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HIV/AIDS and Behavioral Risk Factors Among Former Texas Prison Inmates

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The Office of the Provost

Walden University
2019

Abstract

HIV/AIDS and Behavioral Risk Factors Among Former Texas Prison Inmates

by

Scarlett Lusk-Edwards

MA, Walden University, 2008

BS, Texas Southern University, 1998

Dissertation Submitted in Partial Fulfillment

of the Requirements for the Degree of

Doctor of Philosophy

Public Health

Walden University

November 2019

Abstract

As of the end of 2010, .9% (20,093) of the inmate population under the care of the U.S.

Federal Bureau of Prisons and 1.7% (2,394) of the inmate population under the care of

the Texas Department of Criminal Justice were living with HIV/AIDS. The purpose of

this quantitative correlational study was to analyze the relationships between HIV/AIDS

status and former inmate demographic characteristics, intravenous drug use (IDU), and

social support networks. The behavior models of importation and deprivation formed the

theoretical frameworks used to explore the relationship between HIV/AIDS and

behavioral risk factors for released Texas prison inmates. Fifty former prison inmates in

Texas were recruited through Prison Talk, an online prison and family support

community, and asked to complete a 57-item web-based survey on demographic

characteristics, IDU, and social support networks. Spearman correlation and multiple

logistic regression analyses were used to test potential relationships between risk factors.

A significant negative correlation was found between African American race and HIV

infection ($rs = -.31$, $p < .05$). A significant positive correlation was found between IDU

and HIV infection ($rs = .49$, $p < .001$). Logistic regression analysis confirmed IDU as a

significant predictor of HIV infection ($B = 3.99$, $OR = 54.33$, $p < .05$); access to or a

desire for social support were not found to be significant predictors of HIV infection.

Decreasing IDU among former prison inmates was shown to be an important step in

HIV/AIDS prevention. Findings from the study can provide policy makers, legislators,

prison administrators, educators, and researchers with insight into the factors that

contribute to the prevalence of HIV/AIDS, possibly leading to positive social change by

reducing the prevalence of HIV/AIDS among former prison inmates and their partners.

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Chapter 1: Introduction to the Study

Introduction

By the end of 2010, the federal prison system in the United States had cared for approximately 20,093 inmates with HIV/AIDS, which accounted for approximately 0.9% of the population of incarcerated individuals (Maruschak, 2015). The Texas state prison system, in 2010, had the third largest population of HIV/AIDS inmates of any state, made up of 2,394 individuals, who accounted for 1.7% of the total population of incarcerated individuals in the state prison system (Maruschak, 2015). HIV/AIDS data for inmates were not available by state for comparison, but the rate of HIV/AIDS in the Texas Department of Criminal Justice (TDCJ; 2016) was nearly double the national average in the Federal Bureau of Prisons (FBOP; Maruschak, 2015). Although many researchers have studied the factors that contribute to the prevalence of HIV/AIDS among imprisoned and jailed inmates, both domestically and internationally, few of these researchers used former prison inmate populations in states where the population of HIV/AIDS infection was particularly high, such as California, Florida, New York, and Texas, where 51% of all inmates infected with HIV/AIDS have been located (Maruschak, 2015).

According to Li et al. (2018), there is a direct relationship between incarceration and the care and treatment of inmates with HIV/AIDS, prevention strategies for HIV/AIDS, and HIV/AIDS diagnoses, and this affects not only the inmate populations but the entire community. The purpose of this cross-sectional, nonexperimental study with a quantitative correlational design was to examine the relationships between

HIV/AIDS status, demographic characteristics, intravenous drug use (IDU), and existence of social support networks for former inmates of federal prisons in Texas. Findings from the study could provide policy makers, legislators, prison administrators, and researchers with insight into the factors that contribute to the prevalence of HIV/AIDS within the prison system and possibly lead to positive social change by influencing prison policies and reducing the number of former prison inmates with HIV/AIDS.

This chapter includes the background of the study, including statistical information on the prevalence of HIV/AIDS in the population and empirical support for the inclusion of the study variables. Following the background, the problem statement establishes the need for more effective HIV/AIDS treatment and prevention in the prison system. The purpose of the study is presented next and includes a description of the type of study, its intent, and the variables used. The problem and purpose statements motivate the research questions and hypotheses that helped to guide the direction of the study, and these are presented next, followed by a description of the conceptual framework that inspired the design of the study and a discussion of the nature of the study, including the rationale for the study design and a concise description of the study variables and methodology. Definitions of terminology used in the study precede discussion of the assumptions, scope, delimitations, limitations, and significance of the study. The chapter concludes with a summary and outline of the remainder of the dissertation.

Background

In 2018, HIV/AIDS was more prevalent in the United States than ever before (Centers for Disease Control and Prevention [CDC], 2018a). It has claimed more than 575,000 lives each year and costs taxpayers $20 billion annually to care for the 1,100,000 people living with the disease who have no health insurance (CDC, 2018a). The CDC (2011) estimated that approximately 55% of the U.S. population had not been tested for HIV.

The prevalence of sexual activity in the prison system has been largely unidentified and underreported because of inmates' denial and fear of humiliation, as well as the fear of being criminalized for this behavior (United Nations Programme on HIV/AIDS [UNAIDS], 2014). Reliable data on same-sex activity in prisons are challenging to obtain; according to Kamarulzaman, Reid, Schwitters, and Wiessing (2016), between 1% and 19% of prisoners were involved in sexual activities. As of 2016, only two state prisons and a small number of jails in the United States allowed the delivery of condoms to the inmate population, although the CDC included it as a recommendation for preventing the spread of HIV/AIDS (Jungwirth, 2016). Prisoners living in close quarters, otherwise known as *overcrowding*, has become a systemic problem in more than half of the United States. In 117 countries, prison occupancy has been more than 100% of capacity, in 47 countries it has been more than 150%, and in 20 countries has been above 200% (Rubenstein et al., 2016). The risk of violence and abuse is associated with overcrowding, which makes HIV facilities harder to assess (UNAIDS, 2015).

In the past 30 years, the United States has had epidemics of both mass incarceration and HIV/AIDS. To constrain the spread of HIV/AIDS among past and present inmates, health care providers, and the public, Rich et al. (2013) focused on tackling HIV/AIDS within the prison system. They emphasized addressing the behavior of inmates not only within the confines of prison but also after release. Rich et al. found correlational relationships between demographic characteristics (such as race or ethnicity), IDU, and existence of social-support networks of former prison inmates.

Many incarcerated individuals have a low socioeconomic status (SES) and engage in IDU (Carson & Golinelli, 2013), which creates circumstances that put many incarcerated individuals at even greater risk of contracting HIV in prison and subsequently transmitting it to others after release. Although researchers have not specifically addressed the relationship between inmate education levels and the prevalence of HIV/AIDS, researchers have uncovered evidence indicative of a relationship. South, Bagnall, and Woodall (2017) found that inmates scored considerably lower in all forms of literacy and that peer interventions, such as peer education, peer support, peer mentoring, and bridging roles, supported the inmates with health-promotion literature and the importance of social influence and support. The BBC's (2015) campaign on illiteracy revealed that the high level of illiteracy in prisons was a major factor contributing to high levels of recidivism among released inmates. For example, 70% of prisoners in the United States had the literacy level of a 9-year-old child (BBC, 2015). Based on findings such as these, researchers have hypothesized that education is a factor in determining the rate of HIV/AIDS infections among prison inmates, but they

have not explored the issue in relation to how it affects transmission of the disease after release.

Researchers have also not made direct observations of the relationship between HIV/AIDS prevalence and SES, although many have found evidence of a possible relationship. South et al. (2017) indicated that one third of the prisoners in the United States had formal employment at the time of their incarceration, and literacy rates were also low. Rich et al. (2013) reported that former inmates lived in disadvantaged, low-income, and medically underserved communities. Rich et al. (2013) theorized that HIV/AIDS status among prison inmates was a contributing factor to SES prior to incarceration. Based on a search of the literature, it remains empirically unclear whether demographic characteristics, IDU, and the existence of inmate social support networks are factors that contribute to the prevalence of HIV/AIDS among former prison inmates and subsequent transmission of HIV/AIDS to others in the general population after release. There has been, therefore, a need to concentrate on former inmates. Both governmental and nongovernmental organizations have addressed HIV/AIDS within the prison environment. In this study, I explored IDU, social support, and demographics, of former inmates in connection with HIV/AIDS as a first step toward discovering potential behavioral risk factors for HIV/AIDS among former Texas prison inmates.

Problem Statement

The rate of infection by HIV, which results in AIDS, among former prison inmates has alarmed legislators in many states, even in states where the rate of HIV/AIDS is low in prison populations. Presuppositions exist that inmates sharing

needles for drug use, the lack of condom distribution, and potential rape are factors that increase the risk of prison inmates contracting HIV/AIDS. UNAIDS (2014) researchers have studied the factors that contribute to the prevalence of HIV/AIDS among incarcerated men and women, yet a search of the empirical literature revealed an absence of studies on whether demographics, IDU, or the existence of social support networks affect the rate of HIV/AIDS.

The rate of HIV/AIDS infection among prisoners has historically been high in California, Florida, New York, and Texas (Maruschak, 2015). The rate of HIV/AIDS infections among inmates under the care of the TDCJ (1.7%) is among the highest in all U.S. states (Maruschak, 2015). According to Myers et al. (2018), inmates who participate in high-risk behaviors while imprisoned tend to contract HIV/AIDS as a result. Although risky sexual behavior increases during incarceration, it begins prior to incarceration, and other dangerous behavior happens after incarceration (Oppong, Kutch, Tiwari, & Arbona, 2014; Strathdee et al., 2015). Attempted preventive measures have not been effective. The CDC (2013) examined the prevalence of HIV/AIDS among prison inmates and found that it was greater than that among the general population. I found no empirical data that accounted for this phenomenon.

Purpose of the Study

The purpose of this cross-sectional, quantitative, and correlational study was to explore characteristics of men and women formerly incarcerated in Texas prisons to measure potential relationships between (a) HIV/AIDS status and the demographic characteristics of age, gender, ethnicity, marital status, and SES; (b) IDU and HIV/AIDS

status; (c) social support networks and IDU status; and (d) social support networks and HIV/AIDS status. Although many preventive measures and interventions implemented in prison systems have focused on behavior modification during incarceration and preparation for release, evidence has indicated that behavior during incarceration has not been the only factor contributing to the prevalence of HIV/AIDS in the prison system.

Based on theories of inmate behavior posited by Goffman (1961) and Robbins and Judge (2012), I included a deprivation model (deprived of their normal societal ways of fulfilling needs, inmates learn new behaviors) and an importation model (inmates import their culture and behaviors as much as they learn them from other inmates). The research questions focused on the four relationships in this conceptual context.

Research Questions and Hypotheses

Four research questions and corresponding hypotheses guided the study, all of which were based on a review of empirical literature. The independent variables were the demographic characteristics of former inmates, their IDU, and the existence of their social support networks. The dependent variable was the self-reported HIV/AIDS status of the inmates. The study included the following research questions and hypotheses:

RQ1: What is the relationship among or between the demographic characteristics of age, gender, ethnicity, marital status, SES, and current HIV/AIDS status among previously incarcerated men and women in Texas?

$H_0 1$: There are no relationships among or between the demographic characteristics of age, gender, ethnicity, marital status, SES, and current HIV/AIDS status among previously incarcerated men and women in Texas.

H_a1: There are relationships among or between the demographic characteristics of age, gender, ethnicity, marital status, SES, and current HIV/AIDS status among previously incarcerated men and women in Texas.

RQ2: What is the relationship between IDU and HIV/AIDS status among previously incarcerated men and women in Texas?

H_02: There is no relationship between IDU and HIV/AIDS status among previously incarcerated men and women in Texas.

H_a2: There is a relationship between IDU and HIV/AIDS status among previously incarcerated men and women in Texas.

RQ3: What is the relationship between IDU and the existence of social support networks among previously incarcerated men and women in Texas?

H_03: There is no relationship between IDU and the existence of social support networks among previously incarcerated men and women in Texas.

H_a3: There is a relationship between IDU and the existence of social support networks among previously incarcerated men and women in Texas.

RQ4: What is the relationship between HIV/AIDS status and the existence of social support networks among previously incarcerated men and women in Texas?

H_04: There is no relationship between HIV/AIDS status and the existence of social support networks among previously incarcerated men and women in Texas.

H_a4: There is a relationship between HIV/AIDS status and the existence of social support networks among previously incarcerated men and women in Texas.

I used multiple logistic regression analysis to test the null and alternative hypotheses. For each hypothesis, the dependent variable was the dichotomous HIV/AIDS status variable. For RQ1, the variables used to predict HIV/AIDS status were the demographic characteristics of former prison inmates (age, gender, ethnicity, marital status, and SES). For RQ2, the variables used to predict HIV/AIDS status were the IDU variables (incarceration for IDU, history of IDU, IDU while incarcerated, and use of illegal drugs other than IDU). For RQ3, the variable used to predict IDU (incarceration for IDU) among former prison inmates was the existence of former inmates' social support network. For RQ4, the variable used to predict HIV/AIDS status was the existence of former inmates' social support network.

<div align="center">**Conceptual Framework**</div>

The study was based on the behavior models of importation and deprivation.

Importation Model

The manner in which individuals in the prison environment cope with internal and external issues led to the theory that prisoners import inmate culture (Kerley, 2017; Sykes, 1958). Specifically, the reason for using the importation approach was to clarify how inmates organize in response to the social structure and environment of prison (Kerley, 2017). Key to this approach is the notion that former inmates will bring major variables, such as previous contact, socialization, and criminal experiences, into the prison to shape former inmates' response to the institution (Figure 1).
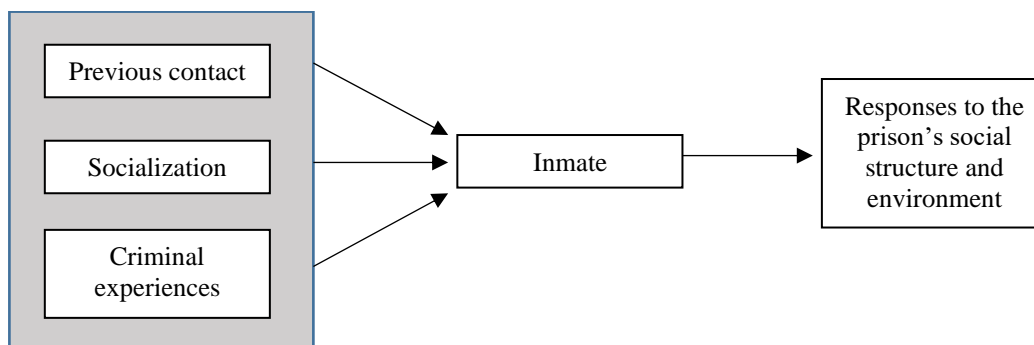
Figure 1. Prison subculture importation model (Kerley, 2017).

Clemmer's (1940) illustrious research suggested that inmates adjust to prison environment, and many deliberately embrace the prison mentality. Clemmer's perception of prisonization highlights prison normalization based on how inmates may change their dialect, daily routine, and social behavior in order to adjust to the environment and not to stand out. Kerley (2017) posited a more scholarly approach on inmate behavior based on prior imprisonment, socialization, and preexisting conditions from their established communities. The prison environment breeds groups that ally with each other in an effort to cope with the environment, and inmates' behavior is a direct response to their environment (Kerley, 2017). As the cultural and SES composition of the United States evolved and diversified in the late 1950s, Robbins (2002) found the importation method a valid explanation of inmate behavior. In the late 1950s, a booming U.S. economy led to the marginalization of the uneducated, unemployed, and poor, and criminal activity increased (Howell & Griffiths, 2018). As evidence of the increase in criminal activity, Howell and Griffiths found that prison populations soared between 1950 and 1980 to numbers that substantially exceeded those a generation earlier and resulted in the incarceration of more criminals per capita than any other nation.

Proponents of the importation model contend that behavioral change occurs with an assumption that prisoners import preincarceration behaviors into the prison system along with the inmates, leading inmates to indulge in prison learned behavior, including behaviors that place the inmates at risks of contracting HIV/AIDS (Azbel et al., 2017; Jovanovska, Kocic, & Stojcevska, 2014). Azbel et al. (2017) and Jovanovska et al. (2014) contended that criminals tend to develop certain attitudes and behaviors in the community, and these tendencies remain intact following incarceration. Because of these ingrained tendencies, attitudes, and personal characteristics, prisoners' manifest certain behavioral responses when incarcerated.

Deprivation Model

According to the deprivation model of inmate behavior, particular characteristics of life in prison have a significant influence on the attitude, self-image, behaviors, and values of inmates, which, once changed, result in a unique culture that embodies certain viewpoints and behaviors (Kerley, 2017; Sykes, 1958). Specifically, the reason for using the deprivation approach was to clarify how inmates change to adapt to the prison life they find themselves surrounded by. Goffman's (1961) concept of the total institution encompasses the notion of the prison as a place of residence and work, where a large number of similarly situated individuals are cut off from wider society for an appreciable period, living together in an enclosed, formally administrated way of life. A prison environment isolates inmates from society and deprives them of their normal societal ways of fulfilling certain needs (Abiona, Balogun, Adefuye, & Anguh, 2015; Azbel et al., 2017; Mears, Stewart, Siennick, & Simons, 2013). Absent the fulfillment of those needs

in the usual manner, inmates must make changes to their behavior or their modes of response (Abiona et al., 2015; Azbel et al., 2017; Mears et al., 2013). The loss of the usual way of fulfilling certain needs drives prison inmates into an array of behavioral responses, most of which involve adherence to an already established inmate code (Azbel et al., 2017; Jovanovska et al., 2014; Mears et al., 2013).
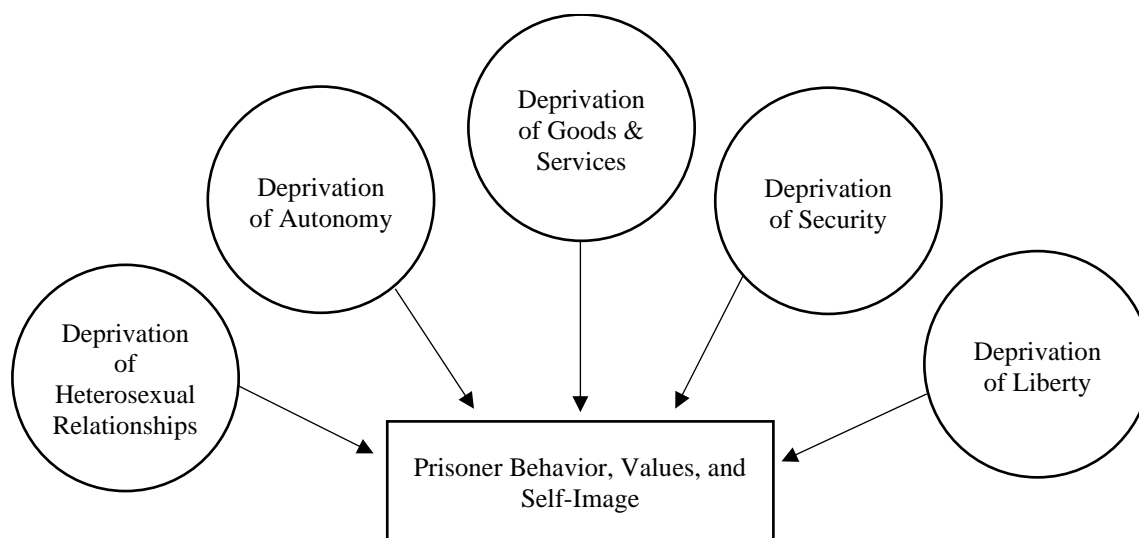
Figure 2. Prison subculture deprivation model (Kerley, 2017; Sykes, 1958).

Nature of the Study

This cross-sectional quantitative correlational study involved convenience sampling to gather data from formerly incarcerated male and female individuals from Texas to analyze the relationship between their HIV/AIDS status and their demographic characteristics, their IDU, and the existence of their social support networks. Accessibility was the primary factor in determining the research design of this study. Prison inmates have rights: They are protected from experimental research, and one-on-

one interviews (Faiver, 2017). For this reason, nonexperimental quantitative correlational research method and design were suitable for the study.

I used a survey questionnaire developed by the CDC to collect data from Prison Talk, an online web community developed in a prison cell, designed in a halfway house, and funded by donations from families of ex-offenders. Prison Talk has served as a medium for bringing people together with an interest in supporting the prisoner community. I also developed questions and sent them out via SurveyMonkey to Prison Talk subscribers. SurveyMonkey is an online tool for the creation and customization of surveys and includes data analysis, sample selection, bias elimination, and data representation (Massat, McKay, & Moses, 2009).

Data Analysis

I used multiple logistic regression analysis to test the study hypotheses. This analysis was appropriate because the dependent variable was dichotomous; an ordinary least-squares regression assumes an interval level or continuous dependent variable. It was also consistent with many epidemiological studies in which researchers analyzed the presence or absence of a condition, such as a virus test result (Lyons, Osunkoya, Anguh, Adefuye, & Balogun, 2014). I applied multiple logistic regressions four times, once for each research question. HIV/AIDS status was the dependent variable in $H1$, $H2$, and $H4$, and IDU was the dependent variable in $H3$. The independent variables included demographic characteristics (gender, ethnicity, marital status, and SES), IDU (incarceration for IDU, history of IDU, IDU while incarcerated, and use of illegal drugs that are intravenous), and the existence of former inmates' social support network.

Study objectives were to administer the questionnaire via SurveyMonkey (Massat et al., 2009) to subscribers of Prison Talk and to perform data analysis by implementing the Statistical Package for the Social Sciences (SPSS) Version 24 (IMP SPSS, 2016). SPSS provides a secure way to analyze data using multiple methods.

The first step in the analysis for this research included descriptive statistics such as measures of central tendency (i.e., mean, median, and mode). Percentages were used to express the number of participants in this study and the distribution of participants based on demographic information. The second step involved a correlation analysis to determine if relationships exist between variables. The third step involved conducting inferential statistics by measuring the differences. An analysis of variance was the statistical tool used to measure differences. I reported the analysis of the data as part of the study and answered the research questions. Recommendations for future research generated from the results appear in Chapter 5.

Definitions

The prevalence of HIV/AIDS among former inmates is a broad subject in a field that contains various definitions and concepts. However, much of the terminology used in this study is within the generally accepted vernacular of the typical U.S. resident. Where ambiguities may exist, the definition of the term, as used in the context of this study, appears below. This section includes a summary of the definitions of variables used in the analysis, along with any terms for which the interpretation may be ambiguous.

Behavior: Refers to high-risk behaviors that prison inmates might engage in preincarceration or during incarceration, which place them at high risk of contracting

HIV/AIDS (Oser et al., 2017). Oser et al. (2017) found, "Heroin use, cocaine or crack use, co-infection with syphilis, and several HIV risk behaviors (sex with men, multiple sexual partners, sex with prostitutes, and needle sharing) were all associated with increased risk of HIV infection" (p. 10). High-risk behaviors include parental exposure during blood transfusion, needle sharing during IDU, percutaneous injuries, and sexual exposure during receptive and insertive anal and penile-vaginal intercourse (CDC, 2012a). The FBOP discourages such high-risk behavior as sharing needles, sharing equipment for body piercing and tattooing, sharing items that may be contaminated with blood, having unprotected sex, and failing to cover a skin injury (FBOP, 2013a).

Federal Bureau of Prisons (FBOP): An agency of the U.S. Department of Justice, the FBOP employs approximately 38,000 employees to oversee the incarceration and care of approximately 219,000 federal offenders at 119 institutions ("About the Bureau of Prisons," 2013b), of which 197,007 (93.3%) are men and 14,188 (6.7%) are women ("Quick Facts About the Bureau of Prisons," 2013b). The FBOP operates a system of federal confinement facilities created to accommodate people convicted of violating a federal law, awaiting trial for violating a federal law, or being held temporarily for violating state or local laws ("Difference between Federal, State, & Local Inmates" n.d.). The FBOP consists of a headquarters, six regional offices, 22 residential reentry management offices, two staff training centers, and 119 institutions ("About the Bureau of Prisons," n.d.).

Inmate: A person incarcerated for violating a federal law, suspected of violating a federal law, or scheduled for arraignment ("Difference between Federal, State, & Local Inmates," n.d.).

Intervention: Actions or programs undertaken by prison administration, the FBOP, the TDCJ, or an independent organization to prevent the transmission of HIV among inmates during incarceration and postrelease (FBOP, 2013c; Mundt, Baranyi, Gabrysch, & Fazel, 2018; Nyamathi et al., 2017).

Preventive strategies: Actions taken to prevent the spread of HIV. Such prevention strategies include measures employed to prevent the transmission of HIV between inmates and between former inmates and residents of the community (Brenner et al., 2018; Nyamathi et al., 2017).

Treatment: HIV/AIDS treatment; for inmates exposed to HIV or who contracted HIV, treatment involves a postexposure prophylaxis consisting of the administration of multiple medications as part of a highly active antiretroviral therapy, thereby preventing the spread of the virus in the body and possible complications such as opportunistic infections (Brenner et al., 2018).

Social support: A network of family, relatives, and friends (Schrag & Schmidt-Tieszen, 2014). Researchers have found that women are more than likely to communicate the need for more social support than men (Porreca, Parolin, Bozza, Freato, & Simonelli, 2017). Many former inmates do not take advantage of this support. Social support can be temporary, which can ultimately affect self-esteem and contribute to social adjustments (Ghorbani, Dolatian, Shams, & Alavi-Maid, 2014).

Assumptions

Wargo (2015) defined research assumptions as self-evident truths. I studied previously incarcerated inmates who participated in Prison Talk and volunteered to complete my questionnaire. Therefore, I assumed the data gathered were free of errors, and (because the circumstances meant that data were not verifiable through observation and blood tests), I assumed the participants were forthcoming in their responses. Because prison constraints, time constraints, and financial constraints meant it was not feasible to gather the data in person, I had to assume the integrity of the data collected.

Scope and Delimitations

Although the transmission of HIV is attributable to numerous variables, I limited the focus of the study to demographic characteristics, IDU, and the existence of former inmates' social support network. I made this decision after an exhaustive review of the literature revealed evidence of the significance of these variables as factors in the prevalence of HIV/AIDS. However, I also included many preincarceration measures of these variables, such as incarceration for IDU and history of IDU, to address gaps in the literature.

The scope of this study was also limited to former prison inmates and did not include jail inmates. Because jail inmates tend to be incarcerated for a shorter period, the data available on jail inmates are limited, and an analysis of data on jail inmates was therefore impossible. The scope was limited to former federal and state prison inmates in the state of Texas. The state of Texas was a suitable location because of the high prevalence of HIV/AIDS among inmates in this state. The data available indicated the

characteristics of former prison inmates in Texas are similar to the characteristics of

former prison inmates in other states, which increased the likelihood that the findings

from this study will generalize to prison systems in other states.

Limitations

The limitations of this study were possible weaknesses that could not be

controlled and may have affected its validity. Creswell and Clark (2017) contended that

limitations of a study are inherent exceptions, reservations, and qualifications of the

study; thus, limitations identify potential weaknesses. A nonexperimental, cross-sectional

design was suitable for this study. Because prison inmates are a vulnerable population

(Faiver, 2017), it was not possible to design an experimental or quasi-experimental study

using prison inmates. In addition, data on prison inmates in Texas are limited, which

made a longitudinal study impossible. A nonexperimental, cross-sectional design was the

best design possible in these circumstances. Just as I decided to limit the study to a

nonexperimental design at a single point in time, I also decided to employ quantitative

methods.

Significance

This study filled a gap in existing research regarding risky behavior and

HIV/AIDS transmission in prison. Disparities exist in the United States between the

incarcerated population and the general population regarding the rates of HIV/AIDS

(Maruschak, 2015).

Stopping risky behavior and preventing HIV transmission in prisons involves a

multidimensional ecological approach with an emphasis on the population, prison staff,

prison administrators, legislators, and policy makers (Abiona et al., 2015). Identifying the

factors that contribute to the spread of HIV/AIDS among incarcerated individuals in

Texas prisons could provide valuable evidence for policy makers, legislators, prison

administrators, and researchers in order to develop effective prevention measures and

help reduce the transmission of HIV/AIDS. When prisoners are released, they go home to

wives, husbands, families, and the general public, where their learned risk behaviors

could contribute to the epidemic outside prison. Improved prevention of HIV/AIDS in

prisons could result in fewer cases of HIV/AIDS among former prison inmates and fewer

cases of HIV/AIDS among individuals in the community (Abiona et al., 2015). Fewer

cases of HIV/AIDS would result in fewer AIDS-related fatalities. By identifying

problems with existing prevention programs for HIV/AIDS in prisons, the findings may

assist the FBOP and the TDCJ.

I also designed the study to assess the need to assist and support former prison

inmates by expanding on the potential risk factors of IDU and the lack of social support.

According to the National AIDS Control Council, IDU is a risk factor for HIV and a

global health problem. Existing literature, as previously discussed, emphasizes risky

sexual behavior inside and outside the prison system, isolation, the lack of education, and

IDU treatment before and after imprisonment. I could not find any research that

compared IDU and social support as a contributing factor to HIV/AIDS prevalence using

the importation and deprivation models. My study highlighted learned prison behavior

and how it can shadow a former inmate far beyond their prison sentences. The rate of

imprisonment is high among people who use intravenous drugs (58%), and these people

might be at high risk of HIV/AIDS before, during, and after incarceration because they

are frequently in contact with those who have HIV/AIDS during pre- and

postincarceration (Degenhardt et al., 2017). Immediately following release from prison,

the likelihood of an intravenous drug user relapsing is high without social support, and

relapse increases the likelihood of adverse outcomes such as risky behavior, drug-related

death, and homelessness (Altice et al., 2016).

Implications for Social Change

Results could assist in improving HIV/AIDS prevention in prisons by informing

prison administrators of ways stakeholders can better cope with the prevalence of

HIV/AIDS in Texas state and federal prisons. The findings may provide information to

develop interventions to improve education and interventions for inmate populations.

Information about the relationship between factors and HIV/AIDS status among former

inmates may assist former inmates in living with HIV/AIDS and lead to improvements in

their efforts toward limiting exposure to other inmates. Because many HIV/AIDS-

infected prison inmates ultimately reenter the community, potentially endangering the

health of the community through high-risk behaviors, it is imperative to take steps to

control the prevalence of the life-threatening infection. Providing education and treatment

to former prison inmates, including how infected people can impede the spread of the

infection, may help to save the public from infection, thus providing positive social

change at the individual and community levels.

Another social implication of this study is that the findings may provide

information about how to improve prison conditions and treatment of inmates with

HIV/AIDS. Prison inmates with HIV often face psychological and mental issues, such as sexual harassment, that make it hard for them to avoid the fact that they have the disease (Meyer et al., 2013). Findings that reveal possible treatments and therapies to improve the quality of life for HIV/AIDS-infected former inmates without negatively affecting other inmates may lead to the implementation of these practices in prison systems across the United States.

Summary

In Chapter 1, I introduced the foundation of the problem. The nature of the study was an introduction to the methodology and justification for the use of phenomenological qualitative model. The importation and deprivation models were the concepts that framed this study. I assumed that all participants responded truthfully and honestly. My ability to reach former inmates was limited because of the life events that take place after incarceration and the difficulty of accessing the population of former prison inmates in Texas. Chapter 2 includes the results of an extensive literature review that served to establish the foundation of the study and justify the need for it.

Chapter 2: Literature Review

Current methods of preventing and managing HIV/AIDS in Texas prisons have been somewhat effective, but the rate of HIV/AIDS infection among inmates in Texas continues to be one of the highest in the United States (Maruschak, 2015). Although researchers have studied the factors that contribute to the prevalence of HIV/AIDS among imprisoned and jailed inmates, none have used Prison Talk data on prison inmate populations in states where the rate of HIV/AIDS infection has been historically high, including California, Florida, New York, and Texas, where 51% of all state prison inmates with HIV/AIDS are incarcerated (Maruschak, 2015). Identifying the factors that contribute to the spread of HIV/AIDS among incarcerated individuals in Texas prisons could provide valuable evidence to policy makers, legislators, prison administrators, and researchers, thereby furthering the development of effective preventive measures and helping to reduce the rate of HIV/AIDS. A growing problem for years, the rate of HIV/AIDS among prison inmates has alarmed legislators in many states, even in those states where the rate of HIV/AIDS is considerably lower than that in Texas federal prisons.

In 2005, Texas Senator R. Ellis passed House Bill 1927, in the 79th legislature on the requirements that certain offenders undergo testing for AIDS, HIV infection, or related conditions. Ellis stated that Texas must attack the problem due to the cost to lives inside and outside the prison system. A re-entry coordinator for the Texas HIV medication program, which provides HIV medications to low-income Texans, noted a discussion was necessary on continued medication for released prisoners and a

continuation to prison health care services in the community: "Prisoners receive such good HIV medicine regimens in prison that most are released with undetectable viral loads. If they lapse, that is such a waste of what was expensive medication" (Clarke, 2012, p. 26).

The basis of re-entry was beliefs, concerns, and inferences, including the presuppositions that former inmates contract HIV while incarcerated and that inmates engage in high-risk HIV/AIDS transmission behaviors while incarcerated. Abiona et al. (2015) indicated the beliefs, concerns, and inferences behind the mandate revolved around the notion that the high rate of HIV/AIDS in prison increases transmissibility among inmates and subsequently their partners after release. Abiona et al. captured these beliefs in their theoretical framework model.

However, current preventive measures have not been as effective as many had hoped. Loeliger et al. (2018) and the CDC (2013) determined that the prevalence of HIV/AIDS among prison inmates is increasing faster than it is among the general population. Loeliger et al. (2018) and the CDC (2013) found no research that would account for this phenomenon and no empirical evidence that included a summary of differences in prevention strategies or treatments.

The basis of the means of preventing and addressing the transmission of HIV/AIDS among prison inmates and members of the community post-release may be the premise that former inmates contract HIV and engage in high-risk behaviors while incarcerated (Abiona et al., 2015). The premise may be partially true, as researchers have established that although former prison inmates do contract HIV and do engage in high-

risk behaviors while incarcerated (Annaheim, Wangmo, Bretschneider, Vogel, & Elger, 2018; Milloy et al., 2013), but developing preventive measures and interventions based on these premises alone oversimplifies a complex problem. Many of the behaviors exhibited during incarceration are fomented preincarceration (Oppong et al., 2014; Strathdee et al., 2015). Therefore, this study addressed a gap in the literature by providing empirical evidence on the relationship between HIV/AIDS among former Texas prison inmates and engagement in high-risk behaviors preincarceration (incarceration for IDU and history of IDU) and during incarceration (IDU while incarcerated), demographic characteristics of former prison inmates, and the existence of former inmates' social support network.

An objective of this cross-sectional study with a quantitative correlational research design was to analyze the relationship between HIV/AIDS status and the demographic characteristics of former inmates, IDU among former inmates, and the existence of former inmates' social support network. Multiple logistic regression analysis was suitable for testing the null and alternative hypotheses. For each hypothesis, the dependent variable was the dichotomous HIV/AIDS status variable. For RQ1, the variables comprising the demographic characteristics of former prison inmates (age, gender, ethnicity, marital status, and SES) were used to predict HIV/AIDS status. For RQ2, the variables composing the IDU variable among former prison inmates (incarceration for IDU, history of IDU, IDU while incarcerated, and use of illegal drugs other than IDU) were used to predict HIV/AIDS status. For RQ3, the variables on the existence of former inmates' social support network were used to predict IDU

(incarceration for IDU) among former prison inmates. For RQ4, the variables comprising

the existence of former inmates' social support networks were used to predict HIV/AIDS

status.

This chapter includes empirical evidence to justify the inclusion of the variables

used in the study, including prison inmate demographic characteristics, IDU tendencies

of former inmates, and the existence of former inmates' social support networks.

Researchers have established the importance of these factors in affecting the prevalence

of HIV/AIDS among former prison inmates, and this chapter includes a review of their

research.

The literature search strategy discussion includes the steps taken in the exhaustive

review of the literature in the field. Then the guiding theories and frameworks of the

study appear in the theoretical foundation section. The following topics are the

prevalence of HIV/AIDS in the United States and a review of the literature on the critical

factors influencing the spread of HIV/AIDS among former prison inmates: (a)

relationships between demographics and HIV/AIDS among former prison inmates, (b)

relationships between IDU and HIV/AIDS among former prison inmates, (c)

relationships between sex work and HIV/AIDS among former prison inmates, and (d)

relationships between HIV/AIDS education and HIV/AIDS among former prison

inmates. Following a review of the literature on the critical factors influencing the spread

of HIV/AIDS, the focus of the final discussion is literature on prisons in the state of

Texas and correctional health care providers.

Literature Search Strategy

This chapter includes the results of an exhaustive search of peer-reviewed journal articles and published dissertations. The primary focus of the search was theories and information pertaining to the prevalence of HIV/AIDS among former prison inmates, as well as the factors contributing to the spread of HIV/AIDS among former prison inmates. Google Search and Google Scholar were the tools used to locate current sources of information, in addition to using databases such as EBSCOhost, InfoTrac One File, Journals@Ovid, ProQuest, Questia, and ProQuest Digital Dissertations. Searches included keywords such as *inmate demographics, inmate HIV education, inmate HIV status, Texas prison HIV, IDU among former prison inmates, ex-offenders, relationship between prostitution and HIV in prison inmates, sex work and prison inmates, unprotected sexual activities, Federal Bureau of Prisons, Texas Department of Corrections, correctional facilities, inmate behavior, deprivation and importation models, epidemiology of HIV/AIDS, HIV prevention strategies, HIV/AIDS treatment, correctional health care provider, prison inmate hierarchy, prison inmate culture, inmate assimilation,* and *HIV/AIDS prison intervention education programs*. The sources sought in the research for this study were peer-reviewed articles published between 2010 and 2018. In addition, journal articles published in scientific and academic journals with a high scientific journal ranking were sought. Identifying these journals involved conducting a search at the Scimago Journal and Country Rank. The searches included the following:

- the subject area of medicine, the subject category of epidemiology, the

  region/country of United States, and the year 2018;

- the subject area of all, the subject category of infectious diseases, the

  region/country of United States, and the year 2018; and

- the subject area of all, the subject category of immunology, the region/country

  of United States, and the year 2018.

Not all identified journals were accessible through the Walden University online library

system, and not every journal contained articles pertinent to this study. Although the

searches did not always yield actionable sources, the use of the scientific journal ranking

did help ensure the sources used were as reputable as possible.

Theoretical Foundation

Every prison inmate in the world is a unique person: a conglomerate of all the

distinct experiences, learned behaviors, and personal characteristics that make up the

culture of the prison inmate and make the prison inmate an individual. Prison inmates

learn some of the culture that they bring to prison from their time in the community and

some of the culture they have acquired while incarcerated in prison (Abiona et al., 2015).

Integrating two schools of thought on the importation and deprivation models of inmate

behavior provides a framework to better understand the behavior of former prison

inmates.

Theories of Inmate Behavior

Prisonization. Clemmer's (1940) book *The Prison Community* was a study of

U.S. prisons and inmates. Clemmer coined the term *prisonization* to mean taking on "in

greater or less degree . . . the folkways, mores, customs, and general culture of the

penitentiary" (p. 299). Clemmer noted prisoners are subject to influences termed the

universal factors of prisonization that include a knowledge of the informal structure of

the prison, acceptance of an inferior role, development of new social habits, adoption of

various survival techniques, and adoption of a new language. Clemmer found that by

adhering to an inmate code, prisoners coped with the pains of imprisonment and

eventually achieved status and solidarity with their imprisoned peers. Sykes (1962)

observed that prison forces inmates into lengthy and intense relationships, and

subsequently, inmates learn attitudes and behaviors from each other.

Importation model. The manner in which individuals in the prison environment

cope with internal and external issues led to the theory that inmates import inmate culture

(Kerley, 2017). Specifically, the importation approach intended to clarify how inmates

organize in response to the social structure and environment of prison (Kerley, 2017).

Key to this approach is the notion that inmates will bring major variables, such as

previous contact, socialization, and criminal experiences, into the prison to shape their

response to the institution.

The importation approach discounts Clemmer's (1940) notion of prisonization.

Kerley (2017) posited a more scholarly approach on inmate behavior as preimprisonment

socialization, brought with them from their established communities and pre-existing

behavior. The prison environment breeds groups that ally with each other in an effort to

cope with the environment, and their behavior is a direct response to their environment

(Kerley, 2017). As the cultural and SES composition of the United States evolved and

diversified in the late 1950s, Robbins (2002) found the importation method a valid explanation of inmate behavior. In the late 1950s, a booming U.S. economy marginalized the uneducated, the unemployed, and the poor, and criminal activity increased (Howell & Griffiths, 2018). As evidence of the increase in criminal activity, Howell and Griffiths found that prison populations soared between 1950 and 1980 compared to those a generation earlier, which led to the incarceration of more criminals per capita than any other nation.

Proponents of the importation model contend that behavioral change occurs with an assumption that prisoners import preincarceration behaviors into the prison system along with the inmates, leading inmates to indulge prison-learned behavior, including behaviors that place the inmates at risks of contracting HIV/AIDS (Azbel et al., 2017; Jovanovska et al., 2014). Azbel et al. (2017) and Jovanovska et al. (2014) contended that criminals tend to develop certain attitudes and behaviors in the community and these tendencies remain intact following incarceration. Because of these ingrained tendencies, attitudes, and personal characteristics, prisoners' manifest certain behavioral responses when incarcerated.

Deprivation model. According to the deprivation model of inmate behavior, particular characteristics of life in prison have a significant influence on the attitude, self-image, behaviors, and values of inmates, which, once changed, result in a unique culture that embodies certain viewpoints and behaviors (Kerley, 2017). Goffman's (1961) concept of the total institution encompasses the notion of the prison as a place of residence and work, where a large number of similarly situated individuals are cut off

from wider society for an appreciable period, while living together in an enclosed, formally administrated way of life. A prison environment isolates inmates from society and deprives them of their normal societal ways of fulfilling certain needs (Abiona et al., 2015; Azbel et al., 2017; Mears et al., 2013). Absent the fulfillment of those needs in the usual manner, inmates must make changes to their behavior or their modes of response (Abiona et al., 2015; Azbel et al., 2017; Mears et al., 2013). The loss of the usual way of fulfilling certain needs drives prison inmates into an array of behavioral responses, most of which involve adherence to an already established inmate code (Azbel et al., 2017; Jovanovska et al., 2014; Mears et al., 2013). Closely related to the deprivation model is the importation model.

Deprivation and importation models combined. Kerley (2017) posited that the importation and the deprivation model complement each other in explaining how preincarceration experiences, behaviors, and personal characteristics, when combined with the behaviors, experiences, and personal characteristics while incarcerated, create an inmate subculture that results in the participation in high-risk behaviors conducive to the transmission of HIV/AIDS and other sexually transmitted infections. Kerley contended that this two-model framework—based on the combination of characteristics, behaviors, personal characteristics, and experiences adopted preincarceration and during incarceration—coalesce and interact to influence the behaviors of inmates and establish each their risk of HIV transmission. Given the high risk of contracting HIV while incarcerated, any mode of inmate behavior that elevates the rate at which inmates transmit HIV is important, as the inmate may eventually move from one correctional and

rehabilitation facility to another and pose a risk to inmates in other facilities (Azbel et al., 2017; Jovanovska et al., 2014). Some researchers have used the deprivation and importation models to explain the behavior of former prison inmates, and others have used the place vulnerability theory, the triangle of human ecology, and the AIDS-risk reduction model to explain the proliferation of HIV/AIDS among former prison inmates.

Frameworks Explaining the Communicability of Sexually Transmitted Diseases

In demonstrating the behavior models of deprivation and importation related to the prevalence of HIV/AIDS among the inmate population and the risk of contracting sexually transmitted diseases varies on the behavioral characteristics of the affected population (Meyer et al., 2017). The behavioral model is consistent with the basis of this study on the combination of the importation and deprivation models of inmate behavior. Elaborating on these theories, Jamil et al. (2017) noted that human populations exhibit widely variable and heterogeneous sexual and injection drug behaviors that they conceptualized into three different groups.

Jamil et al. (2017) and Kouyoumjian et al. (2018) identified three groups of individuals as experiencing a heterogeneous risk of exposure to a sexually transmitted infection. The first group, which includes those who tend to experience the highest risk of exposure to a sexually transmitted infection, is the core group or the most at-risk population, which is typically men who have sex with men, intravenous drug users, and female sex workers. Bridging the high-risk first group and the low-risk third group, the second group consists of individuals who experience an intermediate risk of exposure, such as clients of female sex workers (Jamil et al., 2017; Kouyoumjian et al., 2018). The

third group, which is the group composed of the majority of the community, is at the lowest risk of exposure to sexually transmitted infections (Jamil et al., 2017; Kouyoumjian et al., 2018).

Jamil et al. (2017) and Kouyoumjian et al. (2018) contended that the third group, which contains a majority of the community, could also contain individuals who are highly vulnerable to practices that may put them at a greater risk of contracting a sexually transmitted infection. Low et al. contended that after vulnerable population groups adopt the high-risk practices associated with HIV/AIDS, they tend to transition to the bridging population, where they are at an intermediate risk of infection. Jamil et al. and Kouyoumjian et al. posited that because the groups are not mutually exclusive, the introduction of opportunities for exposure to an infection in one group can fuel an epidemic in another group. Jamil et al. and Kouyoumjian et al. concluded that the pattern and degree of the prevalence of HIV/AIDS depends on the size of each group, the prevalence of HIV within each group, and interrelationships between the three groups.

In addition to the above-stated theoretical framework, the social cognitive theory posited by Wood and Bandura (1989) provided a framework for understanding why inmates behave in certain ways, given their individual cognitive style and environmental influences, such as the circumstances surrounding their incarceration and the physical factors of their incarceration. Wood and Bandura concluded that people exercise personal influence through their belief systems and self-regulatory capabilities, which influences human behavior through goal-setting, self-motivation, and self-enabling functions that also determine the manner in which people take action and the commitment to act. Wood

and Bandura theorized that social cognition through the self-regulatory functions of intention, forethought, self-monitoring, self-reflectiveness, and self-efficacy "address what it means to be human" (p. 6). By incorporating the theories of importation and deprivation, as well as the theories of Jamil et al. (2017), Kouyoumjian et al. (2018), and Wood and Bandura, the variables used in the study included measures of inmate behavior preincarceration and during incarceration that accounted for behaviors learned as members of different groups, which aided in the explanation of the relationship between HIV/AIDS among former prison inmates and demographic characteristics, IDU, and existence of former inmates' social support network.

Place Vulnerability Theory

Proponents of the place vulnerability theory contend that adverse life circumstances, such as disease, do not uniformly affect all places and that vulnerability to disease inevitably has ties to specific places. The environment and the characteristics that compose the environment can shape the spatial patterns of a disease and influence an individual's vulnerability to disease. Even geographical differences in physical, social, economic, and other factors make people more vulnerable to disease (Johnston, 2013). In addition to the geographical environment, there is the social environment within which an individual life, which consists of all the social and cultural groups, relationships, and communities within which the individual exists. Because socially constructed environments create circumstances in which individuals come into contact with disease-inducing agents, individuals' social environment substantially influences their

vulnerability to disease and is a critical aspect of understanding the geography of HIV/AIDS.

The geographic distribution of HIV/AIDS illustrates how the social environment influences disease risk and distribution. Cultural and societal norms of acceptable behaviors exist in the social environment and influence the individual's environment (Del Casino, 2017; Frye et al., 2017). The physical and social characteristics of a neighborhood influence an individual's health by shaping the choices and behaviors of the individual (Chilton, 2008).

Factors such as SES that vary spatially can mitigate the behavioral processes that facilitate the transmission of HIV infection. Places where high-risk behaviors are socially acceptable foment an increased vulnerability to HIV due to the concentration of vulnerable people in that environment. To gain an understanding of HIV/AIDS patterns among former prison inmates incarcerated in federal prisons in Texas, and ultimately accomplish the goals set forth by the National HIV/AIDS Strategy, it was crucial to examine the geographical distribution of HIV/AIDS infection, including the reasons for these spatial patterns and the possible factors that contribute to the higher vulnerability to HIV/AIDS inherent to certain locations. To help understand the spatial patterns of disease more effectively, the focus of this study was on certain aspects of the triangle of human ecology.

The Triangle of Human Ecology

Bubolz and Sontag (2009) created the triangle of human ecology to explain the spatial patterns of disease. Creators of the triangle of human ecology posited that a

person's vulnerability to disease can result from three factors: population, behavior, and

habitat. Population refers to the biological and human characteristics of people; behavior

refers to the observable culture of individuals, such as choices and activities; and habitat

refers to the environment in which people live. These three factors vary spatially and are

useful for examining patterns in the geographic variations of a disease.

As this study involved using a survey questionnaire on former Texas federal

inmates to examine the relationship between HIV/AIDS status and demographic

characteristics, IDU, and existence of former inmates' social support network, the focus

was on the habitat factor of the triangle of human ecology. Habitat, defined as the

environment within which people live, is has three parts that vary geographically: natural,

built, and social (Nielsen, 2012). The geographical variation of environments and the

factors that compose those environments may be the most crucial factors in explaining

the spatial variation of disease. Because diseases vary spatially, as do environmental

factors, the spatial variation of environmental characteristics influences the spatial

distribution of disease, which makes individuals in some environments more susceptible

to disease than others.

Prevalence of HIV/AIDS in the United States

HIV/AIDS is more prevalent in the United States than ever before. In 2017,

38,739 people were diagnosed with HIV, and the annual number of new HIV cases

remained stable between 2012 and 2016 (CDC, 2019). In addition, there were 15,807

deaths among people with HIV in the United States (CDC, 2019). The CDC (2019)

estimated that 1,122,900 adults were living with HIV by the end of 2015, of which

162,500 (15%) had not received their diagnosis. Of those living with HIV, African Americans accounted for 43% (16,694), and Hispanics/Latinos accounted for 26% (9,908). Between 2012 and 2016 HIV cases decreased by 8% for Caucasians and 5% for African Americans but remained the same for Hispanics/Latinos (CDC, 2019). African American and Latino women at high risk for HIV/AIDS perceived their risk of acquiring HIV/AIDS to be relatively low (Blackstock et al., 2015). This misconception has led to fewer individuals applying self-protective behavior such as condoms, which increases their vulnerability to HIV/AIDS (Blackstock et al., 2015).

Confined to close quarters and particularly vulnerable to contracting HIV, prison inmates have been at a higher risk of contracting HIV than those in the wider community. Although this may not appear to be a problem for individuals in the community, former prison inmates who have contracted HIV may engage in high-risk behaviors in the community following their release, which poses a risk to people in the community. A factor that puts incarcerated individuals at a higher risk of contracting HIV is linkage to care (Rich et al., 2013). Researchers found that the number of deaths among prisoners declined from 100 per 100,000 in 1995 to nine per 100,000 in 2007, and this decline was attributable to life-sustaining antiretroviral therapy and lack of access to illicit drugs in prison.

Demographics and HIV/AIDS Among Former Prison Inmates

An increase in the rate of incarceration in the United States over the past decade and the prevalence of HIV/AIDS among prison inmates has attracted the interest of researchers. Researchers have examined the relationship between HIV/AIDS and the

demographic characteristics of former inmates, including ethnicity, gender, level of education, and SES. Although the Civil Rights Act of 1964 required racial equality in employment, voting, and education and banned discrimination, the federal, state, and local governments have continued to prevent African American males convicted of felonies from enjoying these civil rights (Pettit & Sykes, 2015). Understanding obstacles to health care for African America former inmates, such as environment, finances and distrust of the medical professions, is critical, and this clear understanding would decrease health care disparities (Watson, 2014). Former inmates living with HIV who do not have access to medical care or prescriptions will experience treatment interruptions (Miller, et. al 2019). Interruptions in HIV treatment regimen poses significant health care risks, including the transmission of the virus (Miller, et. al 2019). Without timely and proper treatment, a former inmates HIV status can progress to the final stages of AIDS (Miller, et. al 2019).

Gender and HIV/AIDS Among Prison Inmates

In correctional facilities, the female population has been the fastest growing population according to Baltieri (2013). Therefore, understanding the prevalence of HIV/AIDS among female inmate populations is important. Binswanger, Mueller, Beaty, Min, and Corsi (2014) found that HIV/AIDS was more prevalent among female inmates because of many of the same behaviors that led to their incarceration. For example, Alarid and Hahl (2014) found that drug use and prostitution were leading factors contributing to high HIV seroprevalence rates among female inmates. The high rate in the female population has associated comorbidities such as high-risk sexual behavior and

performance of sexual favors in prison (Farel et al., 2013), IDU, and sexual encounters with other intravenous drug users also contribute to the increased incidence of HIV/AIDS among female inmates (Alarid & Hahl, 2014). Dumont, Allen, Brockmann, Alexander, and Rich (2013), reported gender differences in the use of IDU, African American and Latino male inmates had a higher rate of participating in IDU than Caucasian male inmates. The study did not state any relevant factors contributing to former inmate's gender differences after incarcerations. My study of 50 former inmates found that the small number of women (15) was a limitation in terms of generalizing findings for women. According to (Baltieri, 2013), Caucasian female inmates partook in IDU at a greater rate than female inmates of other minority ethnicities. Baltieri (2013) examined interpersonal factors related to IDU within a sample of 315 females sentenced for robbery or homicide, and found that several inmates self-reported alcohol and drug misuse, risky sexual behavior, depression and psychosocial and criminological behavior. Baltieri research found no heath care measures that help former inmates with these issues and did not focus much on emotional or social support. My study pointed out that 78.0% reported that they could count on someone to provide them with emotional support, and 54.0% reported they wanted more emotional support. This highlights the gap in both of the studies.

Ethnicity and HIV/AIDS Among Prison Inmates

According to Rich et al. (2013), an estimated 20% of African Americans passed through the correctional system each year, and the imprisonment rate of African Americans non-Hispanic males was over 6 times that of Caucasian non-Hispanic males

and three times higher than that of Hispanic males. The prevalence of HIV/AIDS was higher among former prison inmates belonging to ethnic minorities than among individuals in the community, which is somewhat expected given the overrepresentation of individuals who identified with a minority ethnicity and individuals with a low SES in the prison system. Meyer et al. (2014) analyzed data from inmates and applied longitudinal analysis to determine HIV treatment outcomes throughout incarceration, including jail and prison. Meyer et al. (2017), found that sexual minorities were unreasonably incarcerated: 9.3% men in prison, 6.2% of men in jail, 42.1% of women in prions, and 35.7% of women in jail belonged to sexual minorities. Members of minorities who engaged in sexual activity while incarcerated were more than likely than not to have been sexually victimized as a child, sexually victimized while incarcerated, reported history of mental illness, and experienced solitary confinement during incarceration, and they were likely to contract HIV inside prison.

Prevalence of HIV/AIDS among ethnic minorities. Blackstock et al. (2015) found that, among HIV/AIDS-infected prison inmates, those who identify with a minority ethnicity represented the largest proportion of HIV/AIDS infected prison inmates. According to Blackstock et al., African American and Latino males experienced a higher prevalence of HIV/AIDS and other infectious diseases than their Caucasian counterparts did. Similarly, Rich et al. (2013) found that the HIV/AIDS epidemic in the United States incarcerated the largest percentage of African Americans, greater than South Africa during apartheid. Farel et al. (2013) discovered that the largest proportion of HIV/AIDS-infected men and women entering the care of North Carolina Department of Corrections

were those who identified with a minority ethnicity, such as African American.

Blackstock et al. and Farel et al. found that many of the inmates also had other diseases,

such as the hepatitis C virus, syphilis, and tuberculosis. Although the study's hypotheses

were supported by the findings, they also indicated some unexpected results. Contrary to

Blackstock and Farel expectations and previous research, they did not significantly

predict any outcomes. It is possible that the questions in that were measured were not

strong representations of the African American community. Overall questions seem to

measure culturally nonspecific beliefs about drug use.

High-risk behaviors prior to and during incarceration. Within the community,

African Americans tend to engage in high-risk behaviors more frequently than Caucasian

individuals do, and subsequently experience a higher rate of incarceration for drug-

related offenses (Dumont et al., 2013). Dumont et al. (2013) estimated the drug-related

incarceration rate for African American individuals as 756 per 100,000 adults, which is

more than 8 times the drug-related incarceration rate of 90 per 100,000 for Caucasian

individuals and more than twice the drug-related incarceration rate of 300 per 100,000 for

Latino individuals. Many of the individuals incarcerated for drug-related offenses

continue using drugs during their incarceration. Rowell-Cunsolo, Szeto, McDonald, and

El-Bassel (2016) examined 121 formerly incarcerated African American individuals in

New York City for numerous predictors of return to illicit drug use. Rowell-Cunsolo et

al. (2016) found that approximately 83% of the inmates examined had a history of illicit

drug use, and 29.8% had used drugs within 1 day after release. The study indicated a gap

within the system suggesting that programs for former inmates relating to healthy

decision-making is vital in order to stop the return of illicit drug use post-incarceration. The researchers focused questions were based on heroin use and only African American inmates which limited the overall participation. My study asked questions related to all types of drug use after incarceration although Rowell-Cunsolo et al.'s (2016) study was similar they were unable to identify if social support was a factor. Participants were given $30 in compensation which increases the number of participants as such their study generated 121 participants and my study was limited to 50 with no compensation.

Education Level and HIV/AIDS Among Prison Inmates

Although researchers have not specifically addressed the relationship between inmate education levels and the prevalence of HIV/AIDS, it is possible that inmate education could be a contributing factor to the prevalence of HIV/AIDS among this population. South, et. al (2017) found that inmates scored considerably lower in all forms of literacy, peer interventions such as peer education, peer support, peer mentoring, bridging roles, health promotion literature, and the importance of social influence and support. Rich et al. (2013) linked imprisonment to level of education for HIV/AIDS infected inmates who identified with a minority ethnicity. Holliday et al. (2017) observed that the number of African American former male inmates with HIV/AIDS is greater than the number of African American male undergraduate college students infected with HIV/AIDS. In a study of recidivism and the factors that contribute to recidivism within a cohort of HIV/AIDS-infected inmates, Fu et al. (2013) found that the attainment of less than a high school education was a major factor contributing to high levels of recidivism among the inmates in the sample. However, contrary to the above studies between

perceived racial discrimination and social support, coupled with levels of education for

HIV/AIDS, perceived racial discrimination and hopelessness, it is possible that all the

studies same size contributes to overall outcomes. A greater statistical reach generating

results more consistent with the literature if a larger sample size was found. The

researcher's gap is relatable to my gap within my study as it relates to the return to drugs

after incarceration. The need for further support programs that focus specifically on better

health related decision among former inmate users is critical to the betterment of

HIV/AIDS.

Socioeconomic Status and HIV/AIDS Among Prison Inmates

A high proportion of prison inmates have historically had a low SES. South et al.

(2017) indicated that one third of prison inmates in the United States who have some

form of employment at the time of incarceration had literacy problems. Inmates come

from low income communities with limited or no access to health care (South et al.,

2017). A social class gap within the prison system has resulted in a high prevalence of

HIV/AIDS, and lack of preventive health care, which is the major forerunner to

morbidity and morbidity (South et al., 2017). Complex social factors, such as poverty and

limited access to routine health care prior to incarceration, have also been contributing

factors to both mass incarceration and HIV/AIDS prevalence among African American

males and females (Rich et al., 2013). The relationship between these factors has been a

matter of debate, and further research is necessary to have a better understanding of this

phenomenon. Improved empirical data and a greater understanding of these factors would

allow policy makers and prison administrators to implement and improve preventive

health care, analysis of HIV/AIDS and other sexually transmitted diseases, and treatment plans specific to underserved communities or low socioeconomic status (Rich et al., 2013).

Existing methods of addressing the prevalence of HIV/AIDS have not been tailored to the specific needs of different genders, ethnicities, education levels, or SESs, which may have limited the effectiveness of these methods. For example, in Baltieri's (2013) sample, 35 Caucasian female inmates (11%) engaged in IDU at a high rate and reported a history of adolescent sexual abuse and same sex relationships inside prison, but ethnicity specific methods have not been used to address the prevalence of HIV/AIDS.

Intravenous Drug Use and HIV/AIDS Among Prison Inmates

There has been a significant increase in the imprisonment rate in the United States over the past several decades centered around drug-related arrests (Rowell-Cunsolo et al., 2016). As of December 31, 2011, 16.8% of all inmates under state jurisdiction were incarcerated for drug-related crimes (Carson & Golinelli, 2013). Researchers have studied the effectiveness of strategies used to reduce the percutaneous transmission of HIV. According to Baltieri (2013), inmates who engage in IDU, are at high risk for spreading infectious diseases such as HIV/AIDS, which makes the imprisonment of a large number of intravenous drug users particularly dangerous for inmates, prison staff, and the community upon release of the inmate.

Although drugs have been just as illegal inside the prison system as outside, inmates have still managed to procure illegal drugs, especially highly addictive injected

drugs (Washington Times, 2010). Because theses have been procured without the knowledge of corrections officers, clean needles have not always been available, and inmates have shared needles. To reduce the prevalence of needle sharing, many countries have created programs to provide intravenous drug users with clean needles, drug replacements, and bleach (Glauser, 2013). However, the United States prison system does not currently provide intravenous drug users with clean needles or disinfecting chemicals (Glauser, 2013). These programs have been effective elsewhere, but because drug use has still been illegal, many intravenous drug users have not trusted health care workers enough to ask for clean needles or disinfecting chemicals (Glauser, 2013). To reduce the transmission of HIV, some prison systems have allowed inmates who were not intravenous drug users to move to cells in separate sections of the prisons, where the probability of contracting HIV has consequently been lower (Blackstock et al., 2015). Although the incidence of HIV and high-risk behaviors has been lower in those sections of the prisons, prison guards have still found syringes and illegal drugs there (Annaheim et al., 2018).

The substantial increase in the incarceration of intravenous drug users has put a high proportion of people at risk of HIV infection in U.S. prisons (Rich et al., 2013) and increased the prevalence of HIV/AIDS among prison inmates in the United States. Researchers have therefore sought a better understanding of the relationship between the prevalence of HIV/AIDS and IDU before, during, and after incarceration among U.S. prison inmates, which has led to debate about the origins of the HIV/AIDS epidemic and whether the increased rate of the disease among prison inmates has been due to

transmission of the disease via IDU prior to incarceration or during incarceration

(Oppong, et. al 2014).

The Oppong et al. (2014) article pointed out HIV/AIDS within high rates areas in

close parsimony to prison facility due to low socioeconomic. Therefore, HIV/AIDS

ferment behind locked doors. The study makes clear that the health risk for minority

inmates while incarcerated is complex. The researchers did not provide concert data on

the reason this exists; they did suggest that there is less awareness and negative views on

treatment in the minority communities. Blackstock et al., (2015) findings revealed the

lack of HIV/AIDS preventions measures geared towards former women inmates and how

they are viewed within the community. Although both studies indicated IDU neither

study addressed the IDU implications as one of the main factors for HIV/AIDS while in

prison. My study looked at women and men participations in IDU and social support

outside of the prison setting to exam the need for further treatment and the levels in

which the community factors. The gap within these studies is based on inmates within the

prison system rather than when they are released. We all agree HIV/AIDS is high risk

among minorities and it is understood that IDU is a factor for HIV/AIDS. The sections

that follow address IDU before, during, and after incarceration, respectively.

Preincarceration Intravenous Drug Use and HIV/AIDS Among Prison Inmates

Evidence indicates that former inmates exhibit an increased tendency to engage in

high-risk behavior conducive to the transmission of HIV when they are outside of prison.

In a longitudinal study, Strathdee et al. (2015) investigated the preincarceration HIV risk

behavior of 542 male and female inmates in a northern Virginia jail. They found high

levels of risky intravenous drug behaviors among participants prior to incarceration and

significant differences in the prevalence of these behaviors by gender; for example, the

proportion of women who used dirty needles was double the proportion of men who used

dirty needles (Strathdee et al., 2015). Researchers found community-based intervention

for treatment of IDU has significantly increased the potential for the population to stay

off drugs after released. As with my study a finding I looked at prior inmates which

Strathdee and Oppong gathered data on the current inmate population. Each researcher

did not connect the gap as it relates to IDU pre and post incarceration. Although inmates

have programs while incarcerated may do not have that support after incarceration.

Oppong et. al. (2014) traced the history of drug use and HIV/AIDS infection among

incarcerated populations in New York City jails and New York state prisons and

concluded that the higher infection rate among criminal justice populations was due to

high pre-incarceration drug use but did not further the research into the community

settings after incarceration.

Intravenous Drug Use and HIV/AIDS Among Incarcerated Prison Inmates

A growing body of research indicates that transmission of HIV/AIDS among

prison inmates occurs because of IDU within correctional facilities. A review of the

literature revealed three reasons for this: large numbers of incarcerated intravenous drug

users in the criminal justice system (Rich et al., 2013), illegal drug use and syringe

sharing among inmates (Milloy et al., 2013), and intravenous drug users engaging in

sexual activity (Baltieri, 2013). All three factors directly or indirectly contribute to the

increase in HIV infection rates among inmates in U.S. prisons and each is discussed in

turn in the section that follow. Rich et al. study examined prisoners younger than 35 years, in jails and prison, they found African American men age 18 years or older between 1 and 15 are incarcerated, 1 in 7 HIV-infected individuals has been to prison and come from minority and medically underserved communities. The gap in the researcher's study was related to HIV treatment after incarceration, specifically, and need for HIV testing for recent released inmate population, better community care after incarceration, and increase in continuity of care after release. There social support of the inmate population is directly alien with the national HIV/AIDS guidelines to lower HIV incidents and the improvement of health care outcomes. Although my study age group is much older than Rich et al., our gap in outcome is similar. We both found that the inmate minority population needs community support and treatment after incarceration. Rich et al found that one of their limitations was biases against jails and prisons, literature made an extra effort to indicate disparities within this population and the community. During my research this was not found to be true. I found that my HIV outcomes is consistent with past studies.

Large numbers of intravenous drug users in the criminal justice system. The U.S. war on drugs has been underway for over a century, and imprisonment of minorities has continued to grow. According to the National Center for Health Statistics (2017), in 2016 over 64,000 drug users in the United States from overdose. Forty-six percent of the federal inmates were in prison for drugs related reasons (Federal Bureau of Prisons, 2017). Intravenous drug users have been facing diseases and injuries associated with unclean needles, addiction, synthetic drugs, and infected products (Hessou et. al 2018).

Hepatitis and HIV can be contracted from IDU; these diseases overwhelming attack low income inmates' communities and the prison system (Hessou et. al 2018). Researchers have accumulated data indicating that the rate of HIV/AIDS infection among inmates has been slowly increasing in both federal and state prisons, throughout the United States, reaching a rate 3-4 times that in the general population (Farel et al., 2013; Rich et al., 2013). This increase may be due to the large number of intravenous drug users arrested and incarcerated in the United States. The prevalence of IDU among inmates has reached such high levels that Alarid and Hahl (2014) estimated that the number of intravenous drug users in the criminal justice system was more than the number of IUDs found in drug treatment, health care, and social care services combined. Many intravenous drug users have spent the majority of their drug-using years imprisoned, which has likely contributed to the spread of HIV among prison inmates (Alarid & Hahl, 2014).

Hessou et al., study has found IDU in Benin is at a higher risk for HIV infection and between 2013 and 2015 IDU infection rate dropped by 30% as a result of Benin behavioral changes. They also showed that women make up a smaller amount of the IDU population. Although these researchers examined IDU in Benin they found a gap which a follow-up study will estimate the incidence of HIV infection will further support their findings. The researcher's limitations were limited country-specific information available about the participants. My study had similar findings as it relates to access to the inmate population.

Illegal drug use and syringe sharing among prison inmates. According to Baltieri (2013), prison inmates are more likely to continue IDU while incarcerated,

because they are bored and the need to escape the harsh reality of the day-to-day prison

life (Baltieri, 2013). Mahon (1996) explored inmate perceptions of high-risk behavior in

New York jails and prisons, found that drug use was common there, and discovered that

prisoners administered intravenous drugs with used syringes and makeshift objects, such

as parts of pens and light bulbs. Rowell-Cunsolo et al. (2016) conducted a cross-sectional

study of 121 formerly incarcerated Black Americans in New York and found that after

release more than half used drugs, with the probability of them returning to prison

depending on healthy decision-making and social support. Milloy et al. (2013) noted that

the lack of sterile syringes in prisons increased the sharing of used syringes among IUDs,

which increased the likelihood of transmitting HIV. However, Dolan et al. (2015)

evaluated the prevalence and incidence of HIV/AIDS infection among inmates and found

that, although IDU and presumably needle sharing occurred among former prison

inmates, needle sharing occurred too rarely to explain the high rate of HIV transmission

in prisons.

Although Baltieri found that incarcerated drug users are a needy group with larger

problems then the non-drug users with-in prions. His study has a gap that did not address

drug users outside of prison. He emphasized that further research is needed to check drug

use outside of prison in order to properly treat and diagnosis inmates while incarcerated.

While I focused on former inmates as Baltieri indicated in his study there is a need to

address the history behind former and present inmate population.

Sexual activity with intravenous drug users. Alarid and Hahl (2014) indicated

that, in addition to being an intravenous drug user, sexual encounters with intravenous

drug users is another common way of contracting HIV, especially for women who engage

in unprotected sex and have sex with multiple partners, including intravenous drug users.

According to Baltieri, (2013), a considerable amount of HIV cases amongst the female

population are based on the risky behavior of IDU or participating in sex with associates

who engage in IDU. However, no empirical support exists for extending this premise to

male inmates who engage in homosexual activities with inmates who have been or are

intravenous drug users. The findings of Alarid and Hahl (2014) justify testing this

premise on male inmates, given the empirical evidence of high levels of sexual activity

among male prison inmates. Although the researcher results revealed the gender

differences and perceived risk, their gap was in the lack of HIV education, gender-

specific HIV prevention programs within jails and prison. My study did agree with Alarid

and Hahl finding, the educational factor within the prison and jails system as it relates to

HIV/AIDS is lacking.

Postincarceration Intravenous Drug Use and HIV/AIDS Among Prison Inmates

Each year, 150,000 HIV-infected individuals are released from their incarceration

in the United States (Rich et al., 2013), but little is known about the relationship between

HIV/AIDS and the engagement of HIV-infected individuals in IDU post-release.

Strathdee et al. (2015) investigated post-release HIV risk behaviors of jail inmates in a

Virginia jail and found that participants reported engaging in risky intravenous drug

behavior post-release. Other researchers (Binswanger et al., 2014; Haley et al., 2014),

demonstrating sexual risk behavior of former prison inmates post-release, observed that a

higher proportion of women engage in risky sexual behaviors and often return to

environments that trigger IDU. Although research in this field is limited, the area warrants further examination, especially because HIV-infected inmates return to their communities and often engage in IDU and sexual activities with members of the community, which increases the probability of transmitting the disease to these individuals (Alarid & Hahl, 2014). Examining the HIV risk behaviors of former inmates could assist researchers, policy makers, and administrators in developing appropriate interventions to address the risk posed by HIV-infected individuals returning to the community (Binswanger et al., 2014).

In this study, the relationship between HIV/AIDS and IDU underwent analysis to have a better understanding of the prevalence of HIV/AIDS among Texas prison inmates, which is an inmate population in which the prevalence of HIV/AIDS is among the highest in the United States. Inmates who are incarcerated for IDU pose a high risk of spreading infectious diseases such as HIV/AIDS, as well as pose an immediate threat to prison staff, other inmates, and the community when released. (Baltieri, 2013). Researchers have therefore sought a better understanding of the relationship between IDU and the prevalence of HIV/AIDS among U.S. prison inmates, particularly intravenous drug users, prior to, during, and after incarceration.

Education and HIV/AIDS Among Prison Inmates

Education programs are a preventive measure employed by health care workers in the prison system. According to Dolan et al., (2015) International HIV prevention efforts in prisons have been are poor when compared to efforts in the surrounding communities. HIV education has broadly been used in prison settings, but education alone has been

inadequate without corresponding prevention programs (Dolan et al., 2015). Health care workers have used group-based HIV/AIDS programs to disseminate information on how HIV/AIDS is transmitted and contracting, risky behavior, and the importance of testing (South et al., 2017). These endeavors have been met with resistance and have had mixed success, but researchers found that peer involvement, social support, and innovative measures, were more effective than typical lectures lead by a health care professional (South et al., 2017). According to Nyamathi, et al. (2017), however, any treatment program was better than no treatment program, because information regarding HIV/AIDS was relatively new to most inmates. (Nyamathi et al. (2017), reported that inmates who participated in some form of program while incarcerated were less likely to have been re-arrested within 12 months.

South et al., (2017) found that a high proportion of the prison inmates participated in risky behavior such as IDU and unprotected sex. Educating inmates is an essential step in stopping the spread of HIV/AIDS. An estimated 13–19% of inmates are released each year in the United States have had HIV/AIDS (Farel et al., 2013). As released inmates often engage in IDU and sexual behaviors with members of the community, failing to educate prison inmates regarding how to prevent the spread of HIV/AIDS could endanger the community when prison inmates are released (Alarid & Hahl, 2014). The literature review revealed four primary areas of consideration: promising HIV/AIDS prevention programs in prisons, the response of prison systems in implementing effective HIV/AIDS education, barriers to successful implementation of HIV/AIDS prevention programs in prisons, and policies and procedures suitable for adoption within prison systems on

delivering HIV/AIDS education. Although these factors are important, the relative importance of each factor has been a source of debate, and consensus on the role of these factors in the prevalence of HIV/AIDS is lacking.

HIV/AIDS Education Programs

Much of the early HIV/AIDS education programs in prisons relied on fear to achieve behavioral change or focused on providing preventive information to inmates despite empirical evidence indicating high levels of HIV/AIDS-related knowledge among incarcerated populations (Alarid & Hahl, 2014). Although some educational programs positively correlated with positive behaviors among prison inmates and a reduction in the disciplinary actions (Collica-Cox, 2014), social networks were also essential in order for an inmate to be successful after release: If social bonds were made before release, the chance that the inmate would partake in criminal activities after incarceration was reduced (Collica-Cox, 2016). Prison-based programming can give inmates that needed bond. Collica-Cox (2016), found that for 49 female inmates who maintained prosocial attachments with staff after incarceration, the contact provided the needed support vital for in attaining rehabilitation and staying drug free. The failure of early programs to curb HIV/AIDS transmission among prisoners was best explained by Alarid and Hahl (2014), who wrote, "Merely presenting HIV/AIDS information and recommendations for behavior change is an ineffective teaching strategy, irrespective of gender, age, and criminal background" (p. 123). Schwitters (2014) claimed that, although well-designed HIV/AIDS information and education programs can greatly improve prisoners' knowledge about the infection, such information can only serve as a precursor to

protection from infection. However, Schwitters also admitted that the effectiveness of educational efforts is difficult to measure, and hence the role of educational efforts in reducing HIV transmission among prisoners remains largely unknown.

The failure of knowledge-based, provider-led education has shifted the focus of researchers toward the development and implementation of evidence-based HIV/AIDS education and prevention interventions, including peer-delivered HIV/AIDS prevention and intervention programs, which according to Convey, Dickson-Gomez, Weeks, and Li (2010) play a vital role in halting the spread of sexually transmitted infections. However, as Belenko et al. (2013) observed, despite the inherently high HIV/AIDS risk in prisons, there are few evidence-based HIV/AIDS prevention and intervention programs specifically developed for inmates. Project START is the only evidence-based, peer-led, multi-session, individual-focused prevention program specifically developed for inmates to reduce the high-risk sexual behavior of inmates following release (Belenko et al., 2013). Although evidence shows that peer-led education programs can reduce disciplinary infractions among inmates, in addition to stemming the spread of HIV/AIDS (Collica-Cox, 2014), there is a paucity of evidence-based, peer-led HIV/AIDS education programs in correctional facilities.

Response of Prison Systems in Implementing Effective HIV/AIDS Education

Because HIV prevalence in a correctional environment is approximately five times higher than in general adult population Valera et al, 2016 examined HIV prevention and interventions in the U.S. federal and state prisons. The researchers found key components like peer education, health care policy, education on risky behavior, and

prevention improved measures and decreased HIV transmission in the criminal justice system. According to Valera et al, all prisons have been in urgent need of HIV prevention to improve the quality of life of those who practice risky behavior within the prison system. Researchers have found that the inmates engaged in high-risk behavior, such as unprotected sex and IDU, both during (Baltieri, 2013) and after incarceration (Haley et. al., 2014; Strathdee et al., 2015).

The leaders of state prison systems have responded with numerous HIV/AIDS prevention and risk reduction programs, ranging from providing useful audiovisual educational content to offering one-to-one counseling. A survey of all state prison systems revealed that as many as 49 state prison systems provided some form of HIV/AIDS education and prevention counseling to inmates (Lyons et al., 2014). The primary reason cited for the continued engagement in high-risk behavior is that, as mentioned above, the leaders of many prison and jail facilities have failed to implement effective, evidence-based, peer-led HIV/AIDS prevention programs (Belenko et al., 2013). In a survey of all state prison systems, Lyons et al. (2014) found that only 16 states (37%) were providing peer-led education on HIV/AIDS prevention. Belenko et al. (2013) revealed that peer-based programs were the least frequently implemented HIV/AIDS education and prevention programs among agency partners. Belenko et al. (2013) also found a clear disconnect between the implementation of HIV/AIDS prevention programs and their actual practice in prison systems.

Barriers to Successful Implementation of HIV/AIDS Prevention Programs

Researchers have identified several gaps in the implementation of effective HIV services for preventing HIV among inmates (Belenko et al., 2013; Llyd, Messina, & Spaulding, 2017). According to Belenko et al. (2013), leaders in state prison systems find it difficult to implement HIV/AIDS prevention interventions into the routine. Llyd et al. (2017) stated that difficulty implementing HIV prevention programs in the prison system has been hindered by correctional facility leaders. Furthermore, Lyons et al. (2014) noted that the costs of implementing quality peer-led education is high considering the need to train, supervise, and equip peer educators with resource material, which means that many prison and jail facilities lack the necessary resources to implement peer-led education. As a result, the focus of many state prison systems is on providing non-evidence-based, provider-led HIV/AIDS prevention and intervention programs, such as group counseling (Lyons et al., 2014), which according to Belenko et al. (2013) are insufficient in adequately reducing HIV/AIDS transmission among high-risk correctional populations.

Policies and Practices to Deliver HIV/AIDS Education

Researchers have extensively studied the best approaches for delivering HIV/AIDS education in prison systems and have provided recommendations for the implementation of effective HIV/AIDS education in prisons. According to Belenko et al. (2013), to improve public health, prison system leaders should implement evidence-based, peer-led education in prisons. Belenko et al. (2013) further noted that prison system leaders must pay careful attention to the context within which they to plan to deliver their HIV/AIDS-focused services to inmates. Schwitters (2014) suggested that an

effective informational and education intervention is one that considers several factors, including the comprehensiveness of the program, the needs of the population, the time of the offering, the method of distribution, and the input of the prisoners. According to Schwitters, to maximize the effectiveness of the program, prison system leaders must consider these factors before developing the program. For their education programs to be effective, prison system leaders must supplement provider-led education with peer-led education, which has been shown to be more effective in reaching prisoners (Schwitters, 2014). Researchers have also found that male and female individuals differ in how they engage in high-risk behaviors pre-incarceration, during incarceration, and post-incarceration (Alarid & Hahl, 2014; Strathdee et al., 2015), which means that researchers should develop gender-specific HIV/AIDS education programs to focus on modes of transmission and means of protection for women (Roberson, 2014).

This study involved using survey data collected from a population of former prison inmates, and therefore resulted in empirical evidence of the most effective means of delivering HIV/AIDS education to the population of prison inmates and thereby potentially contributing to current educational efforts to inhibit the spread of HIV/AIDS during incarceration and post-release.

Prisons in the State of Texas

Federal Bureau of Prisons

As an agency of the U.S. Federal Bureau of Prison Department of Justice, employs approximately 38,000 employees to oversee the incarceration and care of approximately 219,000 federal offenders at 119 institutions ("About the Bureau of

Prisons," n.d.). The FBOP is responsible for the operation of the federal system of

confinement facilities created to accommodate individuals convicted of violating a

federal law, awaiting trial for violating a federal law, or being held temporarily for

violating state or local laws ("Difference Between Federal, State, & Local Inmates,"

n.d.). The FBOP consists of a headquarters, six regional offices, 22 residential reentry

management offices, two staff training centers, and 119 institutions ("About the Bureau

of Prisons," n.d.). There are currently 219,000 federal offenders within the federal prison

system ("About the Bureau of Prisons," n.d.), of which 197,007 (93.3%) are male and

14,188 (6.7%) are female ("Quick Facts About the Bureau of Prisons," 2013a).

Leaders at the FBOP number prisons from 1 to 5 based on the security level, with

Level 5 representing the most secure and Level 1 representing the least secure. In

maximum security, Level 5 prisons, all prisoners have individual cells with sliding doors

controlled from a secure, remote control station. Prisoners can come out of their cells for

1 hour of every 24 hours. Prisoners out of their cells remain in the cell block or go

outside in an exterior cage. The use of restraints and correctional officer escorts restrict

movement out of the cell block, except in the outside cage. There is one FBOP maximum

security, Level 5 facility in Texas, which is the U.S. penitentiary in Beaumont.

In close security, Level 4 prisons, prisoners reside in one- or two-person cells

operated from a remote-control station. Each cell has a toilet and a sink. Inmates may

leave cells for work assignments or correctional programs and can go into a common area

in the cellblock or an exercise yard. Outside fences are double and separated by a wide

swath for patrolling by guards with dogs, watchtowers, and armed guards, and the inner

fence is often electrified with a lethal current. Texas has nine FBOP close security, Level

4 facilities in Bastrop, Beaumont Low, Beaumont Medium, Big Spring, Fort Worth, La

Tuna, Seagoville, Texarkana, and Three Rivers (TDCJ, 2013).

In medium-security prisons, sometimes called camps, prisoners' housing consists

of dormitories, they sleep on bunk beds, and they have lockers to store their possessions.

Perimeters are normally double-fenced and patrolled by corrections officers at regular

intervals. Communal showers, toilets, and sinks are common at this level. The

dormitories are locked overnight with corrections officers on guard. Level 4 facilities

have less supervision over the internal movement of prisoners. Texas has two FBOP

prison camps: Houston and Carswell (FBOP, 2013b).

In minimum security, Level 3 facilities, prisoners are considered little physical

risk to the public and are mainly nonviolent inmates. Prisoners live in dormitories

regularly patrolled by corrections officers and have communal showers, toilets, and sinks.

Minimum security facilities usually have a single fence that guards watch but do not

patrol, and at facilities in remote or rural areas, there may be no fence at all. Texas has

one FBOP minimum security facility at Beaumont (FBOP, 2013c).

The Texas Department of Criminal Justice

The state of Texas has 51 regional penitentiaries, 16 state jails, 14 transfer

facilities, four prerelease facilities, five substance abuse felony punishment facilities,

three psychiatric facilities, and two medical facilities. The system also has one facility for

people with developmental disabilities and 16 privately operated jails. This statewide

network of correctional facilities began in 1848 when the Texas Legislature passed an act

to establish a state penitentiary, and land was subsequently acquired for the first prisons in Huntsville and Rusk (Bureau of Justice Statistics, 2010). The two institutions began receiving convicted criminals in January 1883. Dixon (1921) published a report on the Texas prison system and noted that the prisons were among the most brutal in the world, and the trend has continued. The Bureau of Justice Statistics (2010) reported that five Texas facilities had the highest number of prison rape cases in 2006. In 2007, the TDCJ reported 234 sexual assaults in its prisons. In a national survey of imprisoned criminals, five of the 10 prison units with the highest reported rates of rape were TDCJ units (Evans & Tinsley, 2012).

In 2001, the TDCJ was the largest prison system in the United States (Evans & Tinsley, 2012). In 2012, the TDCJ was still the largest, when it passed California (Evans & Tinsley, 2012). However, the surging inmate population has outpaced the construction of new prisons and resulted in some of the most overcrowded, dangerous prisons in the United States (Gilna, 2014). The historically harsh treatment of TDCJ inmates and allegations of corruption are the cornerstones of this reputation (Costa et al., 2018).

Correctional Health Care Providers

The United States has a long history of housing inmates with a record of intravenous substance abuse (Travis & Western, 2014). Budget constraints in the BOP prison systems make it impossible to hire the needed health care workers and implement the needed rehabilitation and treatment programs without compromising the safety of the inmates by reducing the number of prison guards (U.S. Department of Justice, 2019), which often means that those entrusted with the care of intravenous substance abusers

typically lack expertise in addiction intervention and HIV/AIDS treatment among the addicted. In addition, although antiretroviral treatments are available to reduce the risk of spreading HIV/AIDS among intravenous substance abusers, the cost and complexity of these treatments makes them unattainable for many U.S. prisons (Travis & Western, 2014). The nature of HIV/AIDS health care further complicates the problem of constraints within the prison system.

Health care providers must consistently attempt to update their knowledge about adherence and treatment approaches developed and employed to ensure patients receive medication and maintain a consistent schedule (FBOP, 2013b). Treatment measures such as detection and prevention have been changing rapidly within the health care field (Banerjee et al., 2016). However, it has been difficult for health care professionals in jails and prisons to obtain funds or find time to participate in programs that update treatment methods for HIV patients (Travis & Western, 2014). Prison medicine has tended to lag the rapid development in the wider community, and community physicians tended to have a developmental team to guide them on the latest HIV/AIDS care practices (Sidibe et al., 2015).

Provider–Inmate Collaboration

Adhering to a medical schedule requires health care professionals and inmates to collaborate with each other to develop processes that can help in optimizing clinical results (Dehens, de Hemptinne, & Galouchka, 2017). In addition, adhering to a medical schedule requires prisoners to participate with health care professionals actively in the development of a treatment plan and to assume responsibility for the outcomes of the

treatment process (Uthman, et al., 2016). Decisions about health care in prisons are less apt to be part of a collaborative process between the service provider and the prisoner, which can lead to limited input by the inmate (Dehens et al., 2017).

Treatment Regimen

Due to the lack of authority and command over antiretroviral treatment, medication routines, environment, and health care, inmates often face problems maintaining their medication schedule (Merker et al., 2017). Chaudoir and Fisher (2017) identified multiple barriers affecting the treatment of prisoners, including the following:

- The inability of prisoners to complete a request for treatment of HIV/AIDS and related medical needs due to the fear of gaining negative attention from other inmates.
- Limited access to a required diet.
- Limited access to pill boxes and daily reminder tools.
- Language and literacy barriers preventing inmates from understanding complex terms on medications and treatment instructions and the importance of schedules and diet plans.
- A shortage of qualified nurses and medical translators.

Although prisons believe the cost of combination therapy is high, an effective combination therapy can serve to decrease the costs of treatment incurred during the period of HIV/AIDS treatment (Mellors et al., 1996). James (1997) reported that for every dollar spent on drug therapy, the cost of treatment decreases by twice the amount spent. The high cost of medications indicates the needs to encourage medication

adherence and regular attention to individual needs during treatment (Uthman et al.,

2016). Adherence to treatment routines is linked to a complicated interaction between the

treatment schedule, patient characteristics, correctional facility, and provider–prisoner

association. Correctional facilities have provided funding to contract workers or external

vendors who have been known to function on reduced funding while providing health

care to the inmate population (Sidibe et al., 2015).

Interventions to reduce HIV transmission within the state and federal prison

systems have become increasingly important as researchers continue to find strong

evidence of a correlation between HIV/AIDS prevalence in the prison systems and

HIV/AIDS prevalence in the community (Mundt et al., 2018; Rich et al., 2013). Among

the interventions used to reduce the transmission of HIV among inmates, counseling and

testing have been effective (Iroh, Mayo, & Nijhawan, 2015). A 2012 report by

researchers for the CDC recommended HIV education and counseling for incarcerated

individuals as an intervention against the spread of HIV, both for the benefit of the

inmates and for the benefit of residents in the communities to which former inmates will

return (CDC, 2012a). However, HIV/AIDS health care in the prison system is different

from HIV health care in the community.

Unlike HIV/AIDS health care in the community, HIV/AIDS health care in the

prison system must balance the health care needs of inmates with the security measures

and lack of privacy of the prison facility (Nyamathi et al., 2017). Nyamathi et al. (2017)

found that some of the challenges of working in a correctional facility were "accessing

clients in facilities, obtaining clients' official documentation, difficulty tracking clients

because of frequent movement, relocation, and high turnover rates" (p. 350). Privacy is also a challenge in prison health care, as Merker et al. (2017) found in a study of directly observed therapy for HIV/AIDS-infected inmates. Merker et al. showed that inmates reported failures to adhere to medication schedules because they often had to wait in line to receive HIV/AIDS medications or had to receive HIV/AIDS medications from correctional officers when medical personnel were not available, which compromised their privacy. The inmates who participated in the study preferred to "receive medications only from medical personnel" (p. 1574). These barriers need addressing to treat HIV/AIDS-infected inmates in the prison system effectively.

Summary

This review of the literature included empirical evidence justifying the inclusion of the variables in the study. The existing evidence supported relationships between HIV/AIDS status of prison inmates and their demographic characteristics, IDU, and existence of their social support networks. The chapter included a description of the theories and frameworks used in the study and explained that the importation and deprivation models were likely explanations for variations in prison inmate behavior. The review paid particular attention to preincarceration behaviors such as incarceration for IDU and history of IDU. Chapter 3 includes a full description of the study methodology and the variables established in this chapter.

Chapter 3: Research Method

The purpose of this cross-sectional, nonexperimental study with a quantitative correlational research design was to analyze the relationship between HIV/AIDS status of former inmates and their demographic characteristics, IDU, and the existence of their social support networks. I used multiple logistic regression analysis to test the study hypotheses. For RQ1, the independent variables were demographic characteristics of the prison inmates (age, gender, ethnicity, marital status, and SES), and the dependent variable was HIV/AIDS status. For RQ2, the independent variables were IDU measures (incarceration for IDU, history of IDU, IDU while incarcerated, and use of illegal drugs other than IDU), and the dependent variable was HIV/AIDS status. For RQ3, the independent variable was existence of the inmates' social support networks, and the dependent variable was an IDU measures (incarceration for IDU). For RQ4, the independent variable was the existence of the inmates' social support networks, and the dependent variable was HIV/AIDS status.

Research Design and Rationale

Accessibility was the primary factor in determining the research design. Because prison inmates are a susceptible population, experimental research and one-on-one interviews with prison inmates require the completion of a rigorous approval process that includes institutional review board (IRB) approval by the participating facility and the sponsoring university (Faiver, 2017). Despite the difficulty of gaining access to archival data on Texas prison inmates, gaining approval from the FBOP for a qualitative research design requiring face-to-face access would have been even more difficult or even

impossible. The ethical protection afforded inmates, the inherent dangers of interviewing prison inmates, and the time and financial resources needed to interview a representative sample reinforced the determination to conduct a quantitative study. For many of the same reasons that a quantitative research design was selected for the purpose of this study, Prison Talk data were determined to be appropriate, as they would meet the needs of the study and potentially expedite approval. The focus of this study was the relationships between HIV/AIDS and various prison inmate characteristics, which made the choice of a correlational research design appropriate.

Methodology

The study included a quantitative correlational research method with descriptive statistics and multiple logistic regression analysis. To determine the factors that contribute to the prevalence of HIV/AIDS in Texas prisons, the study included multiple logistic regression analysis. Multiple logistic regression analysis is appropriate when determining the relationship between variables in which the outcome variable is a categorical dichotomy (Chatfield, 2018). Violating the assumption of linearity is likely in linear regression analysis that includes an outcome variable that is dichotomous, which renders linear regression less useful for generalizing results to a population and makes a nonlinear equivalent the more appropriate choice (Crossman, 2018). The logarithmic transformation of the data in logistic regression alters the form of the relationship without altering the nature of the relationship, which makes logistic regression a valid choice for analyzing relationships between categorical and interval level predictor variables and dichotomous outcome variables (Crossman, 2018).

Population

In 2014, there were approximately 214,000 inmates in the custody of the Federal

Bureau of Prisons (FBOP, 2014a) and approximately 150,000 in the custody of the Texas

Department of Criminal Justice (TDCJ, 2013). Prison inmates incarcerated in Texas who

have tested positive for HIV/AIDS and prison inmates who have tested negative for

HIV/AIDS were the target sample for this study. The percentage of HIV/AIDS-positive

inmates in the Texas federal and state prisons is higher than numerous other states, with

the exception of Florida, California, Alabama, and New York (Maruschak, 2015). This

statistic and the paucity of research conducted on HIV/AIDS in U.S. prison systems,

especially Texas prison systems under the care of the FBOP, made this population ideal

for sampling and made this study particularly pertinent to the sampled population.

Developing a better understanding of the factors that contribute to HIV/AIDS among

Texas prison inmates could aid health care workers, prison administrators, and legislators

in creating policies and regimens for the care of HIV/AIDS-infected inmates, improving

the quality of life of those infected, stemming the spread of the virus among inmates, and

reducing the likelihood of transmission after release.

Sampling and Sampling Procedures

The cross-sectional quantitative correlational study included convenience

sampling to gather data from male and female individuals formerly incarcerated in

federal and state prisons in Texas to analyze the relationship between HIV/AIDS status

and the demographic characteristics of the inmates, IDU among the inmates, and the

existence of the inmates' social support networks. Because prison inmates are confined

against their will and cannot choose to participate or not participate in a research study, this population is vulnerable. As a susceptible population, prison inmates are protected against experimental research and one-on-one interviews, which require the completion of a rigorous approval process that includes IRB approval by the participating facility and the sponsoring university (Faiver, 2017). Although access to data required approval from the Walden University IRB and Prison Talk administrators, the process is less stringent when requesting that former prisoners complete a questionnaire.

The quantitative sample consisted of inmates formerly in the custody of the prison system in Texas. The analysis includes data on inmates with HIV/AIDS in the Texas prison system, which include inmates of varying ages, genders, ethnicities, marital statuses, SESs, and sentences. The study included inmates with different sentences because all inmates can engage in behavior that places them at risk for spreading HIV/AIDS to other inmates.

Logistic regression was the process used to test the study hypotheses. In determining the minimum sample size required for this study, the following parameters received consideration: (a) level of significance, (b) power, and (c) effect size (Cohen, 1992). The study involved testing each hypothesis at the generally accepted .05 level of significance; if $p < .05$, the null hypothesis was rejected, and the alternative hypothesis accepted. A power of .80 was acceptable for the purposes of this study and represented a 20% "probability of rejecting a false H0" (Cohen, 1992, p. 156), which meant the probability of committing a Type II error was four times as likely as the probability of committing a Type I error. However, this was acceptable, as rejecting a false H_0 is not as

serious as rejecting a true H_0. Finally, the study included a medium effect size of 2.49, as measured by the probable odds ratio of the analyses, to calculate the minimum sample size. The effect size was at the lower end of odds ratio values corresponding to Cohen's d of .05 (Cohen, 1992). Cohen (1992) recommended an odds ratio of 3.47 to detect a medium effect size and an odds ratio of 1.68 to detect a small effect size, but considering the paucity of research conducted on Texas federal and state prison inmates, it was uncertain what the effect size would be. The study therefore included an effect size between small and medium. Given these parameters, G*Power 3.1.9.2 indicated a sample size of 50 was the minimum sample size required to detect a statistically significant relationship at the .05 level, a power of .80, and an effect size (odds ratio) of 2.49 (Faul et al., 2009.

Data Collection

The data collection method is an important phase of research through which researchers can obtain data for analysis. Researchers generally use two categories of data collection methods to provide valid and credible work: primary and archival data collection (Creswell & Clark, 2017). After approval, I used survey questionnaires developed by the CDC (Appendix A) to gather data from participants related to their age, gender, IDU, social support network, and demographic characteristics. Demographic data were collected from the former inmate population and used to describe the population. Each former inmate was asked to give consent to participate in the research. Former inmates could withdraw their consent to participate in the study at any given time. The survey instrument contained a series of questions developed by the National HIV

Behavioral Surveillance (NHBS; CDC, 2017). In 2003, CDC developed the NHBS to

conduct behavioral surveillance among people at high risk for HIV infection (CDC,

2017). The CDC Division of Health Informatics and Surveillance department validated

the survey questions used (CDC, 2018b).

Access to data required approval from the Walden University IRB, as well as

from Prison Talk administrators. After the Walden University IRB provided approval

(#07-02-18-0020388) to conduct the study, administrators at Prison Talk made their

request forms available and reviewed the dissertation proposal. A survey questionnaire

developed by the CDC was used to collect data from members of Prison Talk, which is

an online web community developed in a prison cell, designed in a halfway house, and

funded by donations from families of ex-offenders. Prison Talk is a forum for people

with an interest in supporting the prisoner community. Questions were developed and

sent out via SurveyMonkey to Prison Talk participants. SurveyMonkey is a tool used to

create and customize surveys; it includes data analysis, sample selection, bias

elimination, and data representation tools.

Instrumentation and Operationalization of Variables

The survey instrument contained a series of questions developed by the NHBS

(CDC, 2017). In 2003, CDC developed the NHBS to conduct behavioral surveillance

among people at high risk for HIV infection (CDC, 2017). The CDC Division of Health

Informatics and Surveillance department validated the survey questions used (CDC,

2018c). The following are the operational definitions of the variables used in the

statistical analyses.

Age

According to Prison Talk, age was measured by self-reported responses from survey participants in the Prison Talk organization. Age represented the age of the inmate in years. As an independent variable in the logistic regression used to test $H1$, this variable aided in understanding the relationship between HIV/AIDS status and the demographic characteristics of the inmate. As an individual variable in a model used to predict HIV/AIDS status, the age variable aided in understanding the relationship between an inmate's age and HIV/AIDS status.

Ethnicity

Ethnicity describes a group of humans who have the same historical physical or traditional similarities (Baskerville, Wynn-Williams, Evans, & Gillet, 2014). This nominal/categorical variable represented the ethnicity of the inmate (African American, Asian, Caucasian, Hispanic, or Other) and was included in the data provided in the questionnaire. As an independent variable in the logistic regression used to test $H1$, the variable aided in understanding the relationship between HIV/AIDS status and demographic characteristics. For the purposes of this study, African American inmates were represented in the data set with a 0, Asian inmates were represented in the data set with a 1, Caucasian inmates were represented with a 2, Hispanic inmates were represented with a 3, and inmates of an ethnicity other than these four were represented with a 4. As an individual variable in the model predicting HIV/AIDS status, the ethnicity variable aided in understanding the relationship between an inmate's ethnicity and HIV/AIDS status.

Gender

According to Buck (2016), gender is "unique and personal psychological experience, not something that is necessarily tied to biology or behavior" (p. 467). This dichotomous variable representing the gender of the inmate (male or female) was included in the data provided in the questionnaire. As an independent variable in the logistic regression used to test H1, this variable aided in understanding the relationship between HIV/AIDS status and demographic characteristics. For the purposes of this study, male inmates were represented in the data set with a 0, and female inmates were represented with a 1. As an individual variable in the model predicting HIV/AIDS status, the gender variable aided in understanding the relationship between an inmate's gender and HIV/AIDS status.

History of Intravenous Drug Use

History of IDU as it relates to the study are former inmates who at some point engaged in IDU. Lin et al. (2016) defined an individual who engaged in nonmedical use of illicit drugs such as heroin, amphetamines, cocaine, and cannabis during a given time as having a history of drug use. This dichotomous variable represented whether the inmate had a history of IDU (no vs. yes) and was included in the data provided from the questionnaire. As an independent variable in the logistic regression used to test H2, this variable aided in understanding the relationship between HIV/AIDS status and IDU. For the purposes of this study, inmates who did not have a history of IDU were represented in the data set with a 0, and inmates who did have a history of IDU were represented in the data set with a 1. As an individual variable in the model predicting HIV/AIDS status, the

history of IDU variable aided in understanding the relationship between an inmate's

history of IDU and HIV/AIDS status.

HIV/AIDS Status

HIV/AIDS status refers to a human being who received a positive result of HIV

testing, has been diagnosed with AIDS, and is still alive; this includes all individuals who

have ever received an AIDS diagnosis (UNAIDS, 2015). Prison health care professionals

test prison inmates for HIV/AIDS in their system when first incarcerated and record and

store the results in the inmates' health records. As the outcome variable in each of the

four logistic regressions used to test the four hypotheses, this dichotomous (negative vs.

positive) variable indicates whether the inmate in the data set is infected with HIV/AIDS.

For the purposes of this study, negative was represented in the data set with a 0, and

positive was represented with a 1. The goal of this research was to develop a better

understanding of the relationship between HIV/AIDS status and the demographic

characteristics of the inmate, the inmate's propensity to use intravenous drugs, the

inmate's history of sex work, and the presence of an HIV/AIDS education program at the

prison.

Incarceration for IDU

This dichotomous variable represented whether the inmate was incarcerated for

IDU (no vs. yes) and was included in the data provided in the questionnaire. As an

independent variable in the logistic regression used to test Hypothesis 2, this variable

aided in understanding the relationship between HIV/AIDS status and IDU. For the

purposes of this study, inmates not incarcerated for IDU were represented in the data set

with a 0, and inmates incarcerated for IDU were represented in the data set with a 1. As an individual variable in the model predicting HIV/AIDS status, the incarceration for IDU variable aided in understanding the relationship between the incarceration of the inmate for IDU and the inmate's HIV/AIDS status.

IDU While Incarcerated

This dichotomous variable represented whether the inmate used intravenous drugs while incarcerated (no vs. yes) and was included in the data provided in the questionnaire. As an independent variable in the logistic regression used to test Hypothesis 2, this variable aided in understanding the relationship between HIV/AIDS status and IDU. For the purposes of this study, inmates who had not used intravenous drugs while incarcerated were represented in the data set with a 0, and inmates who had used intravenous drugs while incarcerated were represented in the data set with a 1. As an individual variable in the model predicting HIV/AIDS status, the IDU while incarcerated variable aided in understanding the relationship between IDU while incarcerated and the inmate's HIV/AIDS status.

Marital Status

The United States Department of Justice (USDOJ), (2014) defined marital status as those who are marries, separated or divorces, widowed, and never marries. This nominal/categorical variable represented the marital status of the inmate (married vs. divorced vs. separated vs. single) and was included in the data provided in the questionnaire. As an independent variable in the logistic regression used to test Hypothesis 1, this variable aided in understanding the relationship between HIV/AIDS

status and the demographic characteristics of the inmate. For the purposes of this study,

single inmates were represented in the data set with a 0, married inmates were

represented with a 1, divorced inmates were represented with a 2, and separated inmates

were represented with a 3. As an individual variable in the model predicting HIV/AIDS

status, the marital status variable aided in understanding the relationship between the

marital status of the inmate and the inmate's HIV/AIDS status.

Other Illegal Drug Use While Incarcerated

This dichotomous variable represented whether the inmate had used illegal drugs

not administered intravenously while incarcerated and was included in the data provided

in the questionnaire. As an independent variable in the logistic regression used to test

Hypothesis 2, this variable aided in understanding the relationship between HIV/AIDS

status and IDU. For the purposes of this study, inmates who had not used illegal drugs not

administered intravenously while incarcerated were represented in the data set with a 0,

and inmates who used illegal drugs not administered intravenously while incarcerated

were represented with a 1. As an individual variable in the model predicting HIV/AIDS

status, the other illegal drug use variable aided in understanding the relationship between

the use of illegal drugs not administered intravenously while incarcerated and the

inmate's HIV/AIDS status.

Socioeconomic Status

According to the American Psychological Association (2019), socioeconomic

status is based on social standing or social class. It relates to education, financial status,

and occupation. This dichotomous variable represented the SES of the inmate (received

government aid vs. did not receive government aid) and was included in the data

provided in the questionnaire. As an independent variable in the logistic regression used

to test Hypothesis 1, this variable aided in understanding the relationship between

HIV/AIDS status and the demographic characteristics of the inmate. For the purposes of

this study, inmates who received government aid, such as welfare, prior to incarceration

were represented in the data set with a 0, and inmates who did not receive government

aid prior to incarceration were represented with a 1. As an individual variable in the

model predicting HIV/AIDS status, the SES variable aided in understanding the

relationship between the SES of the inmate and the inmate's HIV/AIDS status.

Social Support Network

In 1988 Dunst and Trivette defined social support as "the emotional,

psychological, informational, instrumental, physical, and material assistance provided by

others to either maintain well-being or promote adaptations to difficult left issues" (p. 3).

According to Jones, 2014 social support network has three domains—biological family,

foster care, and peer networks—and each has the ability to improve the well-being of an

individual's outlook on life.

<div align="center">

Data Analysis

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I entered the data set used for this study into SPSS 24 for analysis. After I

imported the data into SPSS, I screened the data for imputation errors, missing data, and

outliers. To identify imputation errors, I examined the frequency distribution for each of

the study variables to identify values that were not consistent with the possible values for

a given variable (e.g., numerical values for a question about gender). I also examined the

data for missing values. According to Creswell and Clark (2017), "The pattern of missing data is more important than the amount missing. Missing values scattered randomly through a data matrix pose less serious problems" (p. 62). Therefore, I conducted SPSS missing value analysis to identify any patterns in the missing data. Finally, I screened the data for outliers. For continuous variables, I calculated z scores and searched for values in excess of 3.29. For the dichotomous variables in a study, Creswell and Clark 2017 noted, "The cases on the 'wrong' side of a very uneven split are likely univariate outliers" (p. 73). As a solution, Creswell and Clark recommended deleting the scores if there are few outliers or transforming the variables if the outliers are numerous.

The study involved conducting descriptive statistics on all the data and presenting them first. For variables comprised of data that are nominal or categorical, analyzing the frequency distribution of the variable involved examining the frequency of response for each category within that variable and the percentage of responses within each category. For variables comprised of continuous or interval level data, analyzing the central tendency of the variable involved examining the mean and standard deviation for all responses within that variable. I calculated descriptive statistics first for the inmates in the data set as a whole and then by group. Therefore, I calculated descriptive statistics for Texas federal inmates first, then for HIV/AIDS positive inmates and for HIV/AIDS negative inmates, and finally for HIV/AIDS positive inmates and for HIV/AIDS negative inmates within the Texas federal prisons.

Following a descriptive analysis of the study data, I tested the study hypotheses with multiple logistic regression analysis at a 95% confidence interval, and a significance

level of less than .05 was sufficient to reject the null hypotheses and accept the alternative

hypotheses. The purpose of the study was to determine the relationship between

HIV/AIDS status (positive vs. negative) and both inmate characteristics and prison

interventions. With that goal, four research questions and hypotheses were devised.

RQ1: What is the relationship among or between the demographic characteristics

of age, gender, ethnicity, marital status, SES, and current HIV/AIDS status among

previously incarcerated men and women in Texas?

$H_0$1: There are no relationships among or between the demographic

characteristics of age, gender, ethnicity, marital status, SES, and current

HIV/AIDS status among previously incarcerated men and women in Texas.

H_a1: There are relationships among or between the demographic characteristics of

age, gender, ethnicity, marital status, SES, and current HIV/AIDS status among

previously incarcerated men and women in Texas.

To test H1, I conducted a multiple logistic regression. The purpose of Hypothesis

1 was to test how influential the demographic characteristics of incarcerated individuals

are in predicting HIV/AIDS status among inmates in the Texas prison system. The

independent variables in the analysis were the interval variable age, the dichotomous

variable gender, the categorical variable ethnicity, the categorical variable marital status,

and the categorical variable SES. The outcome variable in the analysis was the

dichotomous variable HIV/AIDS status (negative vs. positive). The categorical variables

of ethnicity, marital status, and SES were dummy-coded for entry into the model. The

process involved selecting a reference category and entering the remaining categories

into the multiple logistic regression model, evaluating the significance of the model with the results of the chi-square test, and evaluating the individual contributions of each variable for statistical significance and interpreting them as an odds ratio of Exp(B).

RQ2: What is the relationship between IDU and HIV/AIDS status among previously incarcerated men and women in Texas?

$H_0$2: There is no relationship between IDU and HIV/AIDS status among previously incarcerated men and women in Texas.

H_a2: There is a relationship between IDU and HIV/AIDS status among previously incarcerated men and women in Texas.

To test Hypothesis 2, I conducted a multiple logistic regression. The purpose of Hypothesis 2 was to test how influential IDU is in predicting HIV/AIDS status among federal inmates in the Texas prison system. The independent variables in the analysis were the dichotomous variable representing incarceration for IDU (no vs. yes), the dichotomous variable representing a history of IDU (no vs. yes), the dichotomous variable representing IDU while incarcerated (no vs. yes), and the dichotomous variable representing use of illegal drugs that are not intravenous (no vs. yes). The outcome variable in the analysis was the dichotomous variable HIV/AIDS status (negative vs. positive). The process involved evaluating the significance of the model with the results of the chi-square test, evaluating the individual contributions of each variable for statistical significance, and interpreting them as an odds ratio of Exp(B).

RQ3: What is the relationship between IDU and the existence of social support networks among previously incarcerated men and women in Texas?

$H_0$3: There is no relationship between IDU and the existence of social support

networks among previously incarcerated men and women in Texas.

H_a3: There is a relationship between IDU and the existence of social support

networks among previously incarcerated men and women in Texas.

To test Hypothesis 3, I conducted a multiple logistic regression. The purpose of

hypothesis 3 was to test how influential the existence of the inmates' social support

networks is in predicting a history of IDU among federal inmates in the Texas prison

system. The independent variable in the analysis was the dichotomous variable

representing a social support network (no vs. yes). The outcome variable in the analysis

was the dichotomous variable history of IDU (no vs. yes). The process involved

evaluating the significance of the model with the results of the chi-square test, evaluating

the individual contributions of each variable for statistical significance, and interpreting

them as an odds ratio of Exp(B).

RQ4: What is the relationship between HIV/AIDS status and the existence of

social support networks among previously incarcerated men and women in Texas?

$H_0$4: There is no relationship between HIV/AIDS status and the existence of

social support networks among previously incarcerated men and women in Texas.

H_a4: There is a relationship between HIV/AIDS status and the existence of social

support networks among previously incarcerated men and women in Texas.

To test Hypothesis 4, I conducted a multiple logistic regression. The purpose of

Hypothesis 4 was to test how influential the existence of the inmates' social support

networks is in predicting HIV/AIDS status among federal inmates in the Texas prison

system. The independent variables in the analysis were the dichotomous variable

representing a social support network (no vs. yes). The outcome variable in the analysis

was the dichotomous variable HIV/AIDS status (negative vs. positive). The process

involved evaluating the significance of the model with the results of the chi-square test,

evaluating the individual contributions of each variable for statistical significance, and

interpreting them as an odds ratio.

Threats to Validity

The largest threat to external validity was the limitation of the study to inmates

formerly incarcerated in the Texas prison system. As inmates incarcerated in Texas

prisons were likely residents of Texas prior to incarceration, the demographic

characteristics of the Texas inmate population may vary from the demographic

characteristics of inmates incarcerated in other state prisons, in much the same way as the

demographic characteristics of the general population vary from state to state. In addition,

HIV/AIDS testing procedures vary from state to state. Although federal guidelines

require the standardization of HIV/AIDS testing procedures across the entire U.S. federal

prison system, the procedures for HIV/AIDS testing in state prisons vary from state to

state, as determined by the state legislature.

A number of factors can contribute to the contraction of HIV/AIDS, and though

this study involved conducting research to identify those factors among inmates within

the Texas federal prison system, this was a nonexperimental study, and a number of

factors may undoubtedly be unaccounted for and may therefore have threatened the

internal validity of the study. One threat to internal validity was prison conditions. The

prison conditions, while standardized across all prisons in the U.S. federal prison system, are not standardized within the state of Texas. Older prisons may not be as comfortable as newer prisons. Administrators at one prison may operate the prison differently from administrators at another prison. Health care workers tasked with caring for inmates may exhibit varying degrees of expertise, compassion, and commitment to the health of the inmates. All of these factors may influence inmate behaviors that could lead to the transmission of HIV. Within the context of this study, it was impossible to account for all the confounding factors that influence the relationships tested by the study hypotheses. Where possible, I identified the confounding factors and included them in the analyses as control variables.

In determining whether to reject the null hypotheses, I applied the generally accepted Type I error of .05, along with the generally accepted Type II error of .80 (Trochim & Donnelly, 2008). A Type I error of .05 indicates a 5% probability that the findings from the statistical analysis were due to chance or that the finding of statistical significance does not exist in the sampled population. In contrast, a statistical power or a Type II error of .80 indicates a 20% probability that there was a statistically significant relationship between the variables, but the statistical significance was not captured with the analysis or "the probability of rejecting a false H0" (Cohen, 1992). Because failing to find a statistically significant relationship that does exist is typically not as severe as finding a statistically significant relationship that does not exist, the Type II error is typically larger than the Type I error (Cohen, 1992). Each of the study hypotheses required the statistical analysis of different variables; therefore, a Type I error correction

was not required. However, I conducted multiple tests on the same variables, I employed

a smaller alpha or Type I error to minimize the risk of a committing a Type I error.

Ethical Procedures

As prisoners are a susceptible population (Faiver, 2017), I took every precaution

to protect the subjects of this study. I had no direct contact with any inmates and solicited

no information from inmates. Rather, the study involved using a survey questionnaire

developed by CDC to collect data from Prison Talk, an online web community developed

in a prison cell, designed in a halfway house, and funded by donations from families of

ex-offenders. Prison Talk is able to bring people together with an interest in supporting

the prisoner community. The study involved developing questions and sending them out

via Survey Monkey. Survey Monkey is a tool that individuals use to create and customize

their own surveys and includes data analysis, sample selection, bias elimination, and data

representation tools.

Following Walden University IRB approval, I obtained approval from the Prison

Talk administrators. Receipt of Walden University IRB approval was necessary before

Prison Talk will grant access to their website. The data from the respective systems were

anonymous and had no personal identifiers. Although it may be possible to deduce the

identity of certain prisoners from the characteristics in the data set, it would be extremely

unlikely given that there was no personal contact with the former prisoners, and the

locations of the participating prisons were throughout the state of Texas.

I am the only person who accessed the data, and it remained securely stored on

Survey Monkey. I created a secure, encrypted volume and stored the data set on the

volume. When not being analyzed, I did not mount the volume containing the data set, which required a password for access to ensure the security of the data in the event of loss or theft. Data for this dissertation will remain stored in this manner for 5 years, and then I will securely delete it by using a program that will overwrite the data several times, thereby making the data irrecoverable.

Summary

Researchers have extensively studied the prevalence of HIV/AIDS among inmates in prisons in previous studies. However, knowledge about the causes of the increased rates of HIV/AIDS in Texas prisons is lacking. This study involved testing four hypotheses using demographic characteristics, IDU, and the existence of the inmates' social support network as predictors of HIV/AIDS status. Testing each hypothesis involved conducting a multiple logistic regression. The following chapter will include the results of the four multiple logistic regressions.

Chapter 4: Results

Introduction

The purpose of this quantitative correlational study was to fill the gap in the literature and analyze the relationships between HIV/AIDS status and inmates' demographic characteristics, IDU, and the existence of their social support network. The study included surveys from 50 participants.

RQ1: What is the relationship among or between the demographic characteristics of age, gender, ethnicity, marital status, SES, and current HIV/AIDS status among previously incarcerated men and women in Texas?

$H_0$1: There are no relationships among or between the demographic

characteristics of age, gender, ethnicity, marital status, SES, and current

HIV/AIDS status among previously incarcerated men and women in Texas.

H_a1: There are relationships among or between the demographic characteristics of

age, gender, ethnicity, marital status, SES, and current HIV/AIDS status among

previously incarcerated men and women in Texas.

RQ2: What is the relationship between IDU and HIV/AIDS status among previously incarcerated men and women in Texas?

$H_0$2: There is no relationship between IDU and HIV/AIDS status among

previously incarcerated men and women in Texas.

H_a2: There is a relationship between IDU and HIV/AIDS status among previously

incarcerated men and women in Texas.

RQ3: What is the relationship between IDU and the existence of social support networks among previously incarcerated men and women in Texas?

$H_0$3: There is no relationship between IDU and the existence of social support networks among previously incarcerated men and women in Texas.

H_a3: There is a relationship between IDU and the existence of social support networks among previously incarcerated men and women in Texas.

RQ4: What is the relationship between HIV/AIDS status and the existence of social support networks among previously incarcerated men and women in Texas?

$H_0$4: There is no relationship between HIV/AIDS status and the existence of social support networks among previously incarcerated men and women in Texas.

H_a4: There is a relationship between HIV/AIDS status and the existence of social support networks among previously incarcerated men and women in Texas.

This study involved using multiple logistic regression analysis to test the null and alternative hypotheses. For each hypothesis, the dependent variable was the dichotomous HIV/AIDS status variable. For RQ1, the variables composed of the demographic characteristics of the prison inmates (age, gender, ethnicity, marital status, and SES) were used to predict HIV/AIDS status. For RQ2, the variables composed of the IDU variable among the prison inmates (incarceration for IDU, history of IDU, IDU while incarcerated, and use of illegal drugs other than IDU) were used to predict HIV/AIDS status. For RQ3, the variables composed of the existence of the inmates' social support network were used to predict IDU (incarceration for IDU) among prison inmates. For

RQ4, the variables composed of the existence of the inmates' social support network were used to predict HIV/AIDS status.

<div align="center">**Descriptive Statistics**</div>

The following data plan from Chapter 3 was followed fully. The study objective was to administer the questionnaire developed by the CDC via SurveyMonkey (Massat et al., 2009) to subscribers of Prison Talk and to perform data analysis by implementing SPSS (IMP SPSS Version 24, 2016). SPSS provides a secure and safe way to analyze data using multiple methods.

Prison Talk is free and open to the public for reading and gathering needed information. Every person in Texas has access to the Prison Talk organization's vast knowledge. Guests (nonregistered members) cannot post outside materials and information. The number of registered members who stated they are from Texas since Prison Talk's creation in 2001 is 50,682. However, considering only registered members can post there, that number is far lower than the number of Texans who have benefited from Prison Talk's information and support. Prison Talk administrators have no way to break that number down into subcategories of active or inactive members, men or women, or ethnic makeup.

The analysis plan for this research included descriptive statistics, such as measures of central tendency such as the mean, median, and mode. Percentages were used to express the number of participants in the study and the distribution of participants based on demographic information. The second step involved a correlation analysis to determine if relationships exist between variables. The third step involved conducting

inferential statistics by measuring the differences. An analysis of variance was the statistical tool used to measure differences. I reported the analysis of the data as part of the study and answered the research questions. The recommendations for future research generated from the results appear in Chapter 5.

Access to data required approval from the Walden University IRB, as well as from Prison Talk administrators. After the Walden University IRB provided approval to conduct the study, administrators at Prison Talk made their request forms available and reviewed the dissertation proposal. A survey questionnaire developed by the CDC was used to collect data from members of Prison Talk. I used survey questionnaires developed by the CDC (Appendix A) to gather data from participants related to their age, gender, IDU, social support network, and demographic characteristics. Demographic data were collected from the former inmate population and used to describe the population. Each former inmate was asked to give consent to participate in the research. These former inmates could withdraw their consent to participate in the study at any time. The survey instrument contained a series of questions developed by the NHBS (CDC, 2017). In 2003, the CDC developed the NHBS to conduct behavioral surveillance among people at high risk for HIV infection (CDC, 2017). The CDC Division of Health Informatics and Surveillance department validated the survey questions used (CDC, 2018b). These questions were sent out via SurveyMonkey, a tool used to create and customize surveys that includes data analysis, sample selection, bias elimination, and data representation tools.

Table 1 has the frequency counts for selected demographic variables for the 50 respondents in the study. Ages ranged from 19–29 years (14.0%) to 70–75 years (6.0%), with a mean age of $M = 46.08$ years ($SD = 13.58$). Gender makeup was 35 male (70.0%) and 15 female (30.0%) participants. A majority of respondents were African American (32.0%) or Caucasian (22.0%). Over half were either currently married (28.0%) or had never married (30.0%). Sixty-eight percent had at least completed Grade 12 or earned a GED, while 8.0% of respondents had also graduated from college. Thirty-four percent reported that they were HIV-positive.

Table 1

Frequency Counts for Selected Demographic Variables (N = 50)

Variable and category	N	%
Age		
19–29	7	14.0
30–39	9	18.0
40–49	19	38.0
50–59	6	12.0
60–69	6	12.0
70–75	3	6.0
Sex at birth		
Male	35	70.0
Female	15	30.0
Race or ethnicity		
American Indian	7	14.0
Asian	6	12.0
African American	16	32.0
Native Hawaiian	3	6.0
Caucasian	11	22.0
Hispanic	7	14.0
Marital status		
Married	14	28.0
Living together as married	6	12.0
Separated	7	14.0
Divorced	7	14.0
Widowed	1	2.0
Never married	15	30.0
Highest education level		
Never attended school	3	6.0
Grades 1–8	6	12.0
Grades 9–11	7	14.0
Grade 12 or GED	18	36.0
Some college, associate degree or technical degree	12	24.0
Bachelor's degree	3	6.0
Any postgraduate studies	1	2.0
HIV-positive		
Yes	17	34.0
No	33	66.0

Data on IDU and emotional supports during incarceration are presented in Figure

3. Fifty-four percent reported having used intravenous drugs in the past. As for emotional

support, 78.0% reported that they could count on someone to provide them with

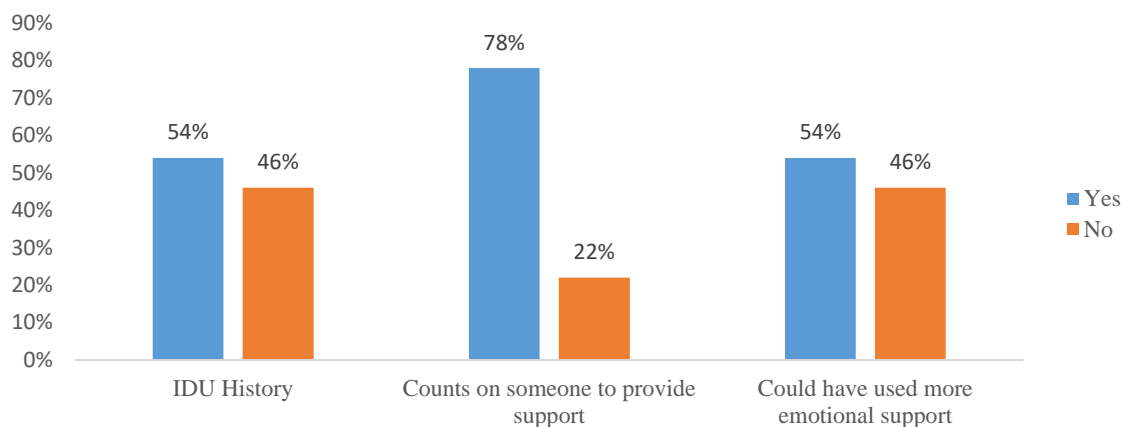emotional support, and 54.0% reported they wanted more emotional support.

Figure 3. Intravenous drug use and perceptions of social support networks during incarceration ($N = 50$).

Answering the Research Questions

RQ1 was answered using both Spearman correlations to measure the bivariate

relationships (see Table 2) and using a logistic regression model (see Table 3) to assess

the multivariate relationships. Spearman correlations were used instead of the more

common Pearson correlations due to the sample size ($N = 50$).

As Table 2 demonstrates, African American respondents were less likely to be

HIV-positive than respondents of other races ($rs = –.31$, $p = .03$). Among the six

racial/ethnic groups, African Americans had the lowest HIV rate (12.5%) while

American Indians had the highest (71.4%; Figure 4). Also, respondents who had a history

of IDU were more likely to be HIV-positive than those who did not have a history of IDU

($r = .49$, $p < .001$; Figure 5). Approximately 56% of respondents who had a history of

IDU were HIV-positive compared to 9% of respondents without a history of IDU. In the

logistic regression analysis shown in Table 3, only IDU was found to be a significant

predictor of HIV positivity ($B = 3.99$, $OR = 54.33$, $p < .05$). Because ethnicity and IDU

were found to have a significant correlation with HIV-positive status, $H_0 1$ was partially

rejected.

Table 2

Spearman Correlations for Selected Variables with HIV Positive Status (N = 50)

Variable	HIV positive
Age	−.24
Sex at birth [b]	−.01
Black or African American [a]	−.31*
White [a]	.13
Married [a]	.12
Never married [a]	−.19
Highest education level	−.21
Used intravenous drugs [a]	.49**
Count on someone [a]	−.03
Could have used more emotional support [a]	.32

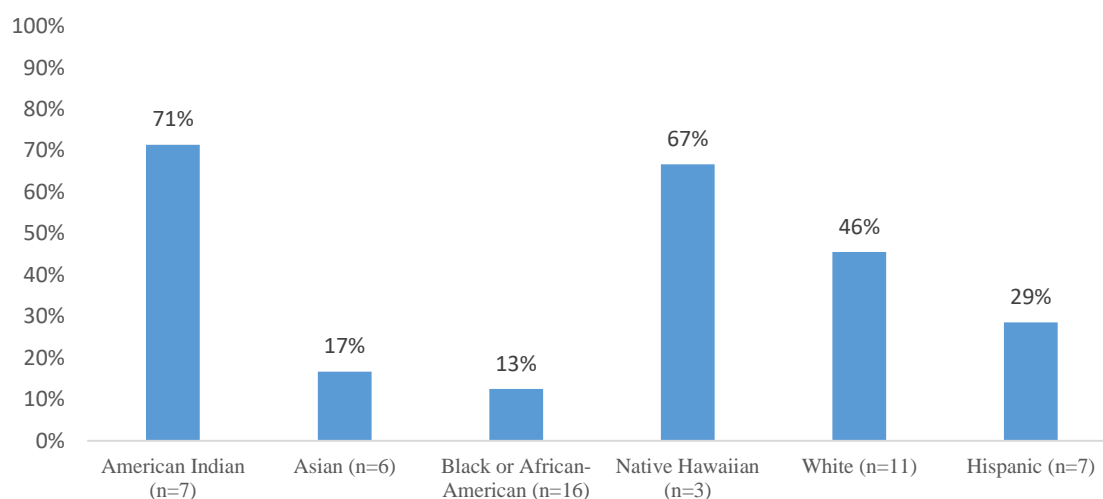*Note.* * $p < .05$; ** $p < .001$; a: 0 = no, 1 = yes; b: 1 = male, 2 = female.

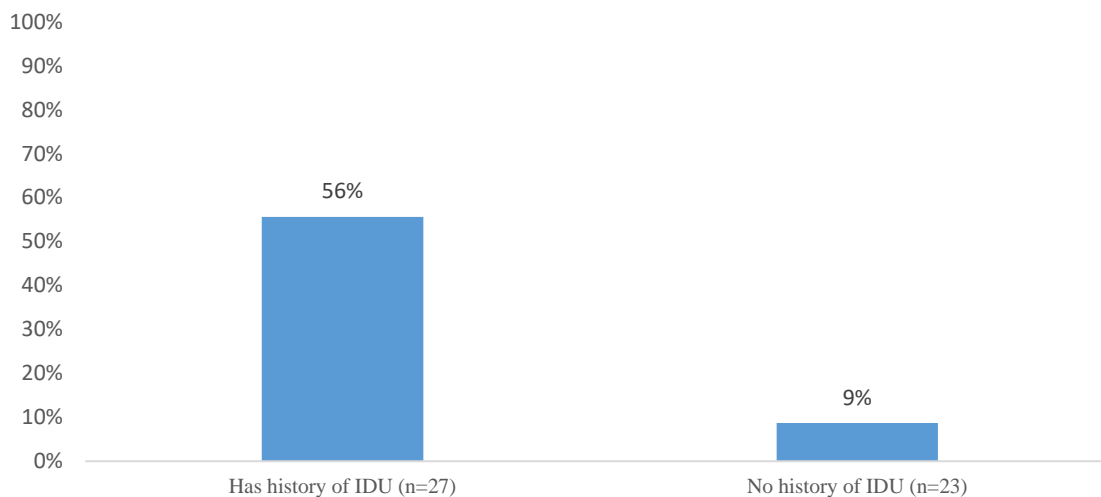Figure 4. Rates of HIV-positive status by participant race/ethnicity ($N = 50$).

Figure 5. Rates of HIV-positive status by history of intravenous drug use ($N = 50$).

Table 3

Logistic Regression Model Predicting HIV Positive Status (N = 50)

					95% CI	
Variable	B	SE	p	OR	Lower	Upper
Age	-0.04	0.04	.23	0.96	0.89	1.03
Sex at birth [a]	-0.29	0.98	.77	0.75	0.11	5.11
Black or African American [b]	-0.15	1.30	.91	0.86	0.07	11.00
White [b]	-0.11	1.04	.92	0.90	0.12	6.95
Married [b]	2.78	1.49	.06	16.10	0.87	297.10
Never married [b]	0.45	1.21	.71	1.58	0.15	16.85
Highest education	-0.43	0.46	.35	0.65	0.27	1.60
Injected drugs [b]	3.99	1.38	.004	54.33	3.62	816.14
Anyone provides support [b]	-1.84	1.28	.15	0.16	0.01	1.96
Could have used more emotional support [b]	2.06	1.15	.07	7.84	0.82	74.67
Constant	-0.17	3.33	.96	0.85		

Note. χ^2 (10, $N = 50$) = 26.21, p = .003; base classification rate: 66.0%; final classification rate: 76.0%; a coding: 1 = male, 2 = female; b coding: 0 = no, 1 = yes.

Answering RQ2 involved using both a Spearman correlation to measure the bivariate relationship (see Table 2) and using the logistic regression model (see Table 3) to assess the multivariate relationship. Intravenous drug users were significantly more

likely to be HIV-positive (rs = .49, p = .001). In the logistic regression model (see Table

3), those who were intravenous drug users were more likely to be HIV-positive (p = .004,

OR = 54.33, 95% CI [3.62, 816.14]). This combination of findings provided support to

reject $H_0 2$.

Research Question 3

Research Question 3 was as follows: What is the relationship between IDU and

the existence of social support networks among previously incarcerated men and women

in Texas? H03 was as follows: No relationship exists between IDU and the existence of

social support networks among previously incarcerated men and women in Texas.

Answering the research question involved using Spearman correlations to measure the

relationship between IDU and social support. No relationship existed between IDU and

either having someone they could count on to provide them with emotional support (rs =

-.01, p = .97) or in whether the intravenous drug user needed more emotional support (rs

= .11, p = .43; Table 4). This combination of findings provided support failed to reject

H03.

Table 4

Spearman Correlations for Social Support Networks with IDU (N = 50)

Variable	IDU
Count on someone [a]	−.01
Could have used more emotional support [a]	.11

Note. * *p* < .05. ** *p* < .001.

Research Question 4

Research Question 4 was as follows: What is the relationship between HIV/AIDS

status and the existence of social support networks among previously incarcerated men

and women in Texas? H04 was as follows: There is no relationship between HIV/AIDS

status and the existence of social support networks among previously incarcerated men

and women in Texas. I answered this question using both Spearman correlations to

measure the bivariate relationship (see Table 2) and the logistic regression model (see

Table 3) to assess the multivariate relationships. For the bivariate relationships, being

HIV-positive was not related to being able to count on someone for emotional support (rs

= -.03, p = .86) but was related to reporting a need for more emotional support (rs = .32, p

= .02). In the multivariate logistic regression model (see Table 3), being HIV-positive

was not related to being able to count on someone for emotional support (p = .15, OR =

0.16, 95% CI [0.01, 1.96]) but tended to be related to the HIV-positive individual needing

more emotional support (p = .07, OR = 7.84, 95% CI [0.82, 74.67]). This combination of

findings provided partial support to reject H04.

<div align="center">**Summary**</div>

In summary, this quantitative correlational study involved using survey answers

from 50 respondents to fill the gap in the literature by analyzing the relationships between

HIV/AIDS status and former inmate demographic characteristics, IDU, and the existence

of a social support network. Hypothesis 1 (demographics and being HIV-positive)

received partial support (see Tables 2 and 3). Specifically, Black/African Americans had

the lowest HIV rate while American Indians had the highest. Also, respondents who had

a history of intravenous drug use were more likely to be HIV-positive than those who did not have a history of intravenous drug use. , Hypothesis 2 (IDU and being HIV-positive) received full support (see Tables 2 and 3), Hypothesis 3 (IDU and social support) received no support (no table shown), and Hypothesis 4 (social support and being HIV-positive) received partial support (see Tables 2 and 3). Specifically, being HIV-positive related to reporting a need for more emotional support. The final chapter will include (a) a comparison of these findings to the literature, (b) conclusions and implications, and (c) a series of recommendations.

Chapter 5: Discussion, Conclusion, and Recommendations

Introduction

The purpose of the cross-sectional study was to explore characteristics of men and women formerly incarcerated in Texas prisons to determine the potential relationships between HIV/AIDS status, demographic characteristics (age, gender, ethnicity, marital status and SES), IDU, and social support networks.

The significant finding for RQ1 was that a relationship existed between ethnicity and HIV/AIDS status, so H_a1 received partial support. The significant finding for RQ2 was that there was a relationship between IDU and HIV/AIDS status, so H_a2 received full support and H_02 was rejected. The significant findings for RQ3 was that there was no relationship between IDU and the existence of social support networks, so H_03 was not rejected. The significant finding for RQ4 was that there was a relationship between HIV/AIDS status and the existence of social support networks, so H_04 was partially rejected.

Knowing whether IDU and social support have an effect on prison inmates could be important for reducing the spread of HIV in communities. A gap in the literature existed in this regard because most previous research took place in prisons and jails in states with a lower prevalence of HIV/AIDS than in Texas.

Interpretation of Findings

I applied the theories of inmate behavior posited by Goffman (1961) and Robbins and Judge (2012), which were both combinations of a deprivation model (deprived of their normal societal ways of fulfilling needs, inmates learn new behaviors), and an

importation model (inmates import their culture and behaviors as much as they learn

them from other inmates).

Deprivation Model

Clemmer (1940) invented the term prisonization, which indicates an adaption to

customs, culture, and norms of prison life. My findings regarding deprivation suggest a

more complex issue that requires future attention. Although the findings indicated a

significant relationship between IDU and being HIV-positive; Clemmer's research has

been debated, especially the relationship between the deprivation and importation models

and prisonization. The deprivation model underlines the magnitude of issues caused

during incarceration by crafting an adjustable subculture (Clemmer, 1940). Mears et al.

(2013), Azbel et al. (2017), and Abiona et al. (2015) noted that without the fulfillment of

needs in the usual manner, inmates must make changes to their behavior or their modes

of response.

While Clemmer (1940) researched prisonization he found that the deprivation

model is a theoretical position that measures the condition of the prison system as a basis

for prison countercultures. Deprivation is a coping mechanism adapted by the inmate

population that helps them to deal with the social and physical norms of everyday prison

life (Paterline & Orr, 2016). Confronted with prisonization inmates tend to unravel their

problems communally. Once an inmate establishes this collective bond with other

inmates, an inmate society begins to form, which includes an institutionalized culture of

networking among different groups and an understanding of different levels of

communication within the prison community. Outside of the prison, the majority of the

50 participants felt that more social support was needed to cope with their HIV status, and the deprivation model indicates this bond may have been made by the former inmates during incarceration. The formation of this community is viewed as an operational approach to resolving problems of prison life. According to Paterline and Orr (2016), the deprivation model predicts that the community an inmate becomes connected to is based on the negative reactions caused by the prison organization. Therefore, a tolerance of other inmates' assertiveness, values, and behavior makes sense when considering the influences of the prison setting (Paterline & Orr, 2016). The deprivation model has also explained homosexual behavior in prisons and types of prison leadership (Akers, 1977).

Hilinski-Rosick and Freiburger (2018) studied sexual violence among male inmates in North Carolina and concluded that inmates who were African American, unmarried, younger and who had prior or longer prison sentences had higher odds of having a sexual infraction. Hilinski-Rosick and Freiburger also indicated that male inmates were more likely to be affected by deprivation factors such as powerlessness and limitations on relationships with family members outside the prisons. Highlighting my study's findings that more social support is needed, deprivation of sexual relationships in male inmates can lead to homosexual rape and sexual assault, which society once viewed as an expression of control and power (Hilinski-Rosick & Freiburger, 2018). These behaviors may generate an understanding of the study's findings that African American inmates had the lowest HIV rate and American Indian inmates had the highest HIV rate.

Importation Model

Although many researchers have investigated variables such as age, education, demographics, and race, these variables have not been used with Prison Talk as a resource. The findings suggest that African American inmates are less likely to be HIV-positive than inmates of other races, and respondents who had a history of IDU were more likely to be HIV-positive than respondents without a history of IDU. The findings in this study and in previous studies indicate that inmates who enter prison join a high-risk population for HIV. Therefore, although a determination of the prevalence of HIV transmission in prison is necessary, additional research on this public health issue is also essential. Knowing whether IDU and social support have an effect on the inmate populations could be important for reducing the spread of HIV in the community. In the multivariate logistic regression model, no relationship existed between being HIV-positive and being able to count on someone for emotional support, but a relationship did exist between being HIV-positive and needing more emotional support.

The importation and deprivation models provided explanations for the variations in prison inmate behavior. Deprivation is a prison subculture that has developed within the walls of the prison system; this culture enables the inmates to adjust to their surroundings and becoming institutionalized. The established prison culture is marked by a prison code or rules developed in the prison system among inmates' social systems. Although inmates may not engage in homosexual behavior or IDU while outside the prison, they might adapt to the behavior within the prison system. The findings suggest that adjustment to prison culture is influenced by social class, preprison involvement in

criminal behavior, prior IDU, frequency of contacts with individuals outside the prison system, and inmates' views of life after prison. The findings illustrate the need to expand the scope of the deprivation and importation models.

This study provided empirical evidence that being HIV-positive was not related to being able to count on someone for emotional support. Only IDU was found to be a significant predictor of positive HIV status, and intravenous drug users were more likely to be HIV-positive. According to Spohr et al. (2019), social support for inmates is substantially connected with the number of times they have been arrested, number of visitations, and days of incarceration. But my findings indicated that no relationship existed between inmates' IDU and either having someone they could count on to provide emotional support or needing more emotional support. Being HIV-positive was not related to being able to count on someone for emotional support but was related to needing more emotional support. The motive for inmates engaging in risky behavior develops from a combination of the importation and deprivation models.

Limitations of the Study

This study had some limitations. It was not possible to design an experimental or quasi-experimental study with prison inmates as participants. In addition, available data on prison inmates in the state of Texas were limited, which made a longitudinal study impossible. For the same reasons that I decided to limit the study to a nonexperimental design at a single point in time, I also decided to employ a quantitative research design. Because access to prison inmates was restricted and potentially dangerous, a qualitative research design was not practical.

Conducting an online survey has limitations. Prison Talk did not allow me to post my questions in all the different forums on their website, resulting in limited exposure for my survey. The small number of women (15) was also a limitation in terms of generalizing findings for women. According to Fedock (2018), the number of women imprisoned in state and federal prisons increased by 908% between 1977 and 2014. Women accounted for 23% of adults either on probation or parole and over 9% of adults in jails and prisons (Fedock, 2018) However, the study's findings are an important starting point for further research.

Online data collection can be limited, but the website I used for data collection, Prison Talk, is free and open to the public for reading and gathering needed information on current issues facing the prison system. Although the data collected from Prison Talk were limited to the responses of 50 participations, the ability to gather sensitive detailed content of this nature in this type of forum was essential to the study.

The validity of the survey technique was also a limitation. According to Burns (2018), up to 50% of people will provide dishonest answers on surveys. Burns stated that there could be any number of reasons participants will answer in this manner, even if a survey is confidential. Researchers must believe that the participants are not lying and that they strongly believe the answers they are providing are correct. In addition, former inmates may have answered the survey questions incorrectly because their incarcerations happened too long ago for them to be remembered accurately.

Recommendations

Based on my study findings, I suggest the following recommendations to ensure individuals released from Texas prisons understand the importance of HIV testing, medication, and social support. The prevalence of HIV/AIDS differs from state to state, and the first recommendation is that leaders implement community support programs in areas with elevated rates of unsafe sexual behaviors. This social support effort may raise awareness by increasing individuals' understanding of the risk of spreading this deadly disease. Fuller et al. (2018) focused on steadiness and preservation of care after incarceration for inmates with elevated rates of unsafe sexual behavior. Fuller et al. conducted qualitative interviews to gather information from four different states. They interviewed former inmates living with HIV to gather information on the inmates' social support and access to HIV care after incarceration. The inmates enrolled in navigation intervention through the System Linkage and Access to Care for Populations at High Risk of HIV Infection Initiative, known as Systems Linkages Initiative. The 5-year program started in 2011 and was led by the Health Resources and Services Administration, which funded state health departments for the HIV population (SPNS Initiative, 2016. Intervention work in Wisconsin begins while inmates are still in prison, at which point program workers begin working with inmates 9 months before release (Fuller et al., 2018). The Wisconsin community program gives inmates community support, motivation, and clinical oversight. Fuller et al. highlighted the importance of pre- and post-release support clinically funded by Ryan White Healthcare Management, not just for people released from prison but also those in the general patient population. The

findings showed why social support is influential and highlighted the importance of such programs in and out of the prison system.

There are health care professionals who work within Texas prisons, but additional education regarding the HIV/AIDS community and risky sexual behavior is necessary. One in seven former inmates living with HIV fights to gain care and treatment after release (Iroh et al., 2015). Only 5% of former inmates fill antiretroviral prescriptions within time to avoid a lapse in treatment (Cohen et al., 2016). Programs that link former inmates with health care providers would be beneficial. In 2011, the Health Resources and Services Administration started a program to link and provide access to care for populations with high risk of HIV infection (Koester et al., 2016). Six states received funds to develop a link-to-care program over a 4-year period. The program was successful based on the communication between the state agencies, inmate participation, and stakeholders. Based on the findings additional work can be done on former inmates outside of Texas.

Implications

Individuals between the ages of 13 and 64 should be aware of their HIV status (CDC, 2012a). Having an HIV test lessens the time between testing and treatment and decreases the time between infection and awareness. Individual awareness as it relates to testing positive for HIV will determine the type of medical care needed, treatment plan, and social support needed (CDC, 2012a).

Policy leaders could use these study findings to make changes to the existing federal and state prison systems and to HIV education and testing programs to lower HIV

transmission inside and outside prison and potentially increases former inmates' life spans by ensuring they know their HIV status. Being aware of HIV status can reduce transmission and lead to an extended quality of life with HIV treatment. Encouraging formal inmates to be tested through education while in the prison system is likely to lead to a reduction in mortality and morbidity rates related to HIV/AIDS.

Recommendation for Future Research

The following recommendations for future research are based on the findings. Future researchers should study the HIV/AIDS status of current and former jail and prison inmates, because such research might reveal a decrease in HIV/AIDS and an increase in social support among those practicing unsafe sexual and taking drugs. Additional research should replicate this study with a larger sample of male and female inmates within other regions in the United States. Additional research should take place in federal and state correctional facilities to investigate the relationship between total HIV/AIDS knowledge and inmates' HIV status.

Additional research may include culturally diverse educational components that reflect the different ethnicities of inmates in the prison system. The research study will generate findings based on how different cultures relate to HIV/AIDS and health care, this will allow educators the ability to educate on their level. Additional research may study the potential effectiveness of a mandate that requires all inmates, members of correctional facilities, and members of HIV/AIDS community centers participate in an HIV/AIDS education course. This will provide a better understanding of HIV/AIDS as a community.

Prison Talk administrators could update their website to break down the number of registered former inmates into subcategories of membership activity, gender, and ethnic or racial makeup. This may help the prison community further narrow down detailed statistics on former inmates.

Conclusions

This quantitative correlational study used survey responses from 50 former inmates. Inclusion of the variables was justified by empirical evidence. The importation and deprivation models are likely explanations for variations in prison inmate high risk behavior. Although researchers had previously used the deprivation and importation models and shown that they influence inmate behavior, little was known about HIV/AIDS after incarceration.

The study involved examining these relationships in the context of former prisoners in Texas. A gap in the literature existed because most research took place in prisons and jails in states with a lower prevalence of HIV/AIDS than that of Texas. No other researchers had studied former inmates with HIV/AIDS using the website Prison Talk as a data source. The goal of this study was to expand the body of literature by examining empirical literature and testing factors that might affect the rate of HIV/AIDS among inmates: demographic differences, IDU, and social support networks.

Findings from the study may provide policy makers, legislators, prison administrators, educators, and researchers with insight into the factors that contribute to the prevalence of HIV/AIDS, possibly leading to positive social change by reducing the prevalence of HIV/AIDS among former prison inmates and their partners. The potential

for positive social change lies in the communities understand of how HIV/AIDS is

transmitted within the prison system, the benefits of HIV testing among former inmates,

increase in voluntary community and prison counseling centers, and early treatment for

HIV infection within the prison system and community.

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Appendix A: Questionnaire

Potential Relationships Between HIV/AIDS and Behavioral Risk Factors
Among Former Texas Prison Inmates

1. Obtaining Your Consent:

    If you feel you understand the study well enough to make a decision about it,
    please indicate your consent by clicking the link below:

    Yes (proceed to survey)
    No (exit survey)

2. Were you incarcerated in Texas?

    Yes (proceed to survey)
    No (exit survey)

3. What is your year of birth?

4. Which racial group or groups do you consider yourself to be in? You may
    choose more than one option.

    [READ choices. CHECK ALL that apply.]
    American Indian or Alaska Native
    Asian
    Black or African American
    Native Hawaiian or other Pacific Islander
    White
    Hispanic

5. What city do you currently live in?

6. What was your sex at birth?
    Male
    Female

7. How long were you incarcerated?

8. During the past 12 months, have you been held in a detention center, jail, or
    prison for more than 24 hours?
    Yes
    No

9. Do you consider yourself to be male, female or transgender?

Male
Female
Transgender

10. Have you ever had vaginal or anal sex with a woman?
Yes
No

11. Have you ever had oral or anal sex with a man?
Yes
No

12. Are you very, somewhat, or not at all worried about contracting AIDS?
Very Worried
Somewhat Worried
Not at all Worried

13. Have you ever in your life shot up or injected any drugs other than those prescribed for you? By shooting up, I mean any time you might have used drugs with a needle, either by mainlining, skin popping, or muscling.
Yes
No

14. When was the last time you injected any drug? That is, how many days or months or years ago did you last inject?

15. Which drug do you inject most often?
Heroin
Cocaine
Speed

16. Have you had sex with a "woman"/ "man" in the past 12 months?
Yes
No

17. In the past 12 months, that is, since [January 2017] of last year, have you been homeless at any time? By homeless, I mean you were living on the street, in a shelter, in a Single Room Occupancy hotel (SRO), or in a car.
Yes
No

18. Are you Currently homeless?
Yes
No

19. What Country where you born in? Country of birth
   United States
   Mexico
   Puerto Rico
   Cuba
   Other (please specify)

20. What year did you first come to live in the United States?

21. Do you speak a language other than English at home?
   Yes
   No

22. What is this language? Other language spoken at home
   Spanish
   Chinese
   Tagalog
   Korean
   Portuguese
   None
   Other (please specify)

23. What is your current marital status?
   Marries
   Living together as married
   Separated
   Divorced
   Widowed
   Never Married

24. What is the highest level of education you completed?
   Never attended school
   Grades 1 through 8
   Grades 9 through 11
   Grade 12 or GED
   Some College, Associate Degree, or Technical Degree
   Bachelor's Degree
   Any post graduate studies

25. Do you currently have health insurance or health care coverage?
   Yes
   No

26. In the past 12 months, that is, since [January 2017] of last year, with how many different partners have you had oral or anal sex with?
    1-3
    4-6
    7-9
    10 or more

27. Of the partners you've had oral or anal sex with in the past 12 months, how many of them were main partners?
    1-3
    4-6
    7-9
    10 or more

28. How many were casual partners?
    1-3
    4-6
    7-9
    10 or more

29. During the time you were having a sexual relationship with your main partner, did you have sex with other people?
    Yes
    No

30. While incarcerated, were you offered an HIV test? An HIV test checks whether someone has the virus that causes AIDS.
    Yes
    No

31. Since you been released from prison, were you offered an HIV test?
    Yes
    No

32. Have you ever tested positive for HIV, that is, do you have HIV?
    Yes
    No

33. In the past 2 years, how many times have you had an HIV test?

34. About how long has it been since you last saw a doctor, nurse, or other health care provider about your own health?
    1 to 3 months
    4 to 6 months
    6 months to a year
    Over a year

35. What is the main reason you have not gone to a health care provider for HIV care in the past 6 months?

36. Do you consider yourself to be:
    Sexual identity Heterosexual or "Straight"
    Homosexual, Gay, or Lesbian
    Bisexual

37. In the past 12 months, did you have sex without using a condom?
    Yes
    No

38. In the past 12 months, with how many of these partners did you have sex without using a condom?
    1-3
    4-6
    7-9
    10 or more

39. In the past 12 months, did you have vaginal or anal sex without a condom with a person you knew was HIV positive?
    Yes
    No

40. In the past 12 months, did you have vaginal or anal sex without a condom with a person whose HIV status you didn't know?
    Yes
    No

41. As far as you know, have any of your partners ever injected drugs like heroin, cocaine, or speed?
    Yes
    Don't know
    No

42. As far as you know, have any of your partners ever used crack cocaine?
    Yes

Don't know
No

43. As far as you know, have any of your partners ever been in prison or jail for more than 24 hours?
Yes
Don't know
No

44. As far as you know, have any of your partners ever had same sex intercourse while in prison or jail for more than 24 hours?
Yes
Don't know
No

45. Did you have same sex intercourse while in prison?
Yes
No

46. Have you participated in a program to treat drug use in the past 12 months?
Yes
No

47. In the past 12 months, did you try to get into a program to treat drug use but were unable to?
Yes
No

48. In the past 12 months, have you had a one-on-one conversation with an outreach worker, counselor, or prevention program worker or participated in an organized group session to discuss ways to prevent HIV infections?
Yes
No

49. Have you ever heard of people who do not have HIV taking PrEP, the antiretroviral medicine taken every day for months or years to reduce the risk of getting HIV?
Yes
No

50. In the next 12 months, what do you think your chance of becoming infected with HIV is?
No chance

Some chance
Certain

Now I would like to ask a few questions about social support friends and family.

51. Can you count on anyone to provide you with emotional support such as talking over problems or helping you make a difficult decision?
Yes
No

52. In the last 12 months, who was most helpful in providing you with emotional support?

CHECK ALL THAT APPLY
Spouse
Son
Parent
Neighbors
Church Members
Professionals
Refused
Daughter
Sister/Brother
Other Relative
Co-worker
Club members
Friends
No one
Don't know

53. In the last 12 months, could you have used more emotional support than you received?
Yes
No

54. Would you say that you could have used:
A lot more emotional support
Some more emotional support
A little more emotional support

55. How often do you attend church or religious services?
Daily
Weekly

Monthly
Annually
Occasionally
Holidays or special occasions
Never

56. If you need some extra help financially, could you count on anyone to help you; for example, by paying any bills, housing costs, hospital visits, or providing you with food or clothes?
Yes
No

57. In general, how many close friends do you have?

Thank you for taking the time to participate in this survey.

Your information will be kept confidential.

Please click "DONE" at the bottom of the survey prior to closing this window.

Thank you