes people and programs all across the country. This information will help us to improve care for people living with HIV.

Everything that we are going to talk about is confidential. If we talk about anything that makes you feel uncomfortable or brings up feelings or issues you want to talk about more, we can refer you to someone you can talk to. Also, if there are any questions you don't feel comfortable answering, you don't have to answer them.

This interview will take about 1 hour. As I go through the questions, let me know if there is anything that is unclear. Are you ready to begin?

DEMOGRAPHICS

1. What is your birth date? (mm/dd/yyyy) __ __/__ __/__ __ __ __ DOB

2. What do you consider your gender to be? GENDER

- ☐ Male 1
- ☐ Female 2
- ☐ Transgender or transsexual 3
- ☐ Other 4
- ☐ Prefer not to identify 5
- ☐ Don't know 777
- ☐ Missing 999

If the answer to question 2 is Transgender…, do not ask question 3, but enter Yes and continue with question 4.

3. Are you transgender or transsexual? TRANSGEN

- ☐ No 0
- ☐ Yes 1
- ☐ Prefer not to identify 2
- ☐ Don't know 777
- ☐ Missing 999

4. What do you consider to be your sexual orientation? ORIENTAT

- ☐ Heterosexual/Straight 1
- ☐ Homosexual/Gay 2
- ☐ Homosexual/Lesbian 3
- ☐ Bisexual 4
- ☐ Other 5
- ☐ Prefer not to identify 6
- ☐ Don't know 777
- ☐ Missing 999

5. What is your race/ethnicity? RACEETHN

- ☐ Caucasian/White 1
- ☐ Black or African- American 2
- ☐ Asian 3
- ☐ Native Hawaiian or Pacific Islander 4
- ☐ Native American or Alaskan Native 5
- ☐ More than one race (specify) 6: _____ MULTRACE
- ☐ Other (specify) 7: _____ OTHRRACE
- ☐ Don't know 777
- ☐ Missing 999

6. Do you consider yourself to be Hispanic or Latino/a? LATINO

- ☐ No 0
- ☐ Yes 1
- ☐ Don't know 777
- ☐ Missing 999

7. What language do you speak most of the time, with friends and family? *[One response only.]* PRIMLANG

- ☐ English 1
- ☐ Spanish 2
- ☐ French 3
- ☐ Haitian Creole 4
- ☐ Portuguese 5
- ☐ Chinese 6
- ☐ Vietnamese 7
- ☐ Other (specify) 8: _____ OTHRLANG
- ☐ Don't know 777
- ☐ Missing 999

8. Where were you born (that is, in what country)? BRTHPLAC

- ☐ USA, Puerto Rico or territories 1
- ☐ Other (specify) 2: _____ OTHRBRTH
- ☐ Don't know 777
- ☐ Missing 999

If No, Don't know, N/A, or Missing, code N/A for question 27 and continue with question 28.

27. Is this person: *[Interviewer: read all response options and code only one response]* PROVIDER

- ☐ A doctor 1
- ☐ A physician's assistant 2
- ☐ A nurse practitioner 3
- ☐ Other 4
- ☐ Don't know 777
- ☐ N/A 888
- ☐ Missing 999

If the date of the first HIV test was less than six months ago (in question 19), you may substitute the words "after you tested positive" for "in the last six months" in the questions below.

28. During the last 6 months, how many times did you see a health care provider for your HIV? Please don't include times when you might have had an emergency room visit or a hospital admission.
[Interviewer: This question refers to any health care provider for HIV, not necessarily the individual's regular health care provider.]

_____ NUMV6MO ☐ Don't Know 777 ☐ N/A 888 ☐ Missing 999

If 0, Don't know, or Missing, write N/A in questions 29-32 and continue with question 33.

29. In the last 6 months, did a health care provider draw blood to check your CD4 count or viral load?
[Interviewer: If the client doesn't know why his/her blood was drawn, the answer is "No".] LABS6MO

- ☐ No 0
- ☐ Yes 1
- ☐ Don't know 777
- ☐ N/A 888
- ☐ Missing 999

If No, don't know, N/A or missing, code N/A in question 30 and continue with question 31.

30. In the last 6 months, did your health care provider discuss the results of the CD4 and/or viral load tests with you? LABDIS6M

- ☐ No 0
- ☐ Yes 1
- ☐ The results are not back yet 2
- ☐ Don't know 777
- ☐ N/A 888
- ☐ Missing 999

31. In the last six months, did you discuss any HIV treatment options with your health care provider? *[Treatment options include plans for taking medications, changing diet, other changes to address side effects or symptoms]* TXDIS6MO

- ☐ No 0
- ☐ Yes 1
- ☐ Don't know 777
- ☐ N/A 888
- ☐ Missing 999

32. Have any of these things helped you keep your HIV-related medical care appointments in the last six months? *[Interviewer: read each response option and code all that apply]*

a.	I got help with transportation (a ride, taxi voucher, bus token, gasoline assistance) FACLTRAN	☐ No 0	☐ Yes 1	☐ Don't Know 777	☐ N/A 888	☐ Missing 999
b.	Someone reminded me shortly before the appointment date FACLRMDR	☐ No 0	☐ Yes 1	☐ Don't Know 777	☐ N/A 888	☐ Missing 999
c.	Someone came with me to the appointment FACLACCM	☐ No 0	☐ Yes 1	☐ Don't Know 777	☐ N/A 888	☐ Missing 999
d.	The provider came to me FACLMDVT	☐ No 0	☐ Yes 1	☐ Don't Know 777	☐ N/A 888	☐ Missing 999
e.	I got help with childcare FACLCHCR	☐ No 0	☐ Yes 1	☐ Don't Know 777	☐ N/A 888	☐ Missing 999
f.	I knew I'd get something else (e.g. gift certificates, coupons, food, phone card) besides medical care if I went FACLELSE	☐ No 0	☐ Yes 1	☐ Don't Know 777	☐ N/A 888	☐ Missing 999
g.	The appointments were flexible (I could go in at a time that was convenient for me) FACLCONV	☐ No 0	☐ Yes 1	☐ Don't Know 777	☐ N/A 888	☐ Missing 999
h.	Other (specify): _____ FACLOTHR					

33. In the last 6 months, how many appointments for HIV-related medical care did you miss? Do not count any visits you rescheduled within 2 weeks. *[Interviewer: This question relates to any HIV-related health care*, not only care with the regular health care provider. Please obtain the total number of missed appointments.]* _____ MSAPT6MO ☐ Don't Know 777 ☐ N/A 888 ☐ Missing 999

* *including specialties like Obstetrics and gynecology, dermatology, ophthalmology (eye care), gastroenterology or oncology*

If 0, Don't know, N/A, or Missing, code N/A for all options in question 34 and continue with question 35.

MENTAL HEALTH

60. During the past 6 months, did you go to see a counselor, social worker, psychologist, psych. nurse or psychiatrist to talk about the way you were feeling or about problems in your life? MHTX6MO

- ☐ No 0
- ☐ Yes 1
- ☐ Don't know 777
- ☐ Missing 999

61. During the past 6 months, did any health care provider or case manager recommend that you see a counselor, social worker, psychologist, psychiatric nurse, psychiatrist or other licensed mental health professional to talk about the way you were feeling or about problems in your life? MHRECOM

- ☐ No 0
- ☐ Yes 1
- ☐ Don't know 777
- ☐ Missing 999

62. Are you currently taking prescribed medication for mental health or emotional problems? MHMEDNOW

- ☐ No 0
- ☐ Yes 1
- ☐ Don't know 777
- ☐ Missing 999

If the response to question 62 is "Yes," code "yes" to question 63 and continue with question 64. If the response to question 62 is "No," "Don't Know," or "Missing" ask question 63.

63. During the past 6 months, have you taken prescribed medication for mental health or emotional problems? MHMED6MO

- ☐ No 0
- ☐ Yes 1
- ☐ Don't know 777
- ☐ Missing 999

64. Have you ever been in a hospital or crisis center for a mental health or emotional problem? MHHOSEVR

- ☐ No 0
- ☐ Yes 1
- ☐ Don't know 777
- ☐ Missing 999

If the response is "No," code "No" in question 65 and continue with question 66.

Now I'm going to read you a list of services. For each service, please tell me if you felt like you needed this service during the last 6 months. I will then ask you if you got that service.

INTERVIEWER: For each service (a, b, c….below) ask questions in the following order: ask question 56 first; if the answer is no, don't know or N/A for the service, skip question 57 and enter N/A; then go to the next service on the list and repeat question 56. If the client answers yes to question 56, ask question 57. Questions should be asked from left to right for each service on the grid below using the skip pattern described above. Whenever a question is skipped, enter N/A. Questions a through l are mandatory; questions m through t are optional.

MANDATORY QUESTIONS	**56. Did you need this service over the last 6 months? (Use codes listed on the previous page.)**	**57. Were you able to get this service in the last 6 months? (Use codes listed on the previous page.)**
a. Mental health treatment/counseling	MHTXNEED	MHTXRCVD
b. Substance abuse treatment	SATXNEED	SATXRCVD
c. Housing	HOUSNEED	HOUSRCVD
d. Financial assistance	FINCNEED	FINCRCVD
e. Employment assistance	EMPLNEED	EMPLRCVD
f. Transportation	TRANNEED	TRANRCVD
g. Help with getting food, groceries or meals	FOODNEED	FOODRCVD
h. Help with getting benefits/entitlements	BENFNEED	BENFRCVD
i. Child care	CHLDNEED	CHLDRCVD
j. Legal assistance	LEGLNEED	LEGLRCVD
k. Needle exchange	NENEED	NERCVD
l. Interpreter/translation	INTRNEED	INTRRCVD

OPTIONAL QUESTIONS	**56. Did you need this service over the last 6 months? (Use codes listed on the previous page.)**	**57. Were you able to get this service in the last 6 months? (Use codes listed on the previous page.)**
m. Help with immigration issues	IMMGNEED	IMMGRCVD
n. Case management	CMNEED	CMRCVD
o. Domestic violence services	DOMVNEED	DOMVRCVD
p. General HIV education/information	INFONEED	INFORCVD
q. Help with taking HIV medications	MEDNEED	MEDRCVD
r. Information about side effects of HIV medications	SEFFNEED	SEFFRCVD
s. Nutrition information/information about making good meals on a limited income	NUTRNEED	NUTRRCVD
t. Dental care	DENTNEED	DENTRCVD

SUBSTANCE USE[3]

Interviewer: Please read each question in bold, using the examples in italics as probes. If client responds YES to any of the questions in column a, then do not ask columns b or c for that drug, simply code the responses for b and c as YES and move on to the next drug.

Have you used the following drugs?	a. Used in last 30 days?	b. Used in last 12 months?	c. Ever Used?
66. Sedatives, sleeping pills, or tranquilizers without a prescription? *(e.g. Librium, Valium, Ativan, Meprobamate, Xanax, Seconal, Halcion, Methaqualone)*	SEDAT30D ☐ No 0 ☐ Yes 1 ☐ Don't Know 777 ☐ Missing 999	SEDAT12M ☐ No 0 ☐ Yes 1 ☐ Don't Know 777 ☐ Missing 999	SEDATEVR ☐ No 0 ☐ Yes 1 ☐ Don't Know 777 ☐ Missing 999
67. Amphetamines or other stimulants without a prescription? *(e.g. Methamphetamines, Crystal Methamphetamine, Preludin, Dexedrine, Ritalin, Speed, Ketamine (Special K), Cat)*	STIM30D ☐ No 0 ☐ Yes 1 ☐ Don't Know 777 ☐ Missing 999	STIM12M ☐ No 0 ☐ Yes 1 ☐ Don't Know 777 ☐ Missing 999	STIMEVR ☐ No 0 ☐ Yes 1 ☐ Don't Know 777 ☐ Missing 999
68. Analgesics or other prescription painkillers without a prescription? *(NOTE: this does not include normal use of aspirin, Tylenol without Codeine, etc., but does include use of Tylenol with Codeine and other prescription painkillers [Demerol, Darvon, Darvocet, Percodan, Percoset, Codeine, Morphine, Methadone, Fentanyl])*	PAINK30D ☐ No 0 ☐ Yes 1 ☐ Don't Know 777 ☐ Missing 999	PAINK12M ☐ No 0 ☐ Yes 1 ☐ Don't Know 777 ☐ Missing 999	PAINKEVR ☐ No 0 ☐ Yes 1 ☐ Don't Know 777 ☐ Missing 999
69. Marijuana or hashish?	MARI30D ☐ No 0 ☐ Yes 1 ☐ Don't Know 777 ☐ Missing 999	MARI2M ☐ No 0 ☐ Yes 1 ☐ Don't Know 777 ☐ Missing 999	MARIEVR ☐ No 0 ☐ Yes 1 ☐ Don't Know 777 ☐ Missing 999
70. Cocaine (snort) or crack (rock, gravel) or freebase?	COKE30D ☐ No 0 ☐ Yes 1 ☐ Don't Know 777 ☐ Missing 999	COKE12M ☐ No 0 ☐ Yes 1 ☐ Don't Know 777 ☐ Missing 999	COKEEVR ☐ No 0 ☐ Yes 1 ☐ Don't Know 777 ☐ Missing 999

Have you used the following drugs?	a. Used in last 30 days?	b. Used in last 12 months?	c. Ever Used?
71. Inhalants (other than cocaine) that you sniff or breathe to get high or to feel good? *(e.g. Amyl Nitrate [Poppers, Ammo, Lockerroom], Freon, Nitrous Oxide [Whippets], gasoline, spray paint, glue)*	INHL30D ☐ No 0 ☐ Yes 1 ☐ Don't Know 777 ☐ Missing 999	INHL12M ☐ No 0 ☐ Yes 1 ☐ Don't Know 777 ☐ Missing 999	INHLEVR ☐ No 0 ☐ Yes 1 ☐ Don't Know 777 ☐ Missing 999
72. LSD or other hallucinogens *(e.g. PCP, Angel Dust, Peyote, Ecstasy [MDMA], Mescaline)*	HALLC30D ☐ No 0 ☐ Yes 1 ☐ Don't Know 777 ☐ Missing 999	HALLC12M ☐ No 0 ☐ Yes 1 ☐ Don't Know 777 ☐ Missing 999	HALLCEVR ☐ No 0 ☐ Yes 1 ☐ Don't Know 777 ☐ Missing 999
73. Heroin (horse, smack, tar)	HERO30D ☐ No 0 ☐ Yes 1 ☐ Don't Know 777 ☐ Missing 999	HERO12M ☐ No 0 ☐ Yes 1 ☐ Don't Know 777 ☐ Missing 999	HEROEVR ☐ No 0 ☐ Yes 1 ☐ Don't Know 777 ☐ Missing 999
74. Have you had 5 or more alcoholic drinks in one day? By a drink, I mean a can of beer, a glass of wine, or a shot of hard liquor.	ALCH30D ☐ No 0 ☐ Yes 1 ☐ Don't Know 777 ☐ Missing 999	ALCH12M ☐ No 0 ☐ Yes 1 ☐ Don't Know 777 ☐ Missing 999	ALCHEVR ☐ No 0 ☐ Yes 1 ☐ Don't Know 777 ☐ Missing 999
75. Have you injected drugs?	INJC30D ☐ No 0 ☐ Yes 1 ☐ Don't Know 777 ☐ Missing 999	INJC12M ☐ No 0 ☐ Yes 1 ☐ Don't Know 777 ☐ Missing 999	INJCEVR ☐ No 0 ☐ Yes 1 ☐ Don't Know 777 ☐ Missing 999

76. Have you been in substance abuse treatment during the last 6 months? SATX6MO *(Interviewer, please note that substance abuse TREATMENT does not include self-help programs, such as AA, NA, or 12 step)*

☐ No 0
☐ Yes 1
☐ Don't know 777
☐ Missing 999

If No, don't know, or missing, code N/A for all options in question 77 and continue with question 78.

BARRIERS TO CARE

Discrimination

79. In the past six months, did you ever experience discrimination when you went to get HIV medical care? DISCMDCR ☐ No 0 ☐ Yes 1 ☐ Don't Know 777 ☐ N/A (did not get care) 888 ☐ Missing 999

If yes, ask question 80. Otherwise, code N/A in question 80 and continue with question 81.

80. Did that experience make it difficult for you to go back for more HIV medical care (e.g. make an appointment, keep an appointment)? DISCNOCR ☐ No 0 ☐ Yes 1 ☐ Don't Know 777 ☐ N/A 888 ☐ Missing 999

Structural and Financial Barriers

In the past six months did any of the following problems make it difficult for you to get HIV medical care?

81. Did you have problems finding out where to go to get care? BARRWHER ☐ No 0 ☐ Yes 1 ☐ Don't Know 777 ☐ Missing 999

82. Were you worried about how you would pay for your HIV medical care (e.g. no insurance, insurance would not pay, worried about spending own money)? BARRAFFD ☐ No 0 ☐ Yes 1 ☐ Don't Know 777 ☐ Missing 999

83. Did you have problems making an appointment for HIV medical care because you did not have a telephone? BARRPHNE ☐ No 0 ☐ Yes 1 ☐ Don't Know 777 ☐ Missing 999

84. Did you have problems getting someone to answer your calls to get a health care appointment? BARRMKAP ☐ No 0 ☐ Yes 1 ☐ Don't Know 777 ☐ Missing 999

85. Did you have trouble getting an appointment at a time you could make it? BARRTIME ☐ No 0 ☐ Yes 1 ☐ Don't Know 777 ☐ Missing 999

86. Did you have a problem finding providers who speak your language? BARRLANG ☐ No 0 ☐ Yes 1 ☐ Don't Know 777 ☐ Missing 999

87. Did you have any other problems getting an appointment? BARRAPPT
Specify:_____