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## Predicting Recidivism Following Participation in Treatment/ Intervention Programs for Ex-offenders

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# Walden University

College of Social and Behavioral Sciences

This is to certify that the doctoral dissertation by

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has been found to be complete and satisfactory in all respects,  
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Walden University  
2020

Abstract

Predicting Recidivism Following Participation in  
Treatment/Intervention Programs for Ex-offenders

by

Shaunae Colita Smith

Dissertation Submitted in Partial Fulfillment

of the Requirements for the Degree of

Doctor of Philosophy

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## Abstract

Failure to participate in rehabilitative programs during or after prison has led to increased recidivism, which, in turn, has contributed to overcrowded prisons and lack of rehabilitation services for offenders. The purpose of this descriptive, quantitative, regression study was to explore the relationship between inmates' program participation (i.e., during prison education program, during prison drug treatment program, during prison alcohol treatment program, and during prison sex offense treatment program) by and subsequent recidivism. Banduras' social learning theory provided the theoretical framework for the study. The study data were drawn from recidivism data of 38,624 prisoners who were released in 1994 and followed over 3 years (1994-1997). The dataset resulted from a longitudinal study of 4 measures: rearrests, reconvictions, resentence with imprisonment, and confinement (with or without a new sentence). These data were used to generate outcomes that measured during prison intervention programs effects on recidivism. The goal was to examine how program interventions help an ex-offender in avoiding the recommitting of crime and reentering the correctional system. According to the findings, the lack of participation in any correctional program, offered to ex-offenders during prison, elevated the reoffending. Not only participation but completion of the intervention program in which ex-offender participated was an important aspect to reduce the rate of re-offense. From these findings it is suggested that, for a positive social change in the community better resources and interventional programs implementation is necessary. The judiciary and policymakers should review the use of alternatives to incarceration, which would improve rehabilitation of offenders and their reintegration back into communities.

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## Dedication

I dedicate this dissertation to my parents, my close friends (Divas), Nicole, and my best friend who passed away a couple of years ago (may she rest in peace) who wanted me to succeed with this degree. Their loving support and generous encouragement have been remarkable during this long journey of educational endeavor. I am incredibly grateful for their patience and understanding of the time and effort that it took to reach this milestone. All of you have always been there to lift my spirits and push me to finish my dream.

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## Chapter 1: Introduction to the Study

### **Introduction**

In the past five years, researchers have examined the effectiveness of program participation on recidivism success (Dunrose, Cooper, & Synder, 2014). Davis (2013) confirmed that those who participated in programs while incarcerated were less likely to commit further crimes. More recently, the Lion Heart Foundation (2017) noted increased interest in understanding how interventional programs can be vital in correctional settings. The phenomenon of program participation during and after incarceration and its link to recidivism rates is evolving continuously (Dunrose, Cooper, & Synder, 2014; Lionheart Foundation, 2017).

Despite the importance of program participation while incarceration of criminals this area of research has been ignored and involved decision making in the judicial systems and mandates interventional programs as a part of sentencing (Lionheart Foundation, 2017). Under varied circumstances, these programs are successful in preventing recidivism. Rainforth et al., (2003) examined the recidivism rates over a 15-year period among former inmates and reported positive effects of transcendental meditation program on recidivism among former inmates of Folsom prison. From his study he concluded that the TM program can be proved advantageous with certain other rehabilitation programs in reducing the rate of crime by former prisoners or ex-offenders. The Lionheart Foundation (2017) investigated emotional literacy programs such as building resilience and self-esteem, conflict resolution and managing anger etc. and their effectiveness in reducing the increased crime rates. It shows that different correctional

facilities provided if during or after incarnation could be a source of healthy crime free society or at least a society where one ex offender does not recommit the crime.

The lack of program participation has been described as the single most problematic aspect of recidivism (Nation Reentry Resource Center (NRRC), 2014). Program participation or participation of criminals in correctional programs during prison can prevent the further criminal activity by the same individuals. More detail on the efficacy of program involvement in easing the recidivism is given in Chapter 2.

In the present chapter, the following topics will be covered: Background of Study, Problem Statement, Purpose of Study, Research Question and Hypotheses, Theoretical Framework, Nature of Study, Assumptions, Scope and Delimitations, Limitations, Significance of the Study and summary of this whole chapter

### **Background of Study**

For many years, according to Dunrose et al., (2014), experts have tried to identify correctional programs that reduce recidivism among former inmates incarcerated for drug offenses precisely. The authors noted that an assessment was performed in 2005, which looked at inmates released from prison and their re-entry rates. It was found that within 3 years, 71% were re-arrested for a new drug offense. These numbers identify that drug abuse including possession, trafficking and others is a critical risk factor for post release reoffending. Dunrose et al., (2014) highlighted the need for government resources to look into improving treatment programs for reducing the substance-abusing inmates.

Detention is not sufficient to discourage or as a means of controlling recidivism. Many prisoners, especially the most serious, have serious lifestyle problems, mainly due to chronic drug abuse. Without proper care while in prison, most people will return to drug

use after their release from prison and repeat offenses (Gerstein & Harwood, 1992). One type of interventional program used to decrease the rate of substance abuse is the in-house program designed explicitly for substance abusers. It is considered these types of applications involve a broad range of services that vary from facility to facility. The variations differ because of the costs to develop, implement, and sustain over time (Gerstein & Harwood, 1992). Because of politicians and public critical role in addressing the relationship between substance abuse issues and recidivism among inmates, and its costs to taxpayers, in-prison substance abuse programs have been under scrutiny by policymakers (Dunrose et al., 2014).

Literature by Dugas (1990) and Gehring (2000) indicate that prisoners who receive an education while incarcerated are less likely to recidivate than those prisoners who do not get the same opportunities during their sentence in jail. According to Davis, (2013) in the light of these facts, a meta-analysis study was conducted correlating the recidivism rate with in prisons correctional treatment and their educational programs. The analysis led to what was expected; that inmates who participated in the in-house education program had about less than half the likelihood of returning to prison than their counterparts. Davis (2013) stated in his study that allocating funds to prison education was cost-efficient, reducing the cost to house these individuals. He estimated that the direct costs of providing education for a hypothetical group of 100 prisoners would range from \$ 140,000 to \$ 174,400 with three-year renewal costs less than \$ 0.87 million to \$0.97 million for those who undergo re-education versus those who do not. This translates into prison costs ranging from \$ 1,400 to \$ 1,744, indicating that providing correctional education is relatively cost-effective compared to the costs of rehabilitation.



While it is clear that correctional education is beneficial, more research is needed to determine which educational programs are most active (Davis, 2013).

Alcohol abuse presents many obstacles for the courts regarding public safety and crime. This is because alcohol treatment programs are less available than other programs. Alcohol-related crimes require more resources than crimes committed under the influence of other substances, but with opportunities to rehabilitate, consistent strategies will help create behavioral change. Miller et al., (2014) indicated the lack of evaluation of alcohol-based programs in prison to the scarcity of them being offered in prison. It was concluded in the study that there is a need for further research on the effectiveness of alcohol treatment programs and identification of practices that can strategically interrupt the use of alcohol and crimes being committed.

The effect of convictions on drug-related crimes such as trafficking, possessing and distributing drugs is an ongoing issue (Linn-Walton & Maschi, 2015). The drug abusers instead of getting treatment for their addiction get only imprisonment and this results in the number of abusers' land in the criminal justice system repeatedly. The Bureau of Justice reported that in 2009, over 30% of the cases heard in the United States were drug related. Many scholars agree that there is a significant problem related to drug in the United States but statistics vary (Bui & Morash, 2010; Patra, et al., 2010). Linn-Walton and Maschi (2015) believe that these numbers of drug related crimes are not depicting the actual number persisting in the society Despite the numbers documented, trends suggest that the number of drug-related crimes is increasing, with over 50% of testing positive for drug such as cocaine, heroin, morphine and amphetamines etc. on arrest. The findings from the literature review by Linn-Walton and Maschi (2015)

highlighted that a huge number of people incarcerated for various crimes with underlying drug habits that cause them to offend and re-offend. Kras, (2013) and McKendrick et al. (2006) stated that if these people were offered substance abuse treatment as a part of sentencing, it would have a positive impact. Promising practices for correctional facilities would include court-mandated community and outpatient drug treatment programs, running concurrently with their sentences (Linn-Walton & Maschi, 2015).

The other most important and most shameful crime of the current world is sex offense (Piquero et al., 2019). The controversies regarding the effectiveness of sexual offender treatment programs on recidivism are one of the most significant challenges that inmates face (Schmucker & Losel, 2017). Because the rate of re-offending among those released from jail has increased, prerelease planning to secure treatment for sex offense is vital. Different approaches to treatment should be taken into account because some may be more effective than others, for example, cognitive-behavioral programs and multisystem approaches. In addition to, having the ability to individualize treatment instead of standardized programs. These programs include focusing on the inmate's risk, from low to high. Schmucker and Losel (2017) highlighted that the advantage of these programs: They can focus on the early treatment of sex offenders to ensure quality of care. Schmucker and Losel also believe that there is a need for a more distinguished process, with sound evaluations of the interventions used. This process will allow for definitive answers to the effectiveness of sex offense treatment (Schmucker & Losel, 2017).

### **Problem Statement**

According to the NRRC (2014), to date, government officials have been faced with issues raised in communities about increased crime rates, they believe that the lack of programs available to inmates is a major contributing factor. Research has found that if correctional facilities implemented specific programs for inmates, specific behaviors could change and improve their life upon release. The Second Chance Act was introduced in 2008 to aid inmates once they complete their sentences and reemerged in society. States that were included are Colorado (5% reduction), Connecticut (8% reduction), Georgia (10% reduction), North Carolina (19% reduction), Pennsylvania (7% reduction), and South Carolina (17% reduction). The NRRC suggested that reviewing recidivism rates over an extended post incarceration period should be the focus of further research

The Bureau of Justice Statistics reported that recidivism rates remain elevated, with approximately 68% of released inmates re-arrested within three years, 75% within six years, and about 80% within nine years (Bureau of Justice, 2018). Over 400,000 discharged state prisoners were detained, or about two million times during the nine-year follow-up period. This resulted in five arrests per released inmate. Thus, prisoner re-entry can be deemed an immense challenge nationwide for Criminal justice system (Dunrose, Cooper, & Snyder, 2014).

Alongside the widespread discussion of how in-prison and post-release developmental programs are necessary to reduce recidivism, there is also a need to research their effectiveness, for example, during-prison rehabilitation and re-entry programs, substance abuse, education, and mental health programs for preventing recidivism (The Council of State Governments Justice Center, 2015). Identifying the

during-prison and post release programs that influence post release criminal behavior can provide a lens for understanding how to help re-entering offenders become law-abiding (Gill & Wilson, 2016). Therefore, the problem addressed in this study (as shown in the gap in the literature) that negates the impact of inmates' during-prison participation and completion and its effect on recidivism.

### **Purpose of Study**

The purpose of this descriptive, quantitative, correlational study was to determine the relationship between participation and completion of intervention and training programs. The research also addressed the independent variables (IVs; during-prison education program, during-prison drug treatment program, during-prison alcohol treatment program, and during-prison sex abuse treatment) by inmates and subsequent recidivism (dependent variable; DV) patterns and/or behaviors. Logistic regression was used to determine the impact of the IVs on the DV to test the research questions. The results may provide empirical support for the resources that public safety systems and communities provide for (ex) offenders to reduce recidivism rates (CSG Justice Center, 2015).

### **Research Question and Hypotheses**

The study examined the extent to which during-prison intervention program participation (education, drug abuse, alcohol abuse, and sex abuse) influenced the recidivism rates of ex-offenders. The study also examined the completion status of these variables compared to the incomplete status and recidivism rates. The study was based on the following research questions:

RQ1 – Is there a relationship between during prison education participation and recidivism?

$H_{01}$  – There is no relationship between during prison education participation and recidivism.

$H_{a1}$  – There is a relationship between during prison education participation and recidivism.

RQ2 – Is there a relationship between during prison drug treatment program participation and recidivism?

$H_{02}$  – There is no relationship between during prison drug treatment program participation and recidivism.

$H_{a2}$  – There is a relationship between during prison drug treatment program participation and recidivism.

RQ3 – Is there a relationship between during prison alcohol treatment program participation and recidivism?

$H_{03}$  – There is no relationship between during prison alcohol treatment program participation and recidivism.

$H_{a3}$  – There is a relationship between during prison alcohol treatment program participation and recidivism.

RQ4 – Is there a relationship between during prison sex-offense treatment program participation and recidivism?

$H_{04}$  – There is no relationship between during prison sex-offense treatment program participation and recidivism.

$H_{a4}$  – There is a relationship between during prison sex-offense treatment program participation and recidivism.

RQ5 – Is there a relationship between the completion status of during prison education program and recidivism?

$H_{05}$  – There is no relationship between the completion status of during prison education programs and recidivism.

$H_{a5}$  – There is a relationship between the completion status of during prison education programs and recidivism.

RQ6 – Is there a relationship between the completion status of during prison drug treatment programs and recidivism?

$H_{06}$  – There is no relationship between the completion status of during prison drug treatment programs and recidivism.

$H_{a6}$  – There is a relationship between the completion status of during prison drug treatment programs and recidivism

RQ7 – Is there a relationship between the completion status of during prison alcohol treatment programs and recidivism?

$H_{07}$  – There is no relationship between the completion status of during prison alcohol treatment programs and recidivism.

$H_{a7}$  – There is a relationship between completion status of during prison alcohol treatment programs and recidivism.

RQ8 – Is there a relationship between the completion status of during prison sex-offense treatment programs and recidivism?

$H_{08}$  – There is no relationship between the completion status of during prison sex-offense treatment programs and recidivism.

$H_{a8}$  – There is a relationship between the completion status of during prison sex-offense treatment programs and recidivism.

### **Theoretical Framework**

The theoretical framework that guided this study was based on social learning theory, which explains human behavior as it relates to the constant reciprocal interaction between cognitive, behavioral, and environmental influences (Bandura, 1977). Astray-Caneda et al., (2013) stated that social learning involves programs that improve prosocial behavior, which for inmates, gives them a better understanding of the consequences of their actions. Social learning theory explains the effort in preparing confined people for efficacious return to society, which is vital in preventing recidivism. Bandura (1991a) explained that people absorb good behavior from observing the conduct of others and their outcomes. He suggested that behavior is an endless everyday interface between perceptive, social, and situational influences. According to Bandura (1991a), one approach of individuals who have the ability to control their actions is through a process of self-adaptation. Self-adaptation involves steps in which a person examines himself and responds according to what he decides after the process ends. Self-examination means having the ability to keep account of one's behaviors. Self-judgment (view of self) applies the assessment of their observations of societal norms. Self-response (the reaction), on the other hand, means the rewards given because of the action, whether negative or positive (Bandura, 1991a). By examining education through the lens of social learning theory, Gotto and Martin (2009) found that inmates who lacked skill sets, had

role models who had low levels of education. According to Bushway (2003), these low levels make it difficult for inmates to gain the skills necessary for employment. Gotto and Martin (2009) believe that investing in work-release programs while incarcerated can provide inmates with positive role models who exhibit normal levels of education.

Substance abusers came from settings where others were dependent on drugs and/or alcohol (Horvath et al., 2016). Most offenders trying to tackle their addiction must have sober and/or drug-free mentors to succeed (Fulkerson et al., 2013). Without completing substance abuse programs, inmates are put in the dangerous position of being unable to use skills that are typically obtained in work release programs (Binswanger et al., 2012). According to Horvath et al. (2016), the three-step process mentioned above (based on social learning theory) should be incorporated into in prison substance abuse programs. With the management of counselors and mentors, in-prison and post release allow inmates to transition into society and have the ability to self-observe. Social learning theory also suggests that when prisoners are given evidence or symptoms of addiction and its effects, prisoners can apply it to self-reflect. According to Horvath et al. (2016), this process can help an inmate to quit his addiction and move on to the next level where he can make valuable contributions. Bandura's (1991a) theory of social learning helps to focus on the causes that may have contributed to prisoner abnormal behavior.

The collective learning concept is used to translate addiction through social interaction, which has a significant influence on individuals (Garavan & McCarthy, 2008). Control on addiction includes parents and other family members. Horvath et al. (2016) suggested that people have a compelling need for social interaction. Thus, it becomes essential to review the aspects of many addictions. It has been identified that as



one's addiction on increases, there are fewer opportunities for the individual to interact with healthy people. As time goes on, they have less contact with family and friends, which can create disengagement and social distancing which ultimately left that miserable person alone. Addict's time eventually becomes consumed by that of other addicts, severely reducing their chances of forming positive relationships. Support groups, such as Alcoholics Anonymous (AA), invest in recovery and abstinence (Groh et al., 2008). The collective learning concept incorporates support groups that offer opportunities to observe and interact with healthy and confident individuals; they also offer the chance to learn coping skills to respond to peer pressure-a factor in the early stages of recovery (Horvath et al., 2016).

Many offenders and ex-offenders are not prepared for re-entry into society (Gill, 1997). A lack of educational treatment and addictions treatments (alcohol, drugs, and/or sex) upon release is insufficiently addressed. Without developmental programs, offenders and ex-offenders will re-enter society unable to satisfy their basic needs (food and housing) because most of the people think employing ex-offender is a risk (Gill, 1997). Addiction and other rehabilitation programs are necessary to enable change in the offending population.

### **Nature of Study**

This quantitative study with correlational design and logistic regression analysis was guided by the research questions. The National Archive of Criminal Justice Data (NACJD) was the source of the secondary data, which included archival data on recidivism rates analyzed over 3 years (1994-1997) for over 38,000 prisoners released in 15 states. The investigators were the United States Department of Justice, Office of

Justice Programs, and the Bureau of Justice statistics. The data measured recidivism's effects and included factors such as during-prison: education programs, drug treatment programs, alcohol treatment programs, and sex abuse treatment. This database was chosen because it directly correlated with the current study in these areas: IVs of education, alcohol abuse treatment, and drug abuse treatment and sex offense treatment, all of which influenced the DV of recidivism. An application was submitted for online access to the database by submitting the project description, Walden University Institutional Review Board (IRB) approval, and the names of all parties who had access to the data.

### **Assumptions**

In this study, it was assumed that the data provided by the National Archive of Criminal Justice Data (NACJD) were accurate and reliable, and that the sample was representative of 15 U.S. states (Arizona, California, Delaware, Florida, Illinois, Maryland, Michigan, Minnesota, New Jersey, New York, North Carolina, Ohio, Oregon, Texas, and Virginia).

The regression analyses included 4 basic assumptions. One assumption was that the variables would be normally distributed, as with logistic regression (Sperandei, 2014). Another assumption was that there was a linear relationship between the IVs (participation and/or completion) (during prison education, during prison alcohol treatment, during prison drug treatment, and during prison sex abuse treatment) and the DV (recidivism). The logistic regression analysis assumed variance in all predictors. Logistic regression analysis allowed for the assumption that the IVs had little to no correlation with one another. This included that the variance of errors was the same

across all levels of IVs. In logistic regression, it was assumed that the residuals were normally distributed (Williams et al., 2013).

The theoretical assumption was that the framework chosen would connect the researcher to existing knowledge (Abend, 2008). Another assumption was that the study would be guided by the relevant theory, giving the basis for the hypotheses and the chosen research methods, allowing the study to address why and how. This includes describing the phenomenon identified to generalize the aspects of the event. It was assumed that the theory would limit those generalizations. Besides, it was assumed that the framework would specify the key variables that influence the phenomenon of interest and how they differ under what circumstances (Abend, 2008).

### **Scope and Delimitations**

The current study used archival data from the NACJD, whose goal was to assess recidivism rates of former inmates in the 15 states: Arizona, California, Delaware, Florida, Illinois, Maryland, Michigan, Minnesota, New Jersey, New York, North Carolina, Ohio, Oregon, Texas, and Virginia. According to the criteria, individuals were arrested, convicted, served time in state prisons, and were released in 1994. Some inmates would have participated in during prison education, prison alcohol treatment, and prison drug treatment. Some would have returned to prison within 3 years of release (1994-1997).

The data in the current study were secondary; the NACJD previously collected it. Inmates released in 1993 were not included, as the follow-up period was 1994-1997. Individuals in the remaining 35 states were not included, as they were outside the scope of the database. A delimitation was that many studies could not be used in the review as

the boundaries were studies that considered recidivism as arrests, adjudication, probation, and parole. According to the NACJD criteria, the population included people whom recidivated and returned to prison within the follow-up period.

### **Limitations**

According to eNotes Editorial (2012), the primary limitation of archival data is that previous research may be unreliable or not collected according to the current researcher's standards. The data may also prove to be incomplete or have failed to address some key issues. eNotes Editorial (2012) noted that a limitation presented on regression analysis is that it can ascertain only relationships; it does not consider causal mechanisms. In addition, in regression analysis, only linear relationships were considered. eNotes Editorial (2012) noted that there may be other variables that are not studied, but that can influence recidivism. Finally, time constraints in data collection could be an issue, as the study period was only 3 years. Recidivism could have occurred after that 3-year period (eNotes Editorial, 2012).

### **Significance of the Study**

This study sought to assess the probable dynamics acknowledged through studies that can add to the increase in crime rates and recidivism. The research added to sources and mediation that can face the classified risk factors. The absence of funds was also identified as a factor that has caused an epidemic in various countries (Bernews, 2015). Levy et al., (2014), stated that having a greater understanding of which programs can be incorporated into treatment upon entry into prison, can help in the prevention of future crime along with the decrease in recidivism rate. McGuire, (2015) based on his analytical

summary, believed that exploring the latest data might further contribute to the new literature and an understanding of the interventional processes that can benefit society as a whole. The study also helped implement preventative measures, by identifying those persons that were predisposed to recidivism (McGuire, 2015).

The twenty-first century has faced an increase in crime rates, accompanied by recidivism (Bernews, 2015; James, 2015). Understanding how to track and manage high-risk offenders can create opportunities to reduce the prevalence of crime. Increased risk assessment measures during incarceration could significantly improve long-term management (James, 2015).

### **Summary and Transition**

The current study is divided into five chapters. Chapter 1 introduced the study, which included the problem statement, nature of the study, research questions and hypotheses, the purpose of the study, theoretical framework, definition of critical terms, assumptions, scope, delimitations, limitations, and the significance of the study. Chapter 2 organized the literature review that focused entirely on the worth of program participation and its pertinence to reducing recidivism. The documentary also highlights the relationship between program participation and incarceration rates, with relevant data on the chosen topic. In Chapter 3, I review the approach and techniques used to conduct the present study to measure effects on recidivism utilizing factors. This included examining the effectiveness of program interventions: and how to reduce ex-offenders from reentering the correctional system. Chapter 4 represents the outcomes and the numerical considerations of the study. The study included demographic data about

inmates in 15 states. Chapter 5 consists of the summary of the findings, implications, conclusions are drawn, limitations, and recommendations for future research.

## Chapter 2: Review of the Literature

### **Introduction**

Because of budget constraints, United States communities have reported that prisons are reluctant to revamp or implement in-house interventional programs such as substance abuse, sex-offense, employment, and housing for the incarcerated (CSG Justice Center, 2015). According to the CSG Justice Center (2015), prisoners face barriers once released, which puts them at risk for recidivism. According to Astray-Caneda, Busbee, and Fanning (2013), three of these barriers include a paucity of education and the shortage of alcohol and drug abuse treatment. These interventions include, for example, the lack of available in-prison programs that present a continuous challenge for the imprisoned if they want to be fruitful in life when they return to society. Approximately 60-70% of inmates in the United States are tested with their ability of re-integration into society without the skills to be productive citizens in a stressful environment (The Council of State Government Justice Center, 2015). With few studies available on the relationship between program participation and its effect on recidivism, despite the rising challenges, results in the lack of insight on recidivism rates and the role of rehabilitation (The Council of State Government Justice Center, 2015).

As previously stated, the purpose of this study was to explore the importance of program participation to reduce the recidivism of ex-offenders. The focus was on the effectiveness of education, alcohol treatment, drug abuse treatment, and sexual offense treatment during prison. The attempt was to answer the developed research questions, is

there a relationship between during-prison education, during-prison alcohol abuse treatment, during-prison drug abuse treatment, during-prison sex offense treatment, and recidivism? In addition, consideration was taken as it relates to program participation and completion and how they can promote a smooth transition back into society among this population. The literature review includes published research on recidivism rates and how having access to in-prison education, substance abuse treatment, and sex abuse treatment, can have an impact on ex-offenders and recidivism.

### **Search Strategy**

To identify prospective, peer-reviewed articles (as well as books and grey literature), the following electronic databases SocINDEX, CINAHL, PsycINFO, Sage Premier, PsycARTICLES, Google Scholar, and PsycEXTRA were searched for the years 2015–2020 using the following keywords: *recidivism, alcohol abuse, crime, drug abuse, recidivism, substance abuse, corruption, sex abuse, criminality, and prison education*. The reference lists of the selected articles were searched for additional articles. Some older, seminal articles are included to explain the historical significance of the issue. The following websites proved useful: American Psychological Association, Bureau of Justice Statistics, and National Institute of Justice.

### **Theoretical Framework**

Research has shown how factors and characteristics, such as program participation, race and age, sex, marital status, and education, can affect recidivism rates (Duwe, 2014). It is noticeable that the factors affecting recidivism vary between parties, which lead to the variances in recidivism rates. While these factors may differ from one

individual to another, having a complete understanding of recidivism is necessary when looking to adjust the 'revolving door' standards. There is evidence that there is a problem with the frequency of people returning to correctional facilities, and factors related to the increased rates that may be unpreventable and may not be changed, despite having the literature supporting their effect on recidivism. While unpreventable factors such as age, race, and sex may be challenging to the approach for change as with their attributed status, they are joined and work when affecting the rates of recidivism (Duwe, 2014).

The approach was to examine factors that affect all people who have the predisposition to re-offend when considering the above factors. A person's age, race, sex, and other societal factors vary from person to person, but all can affect one's rate of recidivism (Duwe, 2014). It was beneficial in the current study to look at the programs offered and the rate of recidivism; because some inmates had served, time for their initial crime and returned with or without program participation. This can be seen as a consistent measure that shows that every offender suffered in some way and allowed us to view the possible association between program participation and recidivism. While controlling for the factors discussed that effect recurrence, this study managed a person's program participation, revealed a new approach to understanding, and reduced recidivism rates (Duwe, 2014).

### **Social Learning Theory**

One of the oldest methods used by researchers to explain human behavior is the social learning theory. This theory originated from concepts of operant behaviorism by Burgess and Akers (1966). The social learning theory has frequently been applied to crime and deviance (Akers & Jensen, 2009). According to Akers (1998), social learning



theory puts forth that people learn unusual and usual behaviors using the same mechanisms. Social learning theory denotes clearly that a person can obtain aberrant and non-aberrant conduct, in addition to the signals that spark their actions through emotional beliefs of operant conditioning. Akers (1998) gave a brief account of social learning theory in that an individual will engross in unlawful and unusual acts at a heightened level under this theory. However, the likelihood of adapting to the usual routine is lowered when they separate themselves from others who commit criminal behavior.

Imitation has been identified as another aspect of social learning theory (Bandura, 1977). Early scholars such as Burgess and Akers (1966), had similar beliefs to Bandura (1977), but Burgess and Akers (1966) also believe that cognitive learning incorporates the concept of imitation. According to Akers (1998), modeling is a part of the learning process, adapted by observing others' behaviors and the consequences of that behavior. According to theorists, a person's behavior is retained by monitoring and experiences, which is replicated by rewards and punishments. The researchers argue that wisdom takes place through the connection with groups of people that control the individual's significant causes of reinforcement. Similarly, to instrumental behavioral psychology, Akers (1998) state that the theory explains that characters conducts themselves in a way that amplifies incentives and reduces penances.

To test the social learning theory by imitation, Bandura performed an experiment famously known as Bobo Doll Experiment (Bandura, 1963). In the analysis, children were made to observe as adults (models) and either behaved violently or passively towards the dolls. The children who had seen adults (models) act violently towards the toys also tended to behave in a similar way towards the babies. Those who had seen

adults being passive also behaved in the same manner (Bandura, 1963). Akers (1998, p. 498) argues that learning occurs "through differential association with those people and groups" (primary, secondary, reference, and symbolic) that comprise or control the individual's behavior. The behavioral learning theory tie into the above concept that the assumption is that learning is a response to environmental stimuli (Watson, 2013).

This means that the only behavior that could be observed, recorded, and measured was any value for observing at humans and their actions. Additionally, behaviorism applies to one is the development and environment as a factor that shapes one's behavior. Behaviorism involves understanding that an event is a process that can be conditioned through exposure to environmental forces, which over time, can evolve into the person one would want to be. Some researchers believe that this form of conditioning was radical, and many were uncomfortable with the thought (Watson, 2013).

A study by Osgood et al. (1996) reflects the behavioral learning theory concept. The study looked into the behaviors of others in the absence of authority figures. They attempted to determine whether people in an unstructured environment versus a structured climate engage more in deviant behavior. They analyzed changes in individuals' daily activities and deviance of 1,700 18–26-year-olds. It was identified that routine activities included criminal acts, drug, and alcohol use, and dangerous driving. Further to that, daily activities have been found to be associated with deviant acts and age, sex, and socioeconomic status. Therefore, Osgood et al. (1996) believed that unstructured socializing with peers without parents and power characters presents deviancy opportunities. In addition, in the company of friends, deviant acts will be more relaxed and more fulfilling. This is because the nonexistence of influential individuals

reduces possible social control, and the lack of structure leaves an open opportunity to get involved in antisocial behavior (Osgood et al., 1996).

According to Bennett, Farrington, and Huesmann (2005), how one learns, and how they are influenced is a significant factor in one's behavior. They believe that depending on an individual's social information processing skills (cognitive learning) will depend on how one thinks and acts. This concept does not suggest that a lack of cognitive capabilities causes crime, but how social information is decoded and put into memory can protect a person from social, environmental pressures that cause criminal acts. Through research, the scholars found that females tend to learn social cognitive skills earlier than males, allowing them to have better social skills. This can be attributed to the concept that women have better brain communication, functional verbal abilities, and positive socialization. This includes interaction with parents, family, and friends, for example. Bennett, Farrington, and Huesmann (2005) assert that to explain the relationship between genders and crime better; more research is needed. The scholars did acknowledge that there are grey areas on the topic, but what is known is that the data shows that males commit more crimes than females (Bennett, Farrington, & Huesmann, 2005).

### **Social Learning Theory and Crime**

Akers and Sellers (2013) highlighted that researchers who utilized the social learning theory had noted associations with its measures and the various types of deviance. They further discussed a healthy relationship between social learning variables and juvenile alcohol and drug use, teenage cigarette smoking, excessive drinking in late adulthood, rape and sexual crimes during adolescence.

Identifying the association between social learning theory variables and substance abuse, researchers established that all of the works of social learning theory profoundly illuminated the variety of behaviors, comprising of small acts, drug use, and cruel delinquency. Akers and Sellers (2013) recorded that these accounts drive single measures, in addition to totality, with social learning variables recurrently, showing increased effects beyond those of new general theories of crime.

Brauer and Tittle (2012) completed a systematic review of studies concerning human reinforcement learning and criminological and sociological studies supported by the social learning theory. The study was to measure the basis for support and social learning. It was identified that reinforcement was supportive, but it is limited in applying social learning theories. Therefore, it was concluded that social learning theory could be improved via a detailed and complete review of the corroboration hypothesis, with more research needed (Brauer & Tittle, 2012).

Triplett (2015) believed through research that many people learn antisocial behaviors identical to how individuals are taught to adapt. When employing the social learning notion, it is suggested that when people enter the world (at birth), they are not born with a criminal mind. If some researchers believed this theory, then why do some people commit crimes? Triplett (2015) attributed the response to the stressors in life, which involved the interface between perception, behavior, and the atmosphere. Triplett (2015) highlighted that because scholars formulated social learning theory in the twentieth century, their argument on the social concept is that how one acts is a result of how one retains and communicates what is understood.

Criminal behavior can be explained by the social learning theory (Nicholson & Higgins, 2017). In any society, people vary in the degree to which they are exposed to behavioral and normative patterns by associating with other people in the community. Due to the difference in associating with others, individuals' behaviors are shaped differently (i.e., people who commit crimes associate with known criminals). Since the 1940s, severe punishment of law offenders in the United States has increased steadily. This is proven by the increasing number of prisoners, high incarceration rates, longer sentencing, and increased popularity of policies on minimum sentencing policies (Nicholson & Higgins, 2017).

Current research suggests that people participate in criminal behavior due to their association with others in the same manner (Crossman, 2018). When the offender's conduct is supported, they learn beliefs that are favorable to antisocial behavior. Essentially, those around them become their criminal models; and therefore, these people and crimes are viewed as desirable and are then repeated. Crossman (2018) speaks to how social learning theory claims a few mechanisms by which these people learn to engage in misconduct. Crossman (2018) notes these mechanisms to include differential reinforcement, beliefs, and modeling. According to their data, differential reinforcement of crime relates to individuals teaching others to engage in crime by either reinforcing and/or punishing the behaviors. Crossman (2018) asserts that antisocial behaviors are more likely to occur when repeatedly strengthened rather than corrected, secured by proceeds (money and drugs), and armored with replacement practices. Studies show that people who are protected for their crimes are more likely to engage in later offenses,

especially when they are in situations similar to those before supported (Crossman, 2018).

### **Social Learning Theory and Recidivism**

The effects of criminality factors on recidivism can be explained through social learning theory. Scholars have spent a sizeable amount of time researching social learning theory, with results producing a relationship between factors and recidivism. Substance abuse is one of the highlighted criminal related elements that can change the effectiveness of strategies and influences in place to reduce crime.

A public review by United States Department of Health and Human Services (DHHS; 2015) on the related topic, found data that demonstrated that the incidence of alcohol, tobacco, and other forms of materials among young individuals have peaked; and continued to rise since the 1980s (DHHS, 2015). The data did suggest a small decline in the late 1980s, but an incline ten years later remains a concern today. The department's assessment looked at a 30-day prevalence rate among various high schools and the future of substance abuse; found that the price for cigarette smoking was over twenty% and the lifetime rate of approximately 50%. The study also concluded that the annual and lifetime prevalence rates for alcohol use of the same population reflected both 60% and 70%. They found that approximately 40% of the senior classes reported having used one or more illicit drugs within a year, with 40% over their lifetime. The annual and lifetime prevalence rates among high school students equated to thirty and forty percent, with marijuana use at a low of five and nine percent, respectively, and hallucinogen use equating to 8 and twelve percent. The rates highlighted that substance abuse can affect one's body and mind, superseding the effects that a nondrug user has on recidivism.

Therefore, the war on substance abuse plays a huge role in the incarceration and recidivism rates within some communities (DHHS, 2015).

Research by Friedmann (2014) identified that family issues have contributed to the social aspect of inmates. Studies have found that prisoners who uphold a relationship with their immediate families while incarcerated have better effects once released, including lower recidivism rates. Friedmann (2014) states that this finding relates to research that have been performed for over 40 years. The study found that a substantial positive relationship between people and their families equates to a better parole success rate. The research identified that 50% of those released on parole with no contact with family while incarcerated, did not return to prison within one year of release. However, 70% who had maintained a relationship with family members, including having visited, were arrest-free within the same period of 1-year post release. In addition, data identified that those inmates that were a recluse and had no family communication during imprisonment returned to jail within the first year of release. Overall, it was concluded that that person who maintained close relationships with family members performed more satisfactorily on parole. Parents and family have a significant impact on an individual's lives, and attachment is a strong predictor of self-control, a lack of can lead to crime. A support network is critical for successful reintegration (Friedmann, 2014).

To correlate with the above findings, Friedman (2014) speaks to an article on the role of family and pro-social relationships in reducing recidivism. The article highlighted that family is a vital component of the reintegration process when released from prison (Friedmann, 2014). It is believed that the role of the family is to provide social control and support, alongside deterrence for immoral acts. Research has identified that without

positive and supportive relationships, illegal behavior is more likely to be exhibited by at risks individuals. Further, Friedmann (2014) speaks to a study performed by the Vera Institute, who uncovered data to conclude that incarcerated individuals, whether male or female, maintained contact with supportive family members and had a better chance of achieving after their release. Research has also identified that people were returning to society, highlights the importance of family members as an asset to assist during incarceration and post-release. For instance, prisoners who communicated and had a positive relationship with their support team (family and friends) were noted to be less likely to re-offend. In summary, a link has been found between family contact during incarceration and lower recidivism rates (Friedmann, 2014).

Houser, McCord, & Nicholson (2018), highlighted that data on recidivism has mainly focused on an individual level of attributes, forgetting to address the role of one's neighborhood. Houser and friends (2018) sampled over four thousand parolees over a two-year session and were once released and placed back into their communities (Philadelphia). The researchers examined the role of the neighborhood context, and non-residential land uses in incarceration and time to re-incarceration. The study's findings suggested that limited support for the neighborhood context in explaining re-incarceration and observed that there were many bars and liquor stores within the parolees' area. These factors contributed and increased the likelihood of these individuals recidivating within a short time frame (Houser, McCord, & Nicholson, 2018).

### **Social Learning Theory and Program Participation**

Research has shown that rehabilitation programs incorporated into prison stays such as education, therapy, and vocational training have a significant effect on the



inmate's social issues, but not re-integration into society. The National Institute of Justice (2017) stated that, on average, there are 700\$ cost savings by facilitating rehabilitation programs. The National Institute of Justice (2017) noted that rather than using up funds from other resources to house those who recidivate, monies could be applied to give inmates the skills they need to succeed with re-integration. Research has also identified that by schooling inmates on job skills and coping abilities, prisons are preparing them to function successfully upon release, rather than just releasing them into communities without equipping them with the skills set to survive. Without prior programming or rehabilitation strategies, they often end up more violent than when they were initially detained (The National Institute of Justice, 2017).

An early study by Willison, Bieler, and Kim (2014) recognized that the above concept had been identified in the earlier years. The scholars surveyed inmates by implementing a two-phase reentry program, which was entitled the Allegheny County Jail-Based Reentry Specialist Program. They attempted to identify risk factors that can be tackled to reduce recidivism and refine inmates as they reintegrate into society after release. The inclusion criteria were male and female inmates who had a sentence of six months or more and were returning to the same community upon discharge.

Willison, Bieler, and Kim (2014) stated that members were further sorted into risk groups from medium to excessive and assessed using the Proxy Triage Risk tool, which comprises three factors. These risk factors included age at current arrest, first arrest age, and the total number of prior arrests. The first phase provided inmates with in-house programs to prepare them for release. With step two, they were providing interventional services for one year after their release from prison. The program initiative was found to

be effective, with approximately a ten% chance of rearrests with the participants, compared to over thirty% for the comparison group (Wilson Bieler, & Kim, 2014).

Brosens, De Donder, Dury, and Verté (2016) looked into the positive associations of activity and program participation in prison, such as community ethnic events, scholastic development, exercise actions, and career training. This was to implement the lessening of recidivism and the expansion of well-being and dignity. Participants (N = 486) in the study were categorized by frameworks, individual features, and prison life characteristics. Survey data were taken from participants that were housed on remand in a Belgium prison. The findings indicated that different deprivation (prison life characteristics) changes are more likely to foresee participation. Research has also found that the combined effects of individual and prison life traits are more potent in defending event participation. Brosens, De Donder, Dury, and Verté (2016) highlighted that more research was needed, but does stress that it is vital to implement and increase prison programs and activities, taking into account the distinct characteristics of the reformatory populace.

The above data emphasized that one's behavior cannot be changed by locking them away and forgetting that they exist. Yes, some individuals deserve to be incarcerated. However, for the significant amount detained, change needs to happen. It is believed that prisons need to invest in more interventional programs for all inmates that are convicted so that money can be put back into society rather than spending on housing inmates. This approach can prevent the cycle of recidivism.

## Literature Review

### Recidivism

Research from 1995-2018, attempted to define recidivism in different ways, but take a standard approach to understand why individuals eventually re-offend (Kirk & Sampson, 2013). This approach involves looking at factors that surround a person's life once these factors have been identified, categorically as risk factors, such as, age, geography, employment, education, and substance abuse (Kirk & Sampson, 2013).

Of course, other risk factors not listed above might affect an individual's chance to recidivate. However, looking at these factors can help clarify if one's living situation puts them more at risk for re-offending. Moreover, these risk factors can begin in childhood and develop into adulthood, even if they are not incarcerated during adulthood; they can influence adverse outcomes on peers within their community (Willits et al., 2013). Because of this, to understand recidivism fully, one may have to examine one's life course and the individual's underlying socialization process (Willits et al., 2013).

The United States sentencing commission (USSC) (2015) examined a sample of 25,000 federal prisoners freed from prison, or put on experimentation in 2005, to identify the effects of aging on recidivism. This study contributed to understanding the impact on the aging process of federal offender recidivism; and other characteristics, such as education level. The investigation revealed that older adults than younger offenders performed a low number of offenses in the past. At the 8-year mark, 13.4% above 65 years at the time of release, were rearrested compared to 67.6% 21 years and below. Offenders 30 years and under at the time of release illuminated a 26.6% rate of recidivism with assault as their new charge. Dissimilar to the above text, those aged

60 and above tended to recidivate with public order as their late charge (23.7%).

Essentially, this study confirmed that age exerted a significant impact on recidivism across all sentence length groups. USSC (2015) found that the older population was less likely to recidivate after release than the younger population incarcerated for the same type of crime. These rates were regardless of the length of time given for the crime. There was a link between the extent of their original federal sentence and the rearrests rate in the younger population. Younger people who were given zero to six months had lower rearrests rates than those provided six months or more. Offenders sentenced to more than one year had no real link between the length of imprisonment and the rearrests rate. For specific significant offenses, the type of federal crime committed affected recidivism across the entire population. It was noted that those who committed gun violence had a higher rearrests rate than those who had drug trafficking offenses but had a higher rate amongst all age groups concerning fraudulent behavior (USSC, 2015).

Wermink et al. (2017) examined the relationship between the range of punishment a person receives and recurrence. The longitudinal survey included participants ( $N=1,467$ ) serving on average of four months. A susceptibility score of methodology was used to test the quantity response over 3 years; utilizing three types of measures of recidivism. These measures included re-offending, reconviction, and re-incarceration. The findings highlighted that the length of incarceration yields an overall null effect on future recidivism rates over the three tested measures. This result adds to the belief that high recidivism rates contribute to high costs to house these individuals (Wermink et al., 2017).

Chandler and Tansi (2017) followed criminal histories of over 300 youth committed to the Massachusetts Department of Youth Services in the year 2013. This study tracked their arrests, convictions, and incarcerations post release to assess the rate of recidivism. It was identified that of the 357 participants, 26% were convicted within one year of release from DYS. This is in association with the rates of 22% for the terminated in 2012, 22% for 2011, and 25% discharged in 2010. It was also concluded that youth at high risk for the verdict as adults tended to be males who had been committed to DYS supervision because of engaging violent offenses (Chandler & Tansi, 2017).

The Californian Correctional and Rehabilitation Facility (CDCR; 2018) speak to a study that looks at recidivism via a combination of the measures. The measures were subdivided into three categories (arrest, conviction, and return rates for offenders), and the offenders were assessed over a chosen period. The current study tracked over 35,000 inmates that were published from CDCR's adult institutions between 2012 and 2013 and followed over 3 years. After the 2016 report, the CDCR decided to use it as the initial gauge of recidivism, a conviction rate of 3 years rather than a return rate. This allowed them to match the standard definition of recurrence better. This complement provided data on the reoffending behavior of CDCR offenders, following California's Public Safety Realignment Act.

It was concluded from the study that over the 3 years, the conviction rate was 46% for the years 2012 to 2013. For the years 2011 to 2012, the release group had a conviction rate of 54%. Standardization of the results was related to the factors that identified fluctuations that contributed to the variance in rates. The 2012/2013 return-to-

prison rate over the 3-year period for the release group was 20%, which was a decrease from the years 2011-2012 (CDCR, 2018).

A more recent study of the United States Sentencing Commission (USSC) (2018) attempted to establish current recidivism rates. For the USSC to determine this, they assessed the bearing of backdated sentence reduction on repetition rates. Members analyzed recidivism rates for a cluster of drug users who had their sentences reduced by the backdated application of the Fair Sentencing Guideline Amendment of 2011. According to USSC (2018), the assessors then compared the contrast group who had similar situations, which would be suitable to seek a lesser sentence under the 2011 amendment but were released before the initiative came into effect. Unfortunately, those people ended up serving their full term. The attempt was to determine if the reduced sentences for the FSA retroactivity group resulted in increased recidivism. The data concluded similar results with crime rates for those offenders that were released early through the initiative under the FSA Guideline Amendment, as well as those people that had served their full sentences before the guidelines took effect. At the three-year mark, it was also identified that both groups' (the FSA retroactivity group and the comparison group) had a crime rate of 30%. Among those individuals that did re-offend, the new violation was more severe than the original event. The recidivism rate was noted at 33% among all participants. As it relates to the relationship, offenders who did recidivate proved, both groups were close in numbers. These findings were inclusive of the median time (15 months) to recurrence for offenders who recidivated in both groups (USSC, 2018).

Similarly, a study by the Sentencing Advisory Council (SAC) (2018) assessed released prisoners in Australia returning to prison. The study measured recidivism by the rate at which ex-offenders returned to prison. It was identified that over 40% of those released from jail among 2014-2015 were re-incarcerated within 2 years. The SAC (2018) highlighted that over half of the prisoners returned to correctional services, including prison sentences and community orders. At approximately 40%, Victoria's rate of individuals responding to prison was similar to the Austrian average of 44.8%. The northern territory had the most significant proportion of people return to prisons, noting at over 50%, with South Australia computing a much lower rate of 36.2%. According to scholars, sentencing data is one of the narrowest measures. Unlike other measures, this particular measure does not solely focus on new crimes and can include technical parole violations (SAC, 2018).

## **The Effects of Prison Education on Recidivism**

### ***Early Research***

When assessing possible factors that may influence a person's recidivism rate, prison education after release plays a significant part in incarceration (Esperian, 2010). Research from 1995-2010 identified the impact of correctional education programming on recidivism. The studies focused on what an individual does after being released from prison by examining the effect of in-prison education and its impact on post release employment. When considering the effectiveness of training on recidivism, the recidivism rates among offenders who received a college education, were less than those who only received a high school education. Past research has demonstrated that an individual's education level can affect their chances of finding employment. Similarly,

both education level and employment status are both critical for individuals when considering factors that may reduce recidivism. Persons that are less educated and unemployed are more likely to re-offend than those who have higher education and are employed. There is a demand for both factors for people who are released from prisons. It seems evident from the research that these essential elements can reduce recidivism, giving the ability to reintegrate individuals back into society (Esperian, 2010).

Hui Kim and Clark's (2013) study primarily intended was to assess whether there was a treatment effect as it relates to in-prison seminary culture on recidivism. The scholars used information obtained randomly from the state of New York, avoiding bias with the sample. The treatment group and the comparison group were assessed. Hui Kim and Clark (2013) measured the sample groups using the fixed-effects logistic regression and Cox regression, assessing the effect of in-prison programs and its correlation to recidivism. The study found that over the 3 years' post-discharge, those who had finished a higher educational program were less (9.4%) than the PSM comparison group (17.1%). However, it was noted that the return to prison rate for the parallel group did not stem from the PSM process and was twice the PSM comparison group rate. According to Hui Kim and Clark (2013), both regression models confirmed that program participation had a direct link to the decrease in recidivism rates. Therefore, it was concluded that increased guesstimate of treatment effect might result when studies do not ensure that there is no favoritism in the selection process. In addition to applying the suitable methods to compensate for the bias (Hui Kim and Clark, 2013)

Studies highlighted that tutelage is a robust gauge for lowering recidivism but limited on the impact of basic level education (Davis et al., 2014). Studies of those who



have high education demonstrated that they were less likely to re-offend, while those who received vocational programs identified mixed results. Dissimilar studies on individuals who obtained a higher education (college) suggest that the quality of the intervention (GED versus college degree) is a significant predictor in recidivism reduction (Davis et al., 2014).

For years, correctional facilities show fewer repeat offenses consistent by ex-prisoners who undertook educational programs while in prison; compared to those who did not. Some researchers believe that there is a bigger picture; in that education in prison can lead to better employment outcomes and reduced recidivism (Giles & Whale, 2014). The studies below examine an in-prison survey concerning recurrence; however, findings by some indicate that having a higher education is more effective than just prison education alone in the reduction of recidivism.

A study by Davis et al. (2014) rigorously reviewed prison educational programs held in the United States, in addition to a national survey of achievements and challenges faced by this area of practice. The researchers' in the process critically analyzed results from 267 empirical studies (meta-analysis). Davis et al. (2014) suggested that the overall analysis highlighted that prison learning has a following and numerically momentous effect on three domains vital for re-integration into society. These include recidivism, post-discharge employment, interpretation, and math scores (Davis et al., 2014).

Davis et al. (2014) study showed that inmates who participated in educational classes recidivated 43% less than those who did not attend, representing thirteen% on the risk scale of recidivism reoccurrence. Two, individuals who were enrolled in educational programs had a higher chance of employment once released from prison (13%) than

those who opted not to engage in the learning process. Three, correctional education is cost-effective in the attempt of savings (re-incarceration), with housing costs higher than the provision of educational programs. Four, for an in-house educational program to be cost-effective, it would need to reduce the recidivism rate by 2% over 3 years. Overall, the meta-analysis identified that in-prison education is associated with a decrease in recidivating risk (1.9% -2.6% reductions in 3 years) (Davis et al., 2014).

### ***Current Research***

Hall (2015) evaluated the involvement between correctional learning and recidivism. The scholar reviewed ten explorative studies from years 1995 to 2010 (fifteen-year period) based on a set of criteria. The article used contained a primary empirical survey of an accredited program, and secondly, the study had to have repetition as the effect measure. Hall (2015) believed that a systematic review was needed to focus on the research path towards reduction. Hall identified risk factors, but most of them could not be used as a tool for the reduction of recidivism. Of the tools recognized, was that correctional education programs are vital to offer a better outcome of reduction. She also believes that this is true for all areas of in-prison education; but stipulates that the higher the training, the more effective in the reduction of recidivism (Hall, 2015).

A similar study by Newton, Day, Giles, Wodak, Graffam, and Baldry (2016) calculated the influence of educational programs (career or professional) on recidivism. The logical appraisal looked at abstracts published from years 2000 to 2015, with approximately seven hundred identified as inclusion criteria. Out of the inclusion criteria, sixty-eight articles reported the vocational education outcomes of prisoners and ex-offenders. Newton et al. (2016) stated that the studies retained included participants who

were current and past lawbreakers; who had been through the judicial system for several criminal behaviors. Also included were those 18 years and above who had participated in interventional programs (community-based or in-house).

Further, the participants were compared, looking at whether or not they had received treatment. A further group comprised both the participants in interventional programs and the contrast category who had agreed to participate. Lastly, the final group incorporated random individuals, but Newton et al. (2016) decided only to retain the quasi-experimental or experimental methodology to decrease selection bias; and twelve studies were used. The analysis identified vital factors that adult offenders had better outcomes if they had the opportunity to undertake professional education and employment programs. Besides, this provided information on who will most likely benefit from prison career education and coaching (Newton et al., 2016).

In light of these findings, there remains a gap in research on educational opportunities and recidivism (Farley, Pike, & Hopkins, 2015). Scholars argue that if inmates have the opportunity to enroll in in-prison education, will equip the learner with a better level of knowledge, in addition to cognitive and social learning skills. It is suggested by Farley, Pike, and Hopkins (2015) that correctional facilities, prisons, and criminal justice systems continue to not only implement, but advocate for educational programming. Ensuring this will be beneficial for re-integration, in addition to the reduction of recidivism rates (Farley, Pike, & Hopkins, 2015).

## **Drug Abuse Treatment and Recidivism**

### ***Early Research***

Increased awareness is needed for more research involving substance abuse and recidivism. Gilford, Eldred, McCutchan, and Sloan (2014) add to this topic of concern by assessing the effectiveness of drug court on recurrence. By evaluating its success, the researchers looked to see if those that partook in this playbook of intervention had a lower rate of recurrence compared to those offenders that were not involved in drug treatment court. The scholars found a reduction of 15 % rate of recurrence, with those who attended an adult drug court. Gilford et al. (2014) define drug courts as an option for offenders who are vetted for eligibility, where they have consensus that if they complete drug court, their sentence could be reduced or dismissed. As with other studies, targeting specific factors in offenders can reduce one's chance of recidivating. It is essential to identify that the drug court option is not open to all offenders, and may affect the effectiveness. Some may argue that the judiciary and prisons have a common goal to attack the ongoing challenge of increased crime rates. However, if interventions are not available to those requiring the consensus, they cannot be mutually agreed upon (Gilford et al., 2014).

Gilford et al., (2014) evaluated the influence of drug program participation on recidivism. The survey used the propensity score matching to identify the relationship between program participation and recidivism rates. They aimed to determine if, and how drug court referrals, completed programs, and non-completed programs affect rearrest rates. The study was over 2 years and used data from statewide North Carolina criminal records and data obtained from drug treatment courts. The scholars matched comparison groups using demographic characteristics, criminal history, and drug users, computed with treatment effects on those that were treated. According to Gifford et al., (2014), in

their study included a sample of 2, 174 drug court referrals without enrollment, 954 registrations without completion, and 747 completions. The researchers measured recidivism by re-occurrence of substance abuse charges, violent offense charges without substance abuse allegations, and/or any charge without infractions. The 2 years' follow-up time-examined individuals by felony and misdemeanor statutes. Gifford et al., (2014), discovered that rearrests rates were elevated by 50–70%. It was identified through the study that the number of rearrests rates was equivalent to people that were referred, but did not join and with individuals who were not involved (comparison group). Differences were seen in parties that were enrolled but did not complete the program; noting a slash in rearrests compared to folks who did not partake, despite enrolling. These included people accused of various charges, ranging from felonies to severe charges, such as drug and alcohol-related offenses. To conclude, Gifford (2014) stated that as it relates to those individuals who had signed up but avoided participation, candidates reported having fewer incarceration rates; despite the crime committed. Therefore, people who enroll in drug treatment court with or without completion, reduced rearrests rates, questioning the effectiveness of drug treatment programs (Gifford, 2014).

### ***Current Research***

As there is a need for more research on drugs and recidivism, the studies below add to concerns by looking at the effectiveness of community-based drug rehabilitation programs on recidivism. By evaluating community-based programs, the scholars seem to see if specific offenders involved in these programs have lower recidivism rates, compared to similar offenders who were not included in community programs.

Regarding specifics, Axiak (2016) defines community-based programs as an option for offenders who are eligible, and get their parole time decreased if they complete the program. The offender must abide by requirements set such as attendance, urine tests, etc. Although these programs are designed to aid the offender, some fail out of the program. With some studies, highlighting that there is an increase in crime reoccurrence for an individual under drug control, irrespective of age, gender, or education (Axiak, 2016).

There is agreement among researchers that drug use has a link to criminal behavior and recidivism. A quasi-experimental retrospective cohort study by Axiak (2016), examined the relationship between community-based drug rehabilitation programs and recurrence among 361 inmates, who served custodial sentences for drug-related offenses. Data were obtained from a sample that was divided into three groups. Group one ( $n = 27$ ), were those who did not partake in any community based interventional programs, but had taken part in a program in the past, next, ( $n = 229$ ) consisted of people who participated in any application, and finally group three ( $n = 105$ ), included those who attended at least one program during their prison sentence. Axiak (2016) used sex, age on entry, age at the initial sentence, job, in-prison mental health treatment, in-prison opioid substitution treatment, and the number of prior incarcerations identified as the covariate predictors. The studies identified that group two had the most significant number of people who did not have prior convictions (72%). It was also noted that Group 1 had 74% on methadone, 7% on tramadol only, and 18% had not been given any form of opioid substitution treatment. In group two, 52% were on methadone, 11% on tramadol just, and 37% were on no opioid substitution treatment. As it relates to group three, 74% were on methadone, 10% on tramadol only, and 16% that were on no form of

opioid substitution. Inmates in group two were found to be less likely involved in psychiatric treatment; with groups one and three, 89% were on psychotropic medication, whilst group two on reporting at 69%. The study concluded that there was no statistical difference between groups as it relates to age on admission, gender, and occupation; but a significant difference between groups with no prior convictions, prison-based opioid substitution treatment, and psychiatric treatment (Axiak, 2016). The data materialized that the variance between the groups was not sizeable when controlling for opioid exchange treatment and the number of previous convictions; therefore, it was decided that 74% were less likely to re-offend against those who were given methadone or tramadol. Hence identifying that previous conviction is a significant predictor of recidivism (1.7 times greater for each prior conviction) (Axiak, 2016).

### **Sex Abuse Treatment and Recidivism**

#### ***Early Research.***

Past research on recidivism involved looking for all possible factors that may attribute to one's rate of reoccurrence, with sexual behaviors being a significant factor. Past research has identified those people who have sexual abuse challenges that meet their treatment goals had a lower re-offense rates than those who did not. A study by Marques et al. (2005) found within a longitudinal study effectiveness of cognitive behavioral treatment of sex offenders. The investigation compared treated and untreated clients, and resulted that there was no significant difference among the groups after an eight-year follow-up. The groups comprised of rapists and child molesters. However, a closer examination found that inmates that met the completion requirements had a lower

recidivism rate than those that did not complete the program. Marques et al. (2005) stated that despite the results these programs could be improved for efficacy.

According to Duwe and Goldman (2009), there is an impact on sexual abuse treatment programs and recidivism. The scholars came up with this notion from a study they performed using a retrospective quasi-experimental design. They attempted to evaluate the effectiveness of prison treatment by assessing the outcomes for over two thousand inmates released from that state of Minnesota prisons between 1990 and 2003. These inmates were followed up over 3 years. The study resulted from a Cox regression analysis that people that partook in treatment while incarcerated decreased the likelihood of reoffending by 27% for sexual recidivism, 18% for violent recidivism, and 12% for general recidivism. Duwe and Goldman's (2009) findings were consistent with his thoughts that the treatment in prison for sex offenders effectively decreased recidivism rates.

### ***Current Research.***

Schmucker and Losel (2015), based on his study, are in alignment with Marques et al. (2005) sighting of more research is needed on the efficacy of sex offense treatment. However, Schmucker and Losel (2015) believe that sex offender treatment is essential for policy. In their study, they reviewed other studies on the topic before performing their own. Therefore, the study by Schmucker and Losel (2015) was an update comparing the effectiveness of treatment (4,939) against the non-treated (5,448) population. It was found that offenders in the category of medium to high-risk having individualized treatment developed for them, revealed better outcomes. In contrast, some people had their treatment post release, which did not do as well as those who were treated while



incarcerated. Schmucker and Losel (2015) concluded that despite the findings and promising evidence for the basis of sex offender treatment, is not yet convincing.

Kim, Benekos, and Merlo (2016) had mixed reviews on the effectiveness of treatment of sex offender programs. They highlighted from the literature reviewed that treatment does not reduce recidivism. However, others suggest that if programs are individualized there may be greater success in the reduction of recidivism. Kim, Benekos, and Merlo (2016) wanted to clarify the findings and eradicate the inconsistencies through additional research. This allowed a compare and contrast approach using a meta-analysis blueprint looking at the years 1995 to 2002. Their study also looked at the effect sizes across various age groups and sex offender treatments. Similar to the findings of Schmucker and Losel (2015), Kim, Benekos, and Merlo (2016) concluded that sex offender treatments can be considered as effective if the intervention type was individualized. This will achieve a better understanding of the various interventions specific to age groups, in addition to outlining areas of future research (Kim, Benekos, & Merlo, 2016).

### ***Alcohol Abuse Treatment and Recidivism***

#### ***Early Research.***

Reviews have found limited research on the use of alcohol alone related to recidivism but groups it as substance abuse and/or addiction. According to Chandler, Fletcher, and Volkow (2009), there is enough evidence to conclude that addiction is a treatable disease. However, Chandler and friends (2009) found that if the addiction is not treated, it could lead to further criminal behavior. It was also suggested that treating alcohol addiction can allow offenders to have their behaviors disrupted, ensuring that the

behavior is not repeated. The review of recidivism for substance abuse looked at 15 states and found that 25% of inmates released returned to the abuse. One assumption was that the percentage resulted from the challenges and stressors upon release, which increased their risk of relapsing. This included being stigmatized as an ex-offender, the need for education, employment, and housing. Overall, the findings of Chandler, Fletcher, and Volkow (2009) argued that if the criminal justice system mandated addiction treatment, improvement in public health systems could reduce criminal behavior.

Similarly, Hakansson and Berglund (2012) suggest that substance use has been a predictor of criminal offending. Hakansson and Berglund (2012), in their study, aimed to examine possible predictors of criminal recidivism, including substance-specific substance patterns as alcohol in prisoners. They studied approximately 4,152 inmates with substance abuse challenges using the Addiction Severity Index and were followed over 2 years, respectively. The results displayed that 69% returned to prison, with alcohol harming recidivism. Moreover, it was concluded that alcohol and other abuse treatments were needed in-house alongside medication; but there is a need for additional treatment options post release.

### ***Current Research.***

As with early research, the current trends in studies focus on substance abuse as a whole and not alcohol solely. De Andrade et al. (2018) conducted an organized review to examine the use of alcohol and drugs related to recidivism. The group reviewed databases to identify studies on the topic. Inclusion criteria were articles between the years 2000 and 2017, who reported substance abuse use and recidivism after participation in-prison treatment programs. The results uncovered that in prison interventions that were effective

in decreasing the rates of recidivism. There was also proof that maintenance programs effectively reduce the use of alcohol across ex-offenders (de Andrade et al., 2018). These findings align with the concepts of Chandler, Fletcher, and Volkow (2009) that state that policymakers should incorporate treatment pre-post incarceration to improve long-term effects. Similarly, future and ongoing research is needed to have a better understanding of addiction (Andrade et al., 2018). Because of the frequent use of substances, Mannerfelt and Hakansson (2018) investigated the use of alcohol and drug via gender differences. People included in the study were assessed via the Addiction Severity Index. Identified, was that females had a more considerable substance use pattern than males, including engagement partners, an addiction. Nevertheless, as noted, the occurrence of alcohol abuse was 18–30% in males and 10–24% in females. As it relates to recidivism, females were 62%, with males at 71%. In such, it was decided that female offenders differ from male offenders, inclusive of differences in risk factor profiles for re-offending (Mannerfelt & Hakansson, 2018).

Mannerfelt and Hakansson (2018) compared his study to another recent survey that was carried out to detect differing characteristics within other criminal justice systems. Similarly, the study found that 70% of the participants had substance abuse problems, whether alcohol, drugs, or both. However, it was ascertained that females had a lower percentage rate. It was seen that 7.6% of men and 4.3% of women fit alcohol dependence standards. Therefore, both studies noted that females were less likely to continue with alcohol abuse and/or recidivating than males (Mannerfelt & Hakansson, 2018).

### **Summary**

The literature review discussed research targeted at factors that manipulate recidivism. The examined studies highlighted the value and the social aspect of prison education, substance abuse programs (alcohol and drugs), and sexual abuse treatment programs on recidivism. Research has shown the many factors that can influence in-prison education and skills on a person's ability to succeed upon release.

The investigation revealed an association between in-prison education, in-prison alcohol treatment programs, in-prison drug treatment programs, and sexual abuse treatment programs that affected crime and recidivism cycles. More particularly, the data discussed in the studies that those who did not partake in programs relating to their crimes had significant challenges maintaining a comfortable lifestyle upon release.

The studies showed that recidivism rates had been a constant concern and on the rise because of the lack of programs proposed by correctional facilities. The researchers emphasized the meaning of interventions inside facilities such as reentry, recovery (alcohol, drugs, and sexual health), and learning programs provided to inmates in prisons and the positive impact these factors have on reoccurrence. Various approaches to sentencing, such as community services, are being encouraged, hoping that offenders who have the opportunity will be at a lower risk of reoffending.

Despite having these types of alternatives in situ, other characteristics can sway the rate of reoffending. These include one's race, gender, and age. Covered are intellectual disabilities that have been identified to influence recidivism rates. Seminal and current research has illuminated that people in this area all have varying risks, making it difficult to find a solution for recidivism that can be applied to everyone who has been released (Grogger; 1995; Kirk & Sampson, 2013). Although not all individuals

who go through the criminal justice system have the same background, they all share some commonalities (sanctions) (Kirk & Sampson, 2013).

In chapter three methodology of the study undertaken has been explained. The data collection, research design, variables under study, and type of analysis will also be discussed.

## Chapter 3: Research Methodology

### **Introduction**

This descriptive, quantitative, correlational design sought to investigate the relationship between participation in intervention programs (e.g., during-prison educational programs, drug treatment programs, alcohol treatment programs, and sex-offense treatment programs) by incarcerated individuals and subsequent recidivism. Logistic regression was used to determine the impact of the independent variables on the dependent variable; in the attempt of answering the eight research questions developed. Both males and females were examined about their participation and nonparticipation in in-prison programs. The goal was to have a better understanding of the effectiveness of participation and completion; and whether these programs played a vital role in reducing recidivism rates among ex-offenders. The results of the data may better assist prison personnel and community rehabilitation services in recognizing inmates' risk factors, and allowing the implementation of programs and services that inmates need to succeed in society upon release.

### **Research Design and Rationale**

The study used a quantitative method, and a descriptive, correlational design (Polit & Beck, 2017). Quantitative methodology is appropriate for the current study because it allows the researcher to examine the relationship between variables (Polit & Beck, 2017). These include during-prison educational program, during-prison drug treatment program, during-prison alcohol treatment program, and during-prison sex-offense treatment program [with both participation and completion status] and recidivism. According to Creswell (2014), quantitative data can be used to evaluate an

association to make predictions. For this study, the goal not attempt to change the behavior or the condition; but to establish the association between variables. A non-experimental design was chosen over an experimental design because the interest was in the statistical relationship between during-prison participation and the completion status of the independent variables (educational program, drug treatment, alcohol treatment, and sex-offense treatment) and the dependent variable of recidivism. Because the intent was not to manipulate any data, it was more useful to conduct a correlational study than an experimental one (Polit & Beck, 2017).

More importantly, correlational research is not defined by where or how the data were collected. However, some approaches to data collection are associated with a correlational study. This includes archival data, the chosen method for this study (Polit & Beck, 2017). Overall, the key objective was to determine if pre-release programs reduce recidivism rates.

## **Methodology**

### **Population**

The focus populace for the current study included data obtained from the Bureau of Justice statistics database on federal ex-offenders ( $N = 272,111$ ). These included individuals that incarcerated in 15 U.S. states, and released in 1994 and followed over three years (1994-1997). The final number of participants ( $N = 38,624$ ) applied to the study includes those ex-offenders under group supervision, the ratio of unconfined inmates jailed for a first crime at the end of the year, repeat offenders by offense type, and percentage of released prisoners by criminal history. These factors were looked at assessing the association to recidivism, which included those prisoners who were

reconvicted at any time within the three-year follow-up period. An application was made to obtain authorization from NACJD for access to the dataset mentioned above.

Requesting permission to access the dataset of ex-offender participants required a few levels of authorization and approval. Access allowed for retrieval of statistics and documents captured by the Bureau of Justice.

### **Sampling and Sampling Procedures**

Participants who were involved in the above mentioned 1994-1997 data collection period were included in the current study, examining the extent to which during prison program participation and completion, influence recidivism rates of ex-offenders. The inclusion criteria were prisoners whose program participation status and program completion status will be known. From these participants, ex-offenders who were reconvicted within the 3-year study period following their release from jail will be included. Bestowing Field (2014), some factors will be considered to conduct the power analysis, including the effect size, significance level, type of study, and power of the investigation. One consideration is Greene's rule of thumb sample size calculator for logistic regression. Based on his theory, it is suggested  $N > 50 + 8m$  (where  $m$  is the number of IVs). Therefore, the minimum sample size for the current study is  $50 + 8(4)$ , equating to 82 participants (Greene, 1991). From the data of ( $N = 38,624$ ) participants, only  $N = 1,922$  participants with a known status during prison program participation were found, scrutinized, and included in the study.

### **Procedures for Recruitment, Participation, and Data Collection**

Upon receiving approval from the dissertation committee to proceed with the proposed research, an application was made to the National Archive of Criminal Justice



for online access to the study database on recidivism of prisoners released in 1994. Approval was considered after submitting the necessary information, which included providing the project description, Walden University Institutional Review Board (IRB) approval, and the names of all parties who will have access to the data.

The data retrieved was of archival on recidivism of 38,624 prisoners released in 1994, and their recidivism rates over 3 years (1994-1997). This dataset is one of the recurrences of prisoners' published series (1983, 1994, and 2005). The dataset used in the current study is a result of a longitudinal data study that used reconvictions.

### **Operationalization of Variables**

The variables were defined to be measurable factors (see below). This meant that the research questions developed captured the big picture that represents the research problem. This is essential to formulate testable hypotheses (prediction) and determine how a concept is measured, such as the recidivism rate. These capacities are independent or one-sided but allow replication; therefore, they can be analyzed (Polit & Beck, 2017). Operationalization is vital because it enables the researcher to follow the methodology. Failure in it can lead to a massive error in the calculations and cost lots of money and wasted time.

#### ***Dependent variable.***

The dependent variable in the study is recidivism, which is actively defined as a past inmate who committed a new crime and sentenced with in three-year period. According to Polit and Beck (2017), the dependent variable is dichotomous, meaning that there will be two values that the variable could have: 1 indicating recidivism and 0 reporting no recidivism.

***Independent variables.***

This dissertation examined categories of the independent variables. The classes and the variables included within each of them are discussed below.

1. Program participation. The different type of treatment programs that will be analyzed are: during prison educational program, during prison drug treatment program, during prison alcohol treatment program, and during prison sex-offense treatment program, and will be coded as one (1) for participation and zero (0) for non-participation.
2. Program completion. The different type of treatment programs that will be analyzed are: during prison educational program, during prison drug treatment program, during prison alcohol treatment program, and during prison sex-offense treatment program, and will be coded as one (1) for completion and zero (0) for non-completion.
3. Demographics. It is vital to collect data on the various characteristics of the sample. The age of the sample will be coded as one (1) if the individual is less than 45 and zero (0) for people older than 45. Forty-five will be used as the cut off age as those 45 and younger are at higher risk for committing crimes when compared to individuals older than 45 (Ulmer & Steffensmeier, 2014). The gender of the sample will be coded as male (1) and female (0). Next, race of the sample will be coded as Black (1) and White (0).
4. Offense type. Since the link between level of offense by offenders and the risk of reoffending has been documented by researchers (Sipes, 2017; Neyfakh,

2015), the type of offense for which prisoner was imprisoned will be coded as violent (1) and nonviolent (0).

5. Prior arrests. To link between the criminal history and rate of recidivism, prior arrest of an offender excluding the arrest for which he/she is imprisoned will be assessed and coded as prior arrest (1) and no prior arrest (0).

### **Data Analysis Plan**

The study examines the extent to which during-prison interventions and rehabilitation programs (education, drug, alcohol, and sex-offense treatment) influence recidivism rates of ex-offenders. More specifically, the study attempts to answer the following research questions:

RQ1 – Is there a relationship between during prison education participation and recidivism?

$H_{01}$  – There is no relationship between during prison education participation and recidivism.

$H_{a1}$  – There is a relationship between during prison education participation and recidivism.

RQ2 – Is there a relationship between during prison drug treatment program participation and recidivism?

$H_{02}$  – There is no relationship between during prison drug treatment program participation and recidivism.

$H_{a2}$  – There is a relationship between during prison drug treatment program participation and recidivism.

RQ3 – Is there a relationship between during prison alcohol treatment program participation and recidivism?

$H_{03}$  – There is no relationship between during prison alcohol treatment program participation and recidivism.

$H_{a3}$  – There is a relationship between during prison alcohol treatment program participation and recidivism.

RQ4 – Is there a relationship between during prison sex-offense treatment program participation and recidivism?

$H_{04}$  – There is no relationship between during prison sex-offense treatment program participation and recidivism.

$H_{a4}$  – There is a relationship between during prison sex-offense treatment program participation and recidivism.

RQ5 – Is there a relationship between the completion status of during-prison education program and recidivism?

$H_{05}$  – There is no relationship between the completion status of during-prison education programs and recidivism.

$H_{a5}$  – There is a relationship between the completion status of during-prison education programs and recidivism.

RQ6 – Is there a relationship between the completion status of during prison drug treatment programs and recidivism?

$H_{06}$  – There is no relationship between the completion status of during prison drug treatment programs and recidivism.

$H_{a6}$  – There is a relationship between the completion status of during prison drug treatment programs and recidivism

RQ7 – Is there a relationship between the completion status of during prison alcohol treatment programs and recidivism?

$H_{07}$  – There is no relationship between the completion status of during prison alcohol treatment programs and recidivism.

$H_{a7}$  – There is a relationship between completion status of during prison alcohol treatment programs and recidivism.

RQ8 – Is there a relationship between the completion status of during prison sex-offense treatment programs and recidivism?

$H_{08}$  – There is no relationship between the completion status of during prison sex-offense treatment programs and recidivism.

$H_{a8}$  – There is a relationship between the completion status of during prison sex-offense treatment programs and recidivism.

The Statistical Package for Social Sciences (SPSS) version 18.0 software was used to conduct the analysis. The analytical strategy was to analyze demographic characteristics of participants using descriptive statistics, such as regularities and percentages for categorical variables and measures for fundamental tendencies for continuous variables. Moreover, the variables have been defined as measurable factors (Hosmer & Lemeshow, 2000). Specifically, showing differences among those who completed programs against those who did not and recidivism rates within three years. The statistical method of study used will be the logistic regression, determining to what extent other factors or characteristics such as age, gender, race, type of offense, and prior

arrest history affect the likelihood of an individual reentering a correctional institution. Logistic regression was chosen to estimate the association among the variables (independent and dependent variables; Hosmer & Lemeshow, 2000).

According to Sperandei (2014), logistic regression is most appropriate to analyze the relationship between two or more predictor variables, such as sex, race, etc. and is a dichotomous criterion variable. The goal of the chosen analysis (logistic regression) was to use the predictor variables anticipating the probability that the response variable would assume a given value. The logistic regression is used when the dependent variable in the analysis is a dummy variable (Sperandei, 2014).

According to Hosmer and Lemeshow (2000), with unique differences, regression coefficients can be expressed as odds ratios, which indicate the chance of alteration with the dependent variable for a part of a change in the value of the independent variable. A coefficient equal to 1.00 showed no variance in the odds of being in one set of the dependent measure versus the other party for unit change on some independent variable. Coefficients more significant than 1.00, specified that the odds of being in one classification of the dependent measure versus the other group for a unit of change on some independent variable. Coefficients less than 1.00 revealed that the odds of being in one category of the dependent measure versus the other division for a unit of change on some independent decrease (Hosmer & Lemeshow, 2000).

Hosmer and Lemeshow (2000) highlighted that before an analysis takes place, the data should be cleaned to remove any outliers. In addition, incomplete sets of data for the identified independent variables were removed. Logistic regression analysis required that each case have an identified value for each variable being tested (Hosmer & Lemeshow,

2000). An alpha level of .05 was adjusted to determine the statistically significant differences. The regression models for the study were during-prison participation and/or completion educational program [IV1] + during prison drug treatment program [IV2] + during prison alcohol treatment program [IV3] + during prison sex-offense treatment program; including [IV4] + age [IV5] + gender [IV6] + race [IV7] + offense type [IV8] + prior offense [IV9] = recidivism [DV].

### **Threats to Validity**

Rationality is an essential dynamic in research because it can determine how the study results lead to valuable outcomes. The study's style assessed its validity.

The correlational approach was appropriate for the study because the data sets used were analyzed by the nation's correctional system (James, 2015). The data reflects offender re-entry and the ways offenders have been released into the community without rehabilitation. Additionally, analyzing a populace currently serving sentences in correctional facilities is vital because the number of offenders re-entering the society can be related to the amount and the different levels of offenders in prison (James, 2015). Therefore, the study is a reflection of experiences to be of real-world situations.

Of course, boundaries are surrounding the chosen designs (Polit & Beck, 2017). Nevertheless, it is vital to align the selected methods by ensuring that the validity and reliability principles are applied. These principles are readily determined with the use of secondary data (Polit & Beck, 2017). Despite there being an association between the chosen variables, published works, highlights that, the link does not mean that those same variables can determine a correlation. In addition, because of the use of non-randomization of a correlational study, the groups of data sets employed in the analysis

may be entirely different in the very same ways that may be the reason for the change under scrutiny.

This is called extraneous variables that can only be avoided by manipulation and control (Polit & Beck, 2017).

### **Ethical Procedures**

Before the data collection process, the research study received approval from the Institutional Review Board (Approval No. 06-04-19-0438542). Any information obtained from the NACJD regarding the participants in this study is of public record and includes no identifiers. The data were transferred to an external hard drive, and secured in a locked filing cabinet, with one key held by the researcher. The information will be kept in this manner for approximately 5 years, allowing the student to complete the research. After the holding period, the data will be deleted.

### **Summary**

Selection of the design and statistical analysis for the current research were fitted to the research question and hypotheses particularly. The data used were obtained from a longitudinal data system to generate outcomes that measure program participation and completion. These included during prison educational programs, during prison drug treatment programs, during prison alcohol treatment programs, and during prison sex-offense treatment programs and recidivism of ex-offenders. Using the regression tactic offers the best consideration of the chosen research variables and is most appropriate for an exploratory study as the current one. Each measure employed has been demonstrated by previous studies to retain satisfactory points of reliability, validity, and consistency. Arguably, no research design is flawless, with each having a weakness. The design and



methodology of the present study were weighed as the best approach, given the original cost and restrictions associated with the research.

This includes the ethical considerations about vulnerable populations, the tools available to measure the variable, and the complexity of the concepts under consideration. The next segment speaks to the outcome of the data collection and analysis process undertaken.

## Chapter 4: Results

### Introduction

The purpose of this descriptive, quantitative, correlational investigation was to determine the relationship between participation in intervention and treatment programs (IVs) (i.e., during prison: education, drug treatment, alcohol treatment, sex offense treatment) by incarcerated individuals and subsequent recidivism (DV). Binary logistic regression was used to determine the impact of the IVs on the DV to answer the research questions. The results are intended to provide empirical support for the resources that public safety systems and communities provide for (ex) offenders to reduce recidivism rate (CSG Justice Center, 2015).

This chapter presents the data generated after a thorough analysis of the data collected during this study to understand and explain recidivism among ex-offenders by linking it to the programs undertaken by the individuals during imprisonment. This chapter starts with the descriptive analysis to help understand the demographics and the scope of the respondents, and then moves to the authoritative multivariate analysis of the data collected on different programs and their effect on ex-offenders' post-imprisonment behaviors. The research was conducted on data collected for 302,309 inmates who were released from 15 state prisons in 1994. Out of this population set, 272,111 inmates were found to have served sentences of more than 1 year, forming the target population set. The dataset used in the current research was made of population samples of 38,624, which were carefully drawn from a population of 272,111 inmates that were followed over a three-year period post release. The number, 272,111, represents two-thirds of all inmates released that year in the United States. From the dataset of 38,624 prisoners, any

prisoner with “response unknown” for any dependent or independent value was excluded from the sample analyzed here; hence, a total of 1,922 prisoners' data were run for statistical analysis to test the designed hypothesis.

### **Test of Assumptions**

#### **Assumption of Dependent Variable**

The one assumption for the binary logistics regression was that the dependent variable should be dichotomous. In the present study, the dependent variable was recidivism, a dichotomous variable, where “1” meant “Yes” and “0” meant “No” recidivism.

#### **Assumption of Independent Variable**

The second assumption was that one or more independent variables can be observed but variables should be continuous, categorical, or nominal. In the present study, the independent variables were nominal and introduced in the model as dummy variables. Thus, this assumption was fulfilled.

#### **Assumption of Independent Observation**

The assumption of independent observation was also fulfilled, as there were no repeated measure data.

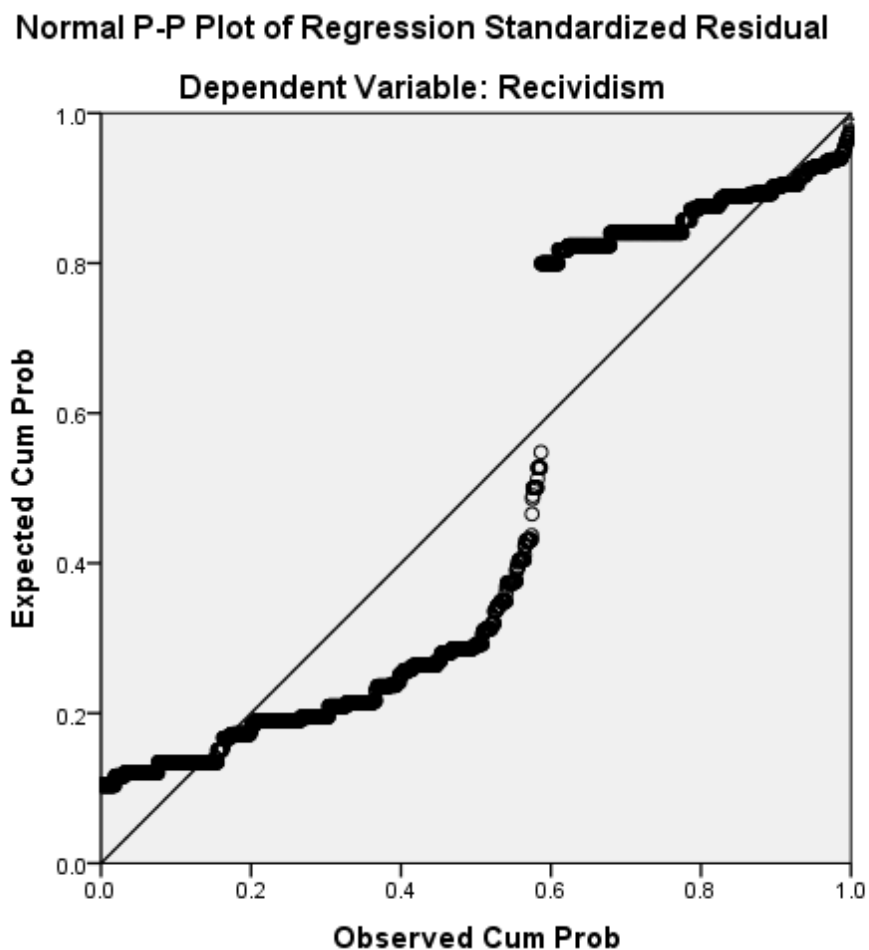
#### **Assumption of Data Size**

The assumption of the large size was also fulfilled. In most studies, it has been stated that for a model to be reliable, a minimum of 10 cases with the least frequent outcome for each independent variable should be present in the model (Schreiber-Gregory, 2018). A total of four to five variables for each model designed was used, which

required a maximum sample size of 500. The study used a total sample size of 1922; thus, this assumption of the binary logistic regression was also fulfilled.

### **Test for Normality**

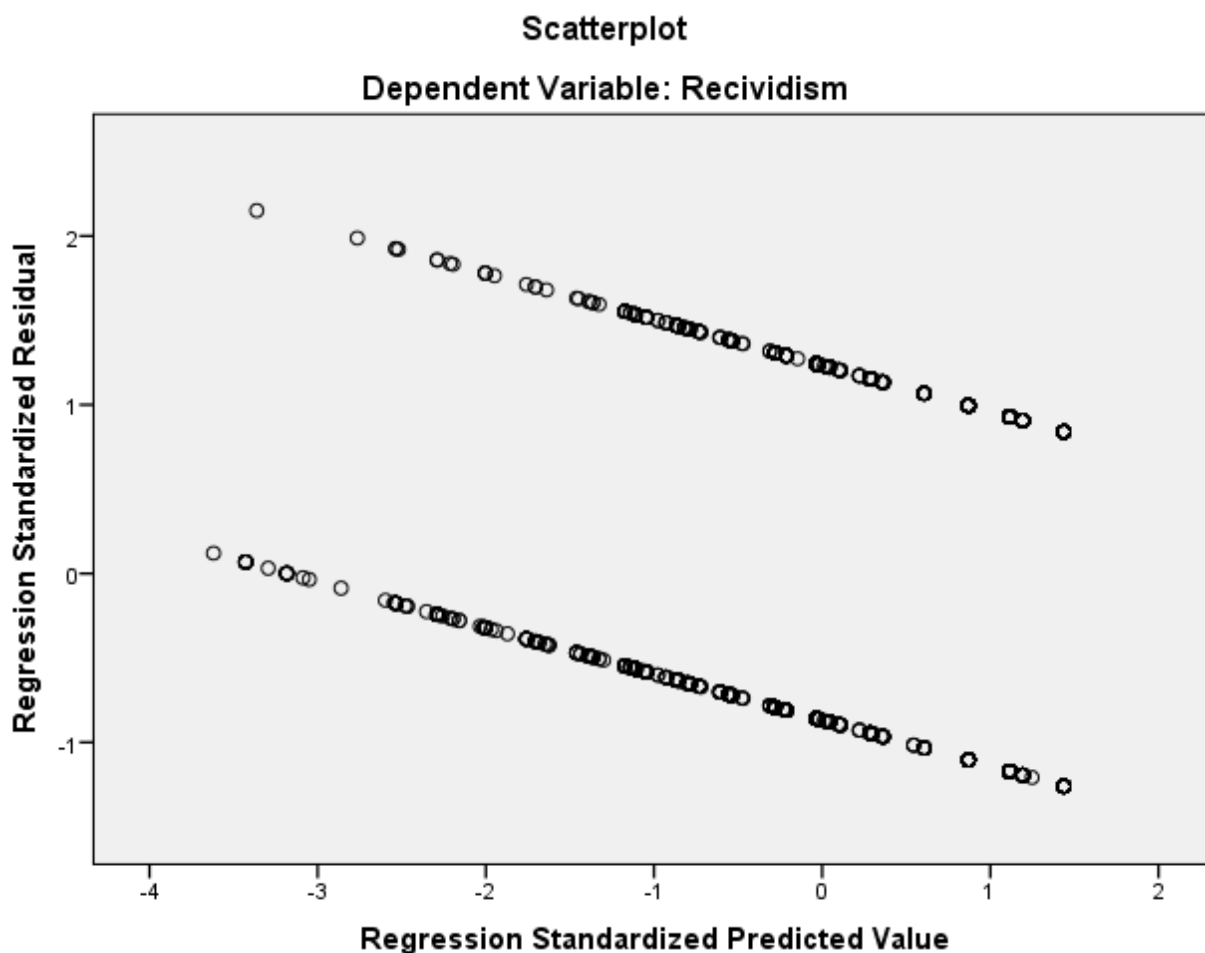
To make valid inferences from regression analysis, the residuals of the regression should follow a normal distribution. The residuals are simply the error terms. On examination the normal predicted probability (P-P) plot for the data used for study, found that the residuals are normally distributed with a little deviation as shown in Figure 1 below that is not problematic (Ernst & Albers, 2017).

**Figure 1***Normal P-P plot of regression***Test for Homoscedasticity**

To test the assumption whether these residuals are equally distributed or not, scatter plot by plotting the predicted values and residuals was used as shown in FIGURE 3 shown below. In the scattered plot there are points equally distributed above and below 0 on the X axis, and to the left and right of 0 on the Y axis; showing the homoscedasticity of the data.

**Figure 2**

*Scatterplot for the predicted values and residuals*



### **Test for Linearity**

Linearity means that the predictor variables in the regression have a straight-line relationship with the outcome variable. As the residuals are normally distributed, and homoscedastic; linearity does exist.

### **Test for Multicollinearity**

To check the assumption of absence of multicollinearity the variance inflation factor test was applied using IBM SPSS statistics 20, and the variance inflation factor of

less than 10 was observed for each independent variables as shown in table 1 below, which means there is no multicollinearity exists, hence this assumption is also fulfilled by the data used for present study.

**Table 1**  
*Test for Multicollinearity*

Model	Unstandardized coefficients		Standardized coefficients	T	Sig.	Collinearity statistics	
	B	Std. Error	Beta			Tolerance	VIF
(Constant)	-.024	.061		-.392	.695		
Gender	.141	.037	.085	3.781	.000	.967	1.034
Race	.108	.023	.106	4.697	.000	.954	1.048
Age	.185	.041	.102	4.537	.000	.966	1.035
Prior_Offense	.116	.036	.072	3.212	.001	.961	1.041
Drug_TRT	.042	.028	.035	1.509	.131	.917	1.090
Sex_TRT	-.025	.068	-.008	-.362	.718	.902	1.109
Edu_TRT	.032	.023	.032	1.397	.163	.928	1.078
Alcohol_TRT	.035	.028	.029	1.256	.209	.916	1.091
Offesnse_Type	-.149	.024	-.146	-6.124	.000	.858	1.165

## Descriptive Statistics

Table 2 summarizes the descriptive statistics about race, gender, age, prior offense, and offense type. The sample analyzed included 1,922 responses from the population released in 1994.

**Table 2**  
*Descriptive Statistics (N = 1922)*

Variable Names	<i>Percentage</i>
Race	
Black	62.75
White	37.25
Gender	
Male	90.27
Female	9.73
Age	
More than 45 years	7.96
Less than 45 years	92.04
Violent Offense (for current incarceration)	34.40
Recidivism	58.7
Prior Offense	89.50

Table 3 highlights the descriptive statistics relating to during prison educational program participation and completion, during prison sex, drug and alcohol treatments (participation and completion) and recidivism within 3 years.

**Table 3**



*Descriptive Statistics (N = 1922)*

Variable	<i>Percentage</i>	<i>N</i>
Educational Program Participation		
Participated	43.34	833
Completed	3.1	60
Sex offense treatment taken during prison		
Participated	2.91	56
Completed	1.4	26
Alcohol treatment taken during prison		
Participated	21.17	407
Completed	3.7	71
Drug treatment taken during prison		
Participated	21.07	404
Completed	3.7	72

## Binary Logistic Regression

The research questions asked is there a relationship between the independent variables, during prison education participation, during prison drug treatment participation, during prison alcohol treatment participation, during prison sex offense treatment participation during prison education, and recidivism. In addition to, intervention completion status on recidivism rate. Logistic regression was performed using four models in the analysis. Model one evaluated the relationship between ex-offenders enrolled in any educational or treatment program while incarcerated and those who did not join in any application. Model two, included ex-offenders who enrolled in educational or treatment program and completed their program and who participated but did not complete the program. Other control variables to the equation were to determine if they had any influence on the dependent variable. The variables introduced in Model three included age, race, gender, offense type, and prior offense. Model four included ex-offenders who completed their self-improvement or intervention programs instead of those who did not participate in any program.

Binary logistics regression analysis and assumptions were tested and fulfilled. The one assumption for the binary logistics regression is dependent variable should be dichotomous. In the present study, the dependent variable was recidivism that was a dichotomous variable where “1” was for “Yes” and “0” was for “No” recidivism. The second assumption is one or more independent variables can be observed but variables should be continuous, categorical, or ordinal. In the present study, independent variables were ordinal and introduced in the model as dummy variables and thus this assumption was fulfilled. The assumption of independence observation was also fulfilled, as there

was no repeated measure data. To check the assumption of absence of multicollinearity the variance inflation factor test was applied using IBM SPSS statistics 20 and variance inflation factor of less than 10 was observed for each independent variable which means there is no multicollinearity exists hence this assumption is also fulfilled by the data used for present study. The assumption of the large size is also fulfilled, in most studies it has been stated that for a model to be reliable minimum of 10 cases with the least frequent outcome for each independent variable should be present in model (Schreiber-Gregory, 2018). We have used 4 to 5 variables for each model designed which required a maximum of 500 sample size while we have used a total sample size of 1,922, thus this assumption of the binary logistic regression was also fulfilled.

The findings based on the analysis are provided in Table 4, where it displays the association exhibited among ex-offenders who took part in self-improvement intervention while serving their terms compared to those who had not participated in any of the programs offered. The results show that the only significance ( $<0.05$ ) relates to during prison sex offense treatment with an odds ratio of 0.539. This result indicated that those people who participated are 54% less likely to recidivate than the non-participant group.

**Table 4**

*Summary of binary logistic regression model 1 for recidivism rate of ex-offender who participated in during prison intervention program*

Variable	Coefficient (B)	Odds ratio EXP(B)	95% CI OR	P value
Educational Programs Participants (Yes/No)	0.071	1.074	0.890-1.296	0.457
During prison Drug Treatment participants (Yes/No)	0.552	1.736	0.544-5.543	0.352
During prison Alcohol Treatment participants (Yes/No)	-0.367	0.693	0.215-2.228	0.538

During prison Sex offense Treatment participants (Yes/No)	-0.617	0.539	0.298-0.9750	0.041*
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*Note.* CI = Confidence interval, significant at  $P \leq 0.05$ , \* $p < 0.05$ .

The findings based on the analysis of prisoners' program completion statuses are provided in Table 5. The below table displays the association exhibited among ex-offenders who took part in self-improvement intervention programs and completed their program while serving their terms as compared to those who although participated but did not complete the program. The analysis identified that there was significance ( $< 0.05$ ) with prisoners who took part in during prison drug and sex offense treatment. The odds ratio of 0.518 for drug treatment completion in the below table expresses that participants were 52% less likely to re-offend than non-completion participants were. In the case of prisoners' alcohol treatment program completion status, it reflects that prisoners with the state of completion (0.564) were 56% less likely to recidivate than those who did not complete the program.

Table 5

*Summary of binary logistic regression model 2 for recidivism rate of ex-offender participants with status of completion and non-completion of during prison intervention program*

Variable	Coefficient (B)	Odds ratio EXP(B)	95% CI OR	P value
Educational Programs Completion Status (Yes/No)	-0.363	0.696	0.426-1.137	0.148
During prison Drug Treatment Completion Status (Yes/No)	-0.658	0.518	0.304-0.884	0.016*
During prison Alcohol Treatment Completion Status (Yes/No)	-0.573	0.564	0.332-0.957	0.034*

During prison Sex offense Treatment Completion Status (Yes/No)	0.218	1.243	0.399-3.875	0.707
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*Note.* CI = Confidence interval, significant at  $P \leq 0.05$ , \* $p < 0.05$ .

In Table 6, other factors such as age, race, gender, prior offense type, and prior offense were considered variables to determine whether they had a direct relationship with recidivism rates without considering registration and completion of any of the programs offered in correctional facilities. The results of logistic regression with all the independent variables showed a p-value  $< 0.05$ . In the case of ex-offenders, less than 45 years of age had an odds ratio of 2.79. This suggests participants under the age of 45 were 279% more likely to recommit an offense than above the age of 45. In the case of gender, the odds ratio of 1.921 suggests that males were 192% more likely to recidivate than females. In the case of race, the odds ratio of 1.579 implies that black people were 158% more likely to recidivate than white people were.

The inquiry also concluded that ex-offenders with nonviolent crime convictions were 49% less likely to recidivate in comparison to ex-offenders with a violent offense. In the case of a prior offense, the odds ratio of 1.816 suggests that ex-offenders who had committed crimes before their current imprisonment were 182% more likely to re-offend than people with no prior offense history were.

**Table 6**

*Summary of binary logistic regression model 3 for recidivism rate of ex-offenders (N=1922) according to age, race, and gender. Prior offense and offense type.*

Variable	Coefficient (B)	Odds ratio EXP(B)	95% CI OR	P value
Age	1.026	2.790	1.812-4.297	0.000*
Gender	0.653	1.921	1.379-2.678	0.000*

Race	0.457	1.579	1.292-1.931	0.000*
Offense type	-0.712	0.491	0.397-0.606	0.000*
Prior offense	0.597	1.816	1.283-2.571	0.001*

*Note.* CI = Confidence interval, significant at  $P \leq 0.05$ , \* $p < 0.05$ .

A regression model between participants who completed their program as opposed to people who did not participate was included in the study and designed. The findings based on this model have been shown in Table 7. It was concluded from the results that there is not enough evidence to state that a completion status in comparison to nonparticipants confirms a less recidivism rate as  $P$ -value  $> 0.05$ .

**Table 7**

*Summary of binary logistic regression model 4 for recidivism rate of participants with status of completion of during prison intervention program and recidivism rate of ex-offender who did not participate at all*

<b>Variable</b>	<b>Coefficient (B)</b>	<b>Odds ratio EXP(B)</b>	<b>95% CI OR</b>	<b>P value</b>
Educational Program Who Completed Vs Not Participated at All (Yes/No)	-0.238	0.789	0.459-1.358	0.391
During prison Drug Treatment Completed Vs Not Participated at All (Yes/No)	-0.496	0.609	0.363-1.023	0.061
During prison Alcohol Treatment Completed Vs Not Participated at All (Yes/No)	-0.484	0.616	0.366-1.037	0.068
During prison Sex Offense Treatment Completed Vs Not Participated at All (Yes/No)	-0.0298	0.742	0.329-1.673	0.472

## Findings

Explicitly, the study analyzed how self-improvement, educational, intervention activities and personal characteristics influences recidivism rates of ex-prisoners. The study sought to answer the following essential questions:

*RQ1*- Is there a relationship between during prison education participation and recidivism?

The relationship between during prison education participation and recidivism; was not statistically significant  $p > .05$ ; therefore, we failed to reject the null hypothesis.

*RQ2*- Is there a relationship between during prison drug treatment program participation and recidivism?

The relationship between during prison drug treatment program participation and recidivism was not statistically significant  $p > .05$ ; therefore, we failed to reject the null hypothesis.

*RQ3*- Is there a relationship between during prison alcohol treatment program participation and recidivism?

The relationship between during prison alcohol treatment program participation and recidivism was not statistically significant  $p > .05$ ; therefore, we failed to reject the null hypothesis.

*RQ4*- Is there a relationship between during prison sex-offense treatment program participation and recidivism?

The relationship between during prison sex offense treatment participation and recidivism was statistically significant  $p < .05$ ; therefore, we rejected the null hypothesis.

This indicated that those people who participated in sex offense treatment while incarcerated were 54% less likely to recidivate than non-participants.

*RQ5-* Is there a relationship between completion status of during prison education programs and recidivism?

The relationship between completion status of during prison education program and recidivism was not statistically significant  $p > .05$ ; therefore, we failed to reject the null hypothesis.

*RQ6-* Is there a relationship between completion status of during prison drug treatment programs and recidivism?

The relationship between during prison drug treatment program completion and recidivism was statistically significant  $p < .05$ ; therefore, we rejected the null. The findings indicated that those people who completed their in-prison drug treatment program were 52% less likely to re-offend in comparison to non-completers.

*RQ7-* Is there a relationship between completion status of during prison alcohol treatment programs and recidivism?

The relationship between during prison alcohol treatment program completion and recidivism was statistically significant  $p < .05$ ; therefore, we rejected the null. The findings reflected that prisoners with the status of completion were 56% less likely to recidivate than those who did not complete their during prison alcohol treatment program.

*RQ8-* Is there a relationship between completion status of during prison sex-offense treatment programs and recidivism?



The relationship between completion status of during prison sex-offense treatment programs and recidivism was not statistically significant  $p > .05$ ; therefore, we failed to reject the null hypothesis.

### **Summary**

This chapter was a summary to present the findings of the analysis completed during study to try explaining the relationship between recidivism of ex-offenders and the programs offered in the correctional facilities and completion status of the treatment. The dataset was made up of a population sample of 38,624 ( $N = 1922$ ) ex-offenders released from 15 state prisons in 1994. Because binary logistics is used in this study only data sets with 1 and 0 response (yes and no) has been used. Any individual with unknown response for any dependent or independent variable was not considered. In the descriptive statistics, it was clear that there were more blacks rather than whites in the prison population. When considering race, those of a black racial background were more likely to recidivate in comparison to those of white racial background. The population sample had more males than females, and therefore it follows that males were found to be more likely to recidivate than females. In terms of age, the older an individual was, the less likely they were to recidivate since the odds of recidivating decrease annually with an increase in age. The data also showed that the highest number of offenses were nonviolent offenses.

## Chapter 5: Discussions, Conclusions, and Recommendations

### **Introduction**

In this chapter, I present a summary of the results and the conclusions of the study. I start with a synopsis of the survey and results, which are the basis for the analysis of the findings, recommendations for practice and research, and implications for professional training and social change. In this study, I sought to learn whether age, gender, race, a prior arrest, and offense type were factors in recidivism. Out of eight research questions posed, three yielded statically significant results. However, further research is needed in this area of research areas. Duwe (2017) believed that correctional interventions have an impact both on pre- and post-release inmates' outcomes. The findings of this study align with and expand upon Duwe, noting that in-prison completion of education and intervention programs reduces crime.

### **Summary of the Study**

This quantitative study sought to assess preliminary factors that predict whether individuals will re-offend. It sought to compare recidivism rates through education, self-improvement treatment, drug treatment, alcohol treatment, and sex-offense treatment, based on secondary data from the Bureau of Justice. The data were collected via a survey of inmates released from 15 state prisons in 1994 and tracked for three years after release. The study's IVs were during prison participation and completion of education, drug treatment, alcohol treatment, and sex offense treatment. The DV was the recidivism rate.

### **Summary of Findings**

Eight research questions and corresponding hypotheses were developed to guide this study. In this section, I summarize the results of the research questions and discuss

the findings. Overall, the findings suggest that only attending an education program and getting drug and alcohol treatment prior to release from prison, is not enough to inhibit the recidivism rate. However, it was found that participation only in the sex offense treatment program was sufficient, seeing a reduction in recidivism without completion. The study did find that program participation with a completion status relating to education, and drug and alcohol had significant power to influence the predictor of recidivism as compared to participation alone. It means that only participation of the ex-offenders in the intervention program is not enough therefore, one who enrolls should complete that program.

*RQ1*- Is there a relationship between during prison education participation and recidivism?

The relationship between during-prison education participation and recidivism was not statistically significant  $p > .05$ ; therefore, I failed to reject the null hypothesis.

*RQ2*- Is there a relationship between during prison drug treatment program participation and recidivism?

The relationship between during prison drug treatment program participation and recidivism was not statistically significant  $p > .05$ ; therefore, we failed to reject the null hypothesis.

*RQ3*- Is there a relationship between during prison alcohol treatment program participation and recidivism?

The relationship between during prison alcohol treatment program participation and recidivism was not statistically significant  $p > .05$ ; therefore, we failed to reject the null hypothesis.

*RQ4-* Is there a relationship between during prison sex-offense treatment program participation and recidivism?

During prison sex offense treatment participation predicted recidivism; therefore, we rejected the null. This indicated that those people who participated in sex offense treatment while incarcerated were 54% less likely to recidivate than non-participants.

*RQ5-* Is there a relationship between completion status of during-prison education programs and recidivism?

The relationship between completion status of during-prison education program and recidivism was not statistically significant  $p > .05$ ; therefore, we failed to reject the null hypothesis.

*RQ6-* Is there a relationship between completion status of during prison drug treatment programs and recidivism?

During prison drug treatment program completion predicted recidivism; therefore, we rejected the null. The findings indicated that those people who completed their in prison drug treatment program were 52% less likely to re-offend in comparison to non-completers.

*RQ7-* Is there a relationship between completion status of during prison alcohol treatment programs and recidivism?

During prison alcohol treatment program completion predicted recidivism; therefore, we rejected the null. The findings reflected that prisoners with the status of completion were 56% less likely to recidivate than those who did not complete their during prison alcohol treatment program.

*RQ8*- Is there a relationship between completion status of during prison sex-offense treatment programs and recidivism?

The relationship between completion status of during prison sex-offense treatment programs and recidivism was not statistically significant  $p > .05$ ; therefore, we failed to accept the null hypothesis.

### **Interpretation of the Findings**

A review of past and current literature displayed that other researchers have also used demographic variables, such as age, gender, and race, to predict recidivism (Scurich & Monahan, 2016). Mohanan and Skeem (2016) also found age to be a predictor of recurrence, with younger people more likely to recidivate than the older prison population. This study found similar results as it indicated that the younger a person is in age, the more likely they are to reoffend. Highlighted, were people less than 45 years of age were 279% more likely to recommit an offense than those above the age of 45. Olson et al., (2016) found gender to be a predictor of recidivism, with males committing more crimes females. Like the present study, it was reported that males were 65% more likely to recidivate than females. As it relates to race, it was noted that black people were 158% more likely to recidivate than the white population. These results are in alignment with those referred in the study of Scurich and Monahan (2016).

The present study also included the data surrounding offense history and types of crimes committed by participants. Acquired from the analysis was that prisoners who had a prior offense were 182% more likely to recommit an offense in comparison to those who are first-time offenders. Included were prisoners who were imprisoned for nonviolent and violent crimes. The evaluation uncovered that people detained for

nonviolent crimes were 49% less likely to recidivate than those incarcerated for violent crimes. These findings are also in alignment with Alper et al.'s (2018) data, who found in a nine-year follow-up that prisoners who committed nonviolent crimes were less likely to re-offend.

Current research addressed the importance of an ex-offender becoming a productive member of society, which is decided by a few factors; with education being one of them (Charles Koch Institute, 2020). Charles Koch Institute (2020) stated that it is vital to ensure inmates can access education to decrease recidivism rates. However, the current study found no relationship (0.457) between the variable of in-prison education program participation and recidivism. McWilliams (2019) agreed with this notion that education while incarceration is essential, but his research findings found no relationship (0.148) between the same two variables (in-prison education program participation and recidivism). The United States Sentencing Commission revealed and supported the research of the Charles Koch Institute (2020). They found that inmates without a high school diploma had recidivism rates above 60%, and those with higher education had a 19% recidivism rate.

Davis and colleagues (2014) supported the findings of the current study in that, completion status of a drug treatment program while in a prison setting is sufficient for decreasing further drug use and recidivism. Davis et al., (2014) also found that it is more effective if the treatment programs are continued post-release. This is dissimilar to a study by Duwe (2017), who stated that participation alone is enough to reduce recidivism rates. However, the current research indicates that those individuals that participated and

completed their drug program were 52% less likely to reoffend than those who just attended.

As it pertains to alcohol abuse, Duwe (2017) emphasized in his text, that alcohol is an essential predictor of recidivism; therefore, efforts to reduce their risk of reoffending often include the delivery of prison-based programs. Miller, Miller, and Tillyer (2014) disagreed with this notion, stating that participation in in-prison alcohol treatment programs had no bearings on recidivism. The current study agreed that participation alone had no relationship to recurrence. However, a completion status had a relationship, and those who completed their alcohol treatment program while incarcerated were 56% less likely to recidivate than non-completers.

Researchers believe that if correctional facilities and lawmakers can recognize an inmate's needs, behaviors, and patterns of offending, effective programs can be developed for this population (National Research Council, 2014). Past and current research found that targeting these principles and measuring responsiveness was very useful for sex-offender programs (Hanson et al., 2009; Duwe, 2017). A study by Schmucker and Losel (2015) reported the effectiveness of sex offender programs and found a 3.6% difference between people who participated in sex offender programs compared to non-participants. They also found a 26% reduction in recidivism rates among participants. Alike, the results of the regression analysis in the current study disclosed that program participation during prison for sex offense crimes was a significant predictor and was 54% less likely to re-offend than nonparticipants were.

### **Limitations of Study**

The current study had a few limitations, with one resulting from being limited to only the statistical database of federal ex-offenders ( $N = 272,111$ ) who were incarcerated in fifteen U.S. states, which were released in 1994 and followed over three years (1994-1997), obtained from Bureau of Justice. Secondly, the study was based on secondary data; therefore, one could not review any additional desired independent variables. Thirdly, the study was limited to individuals with a known (yes/no) response. Eliminating the unknown values reduced the number of testable data set to  $N = 1,922$  from  $N = 38,624$ . The fourth limitation was concerning the data set utilized. Using a more extensive data set could have verified a more statistically significant in whether to ascertain to approve or disapprove any hypothesis.

### **Recommendations for Future Research**

Including independent variables such as marital status, employment status before and after imprisonment, level of education, and family background could be proven beneficial in identifying the causes of recidivism more thoroughly, including ways to reduce them. The data used in the present study were of prisoners who were released in 1994. Looking at their social setup, economy setup, and even the way of crimes has changed much until now. One must further study the prisoner's lifestyle by the latest years and their rate of recidivism. The secondary data used in the current study was comprised of 3 years (1994-1997). A more rigorous, long-term follow-up may provide better long-term results and with more specific information concerning the dependence of recidivism rates.

### **Implications for Professional Practice and Social Change**



Providing insight into what can make programs more effective could lead to the generation of policy changes to how applications are offered to inmates and how to restructure programs. This is to ensure that those who partake and complete plans meet their needs, therefore reducing recidivism rates. Further implications for social change are for inmates during prison to be appropriately identified for challenges they face, for example addiction of any substances (drug or alcohol) or any other challenges, and given adequate treatment. Included would be that authorities must mandate that prisoners must complete courses surrounding their imprisonment. The current study underlines that prisoners who completed their program during incarceration were less likely to re-offend. A mandate implemented on program participation and completion before release allows prisoners to obtain the necessary intervention and/or treatment.

### **Conclusion**

In this study, secondary data were accessed and obtained from the Bureau of Justice, who collected the data three years after the release of prisoners in 1994. From the statistics database, 38,624 people were considered. Out of those found, only 1,922 individuals were used to study the effect of during prison interventions, and self-improvement programs on the rate of recidivism. The study was limited to independent variables related to education (during prison education program) and self-improvement variables (during prison drug, alcohol, and sex offense treatment programs) stated in the data set obtained from the Bureau of Justice.

Four binary logistic regression models were designed and analyzed for dependence. The first model studied the recidivism rate of ex-offenders who participated in during prison interventions against those who did not participate. The second model

analyzed the recidivism rate of ex-offender participants with a status of completion of intervention programs compared to ex-offender participants with an incompleteness status. The third model was used to assess ex-offenders' recidivism rate according to age, race, gender, prior offense, and offense type. Lastly, the fourth model analyzed the recidivism rate of ex-offender participants with a completion status against those who did not participate. The odds ratio was assessed and interpreted to determine the likelihood of recidivism in participants and nonparticipants of the educational and/or intervention programs and recidivism.

Included were completers in comparison to non-completers. The four models painted the recidivism rate dependence. The analysis revealed that individuals less than 45 years of age were more likely (279%) to recidivate than those above 45. Males rather than females were 65% more likely to recidivate; including Black rather than White race showed a higher ratio (158%) of recidivism. Moreover, ex-offenders who were imprisoned for nonviolent crimes and without a prior offense history were less likely to offend (49%, 182%, respectively). The study found that inmates who enrolled in any rehabilitation and educational self-improvement programs should not only participate but also complete the application.

Similarly, the model indicated that inmates that participated in any of the agendas during prison and completed them were 52% less likely to recidivate than non-completers. In contrast, participation only is not enough to reduce the recidivism rate. This concludes that completion of any intervention program enrolled has a significant impact (reduction) on recidivism rates.

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