2019

The Impact of Prison-Based Therapeutic Community Programs on Motivation for Treatment

Jessica Tabor
Walden University

Walden University

College of Social and Behavioral Sciences

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Jessica Tabor

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Review Committee
Dr. David Rentler, Committee Chairperson, Psychology Faculty
Dr. Jana Price-Sharps, Committee Member, Psychology Faculty
Dr. Michael Plasay, University Reviewer, Psychology Faculty

Chief Academic Officer
Eric Riedel, Ph.D.

Walden University
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Abstract

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M.A, Centenary College, 2011

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Dissertation Submitted in Partial Fulfillment

of the Requirements for the Degree of

Doctor of Philosophy

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Abstract

The sentencing and use of mandated treatment policies throughout the country have heightened the number of inmates incarcerated for drug related offenses. The purpose of this quasi-experimental, archival, correlational descriptive study was to determine whether motivation changes during therapeutic community (TC) treatment among a group of incarcerated adult male offenders, as measured by differences in pre and post levels of motivation. The hypothesis that was tested was that there would be significant differences between levels of motivation as measured upon entry and discharge from treatment. The theoretical framework that guided the study was the stages of change theory. Data were collected from archived pre and post treatment Texas Christian University, Treatment Motivation scale (MOT) scores. The target population comprised adult males, who were incarcerated in the state of New Jersey between January 1, 2014 and December 31, 2016, and had completed a TC program. A paired sample *t* test was completed, which indicated that there was a significant difference between levels of motivation from admission to discharge in the TC program. Discharge MOT scores for motivation were determined to be higher than admission scores, which answered the research question regarding levels of motivation change during a TC program. The study findings lend support to the utility of TC programs in changing offender behavior, thereby making inmates more productive members of society and strengthening public safety.

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Dedication

This study is dedicated to my loving and supportive father, mother, boyfriend, sisters, and son Brayden. Thank you for always standing by my side and believing in me.

Acknowledgements

Thank you Dr. David Rentler and Dr. Jana L. Price-Sharps for all of your encouragement, direction and patience throughout this process.

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Chapter 1: Introduction to the Study

Introduction

In this study, I examine whether therapeutic communities (TCs) have an effect on motivation for treatment. The purpose was to determine whether there were motivation changes during treatment in a TC among a group of incarcerated adult male offenders, as measured by differences in pre and post TC levels of motivation. Motivation was measured in a sample of adult male substance abusers in five prison-based TC programs within the state of New Jersey. In the study, I sought to provide insight into this population by capturing detailed information associated with drug related offenders and their motivation for treatment. This study had the potential to determine the relationship between an ongoing issue related to treatment and the respective motivation to change.

Chapter 1 includes discussions of background research, the problem statement, the purpose of the study, research question and hypothesis, the theoretical framework, the nature of the study, definitions, assumptions, scope and delimitations, limitations, and significance.

Background

In state and federal prison, as of the end of 2015, a total of 1,526,800 inmates were incarcerated. Of those incarcerated in both state and federal offenders, 49.5% were incarcerated for drug offenses and in federal prison, 92,000 were incarcerated for the same offense (Federal Bureau of Prisons, 2015). In the state of New Jersey specifically, as of January 2, 2015, of the overall population which consisted of 21,486 inmates, 3,670 of whom were convicted of drug offenses. Convicted drug offenses comprised 17% of the

population, and was the second highest charged offense-second only to violent crimes in the state (New Jersey Department of Corrections, 2015).

The sentencing and use of mandated treatment policies throughout the country have heightened the number of inmates incarcerated for drug related offenses. The drug epidemic of the 1970s and 1980s led to the enforcement of tougher drug laws, which resulted in sterner sentencing (Wexler & Prendergast, 2010). As a result, there was a dramatic rise in prison population through the 1990s (Wexler & Prendergast, 2010). In response, treatment was recommended by the judicial system as a stipulation of sentencing or because of referrals from state entities. One major modality, TCs, were initiated due to the federal initiative in prison settings (Wexler & Prendergast, 2010). TC models are used in more than 65 countries for substance abuse treatment, and researchers have found that the TC model reduces drug use and leads to a better quality of life in areas such as employment and social and emotional functioning (Morgen & Kressel, 2010). In order to address these issues and understand the basis for the current study, I reviewed previous research literature.

Morgen and Kressel (2010) defined motivation and readiness for change in TC treatment, in order to predict retention and engagement by examining motivation and its changes over time. TC models facilitate psychosocial change in individuals who are in recovery from substance use; however, there is minimal research on how or why this occurs (Morgen & Kressel, 2010). Motivation and readiness for change were the variables I examined in the study. Previous researchers have confirmed that motivation to change and readiness for treatment have both played an important role in clients

remaining and engaging in TC treatment (Morgen & Kressel, 2010). It was determined that TC clients experienced a negative rate of change or decreased motivation, and others experienced an increase of motivation (Morgen & Kressel, 2010).

In previous studies, motivation and readiness for treatment were predictors of client responses to treatment and retention (Goethals et al., 2012). Goethals et al. (2012) found that an individual with low motivation and who is not invested in treatment will not fully engage in treatment (Goethals et al., 2012). The results showed that clients who had a positive attitude towards treatment within the first month, also showed no significant findings between motivation and treatment readiness (Goethals et al., 2012). Clients who were referred to treatment by external motivators such as the criminal justice system reported higher levels of motivation, which contradicted findings in previous research (Goethals et al., 2012).

In this study, I sought to identify motivation strategies for individuals when they first enter treatment. Klag, Creed and O'Callaghan (2010), found that lower levels of external motivation and higher levels of internal motivation were associated with treatment engagement and that being motivated was not enough; instead, motivation needed to be displayed in a self-determined way.

Problem Statement

The level of motivation for treatment in the inmate population has been understudied in relation to TCs. In a seminal study of a modified TC, Sacks, Sacks, McKendrick, Banks and Stommel (2004) determined that there were significantly lower rates of repeat incarceration; however, little is known about whether motivation changes

over the course of treatment in TC. In an original study by Morgen and Kressel (2010), researchers noted that at the time their research was conducted, there was a deficiency in the amount of published studies that addressed motivation change over a period in order to identify if motivation does or can change in inmate populations. In a study that focused on motivation, Gideon (2010) determined that motivation to achieve changes is imperative in predicting the ability of the addict to change their behaviors and that high levels of motivation for treatment is associated with these behavior changes.

Since there is minimal research data on the role of motivation and inmates across a timespan in treatment, generalizations about the effects of motivation on an addict's behavioral modifications are unreliable. These types of changes are not possible to identify without distinguishing treatment motivation changes. The gap in the research that current study addressed was the effects of the TC program on motivation as measured by archived admission and discharge data.

Purpose of the Study

The purpose of the study was to determine whether motivation changes during TC treatment among a group of incarcerated adult male offenders as measured by differences in pre and post TC levels of motivation.

Motivation was measured in a sample of adult male substance abusers in five prison-based TC programs within the state of New Jersey. The sample of inmates was comprised of prison custody statuses of both medium and minimum security. Specifically, by identifying changes in the level of motivation for treatment from entry to

discharge, I sought to determine if the TC program had an effect on offenders' motivation for treatment.

Research Questions and Hypothesis

I developed the following research question and hypothesis for this quantitative study:

Research Question: Do levels of motivation change during a TC program among a group of incarcerated adult male offenders as measured by differences in pre and post TC levels of motivation on the Texas Christian University, Treatment Motivation scale, (MOT)?

H_0: There will not be significant differences between levels of motivation for treatment upon entry and discharge from treatment among a group of incarcerated adult male offenders, participating in the TC program, as measured by scores on the Texas Christian University, Treatment Motivation scale (MOT).

H_a: There will be significant differences between levels of motivation as measured by for treatment upon entry and discharge from treatment among a group of incarcerated adult male offenders, participating in the TC program, as measured by scores on the Texas Christian University, Treatment Motivation scale (MOT).

The hypothesis tested was that there would be significant differences between levels of motivation as measured upon entry and discharge from treatment.

Theoretical Framework for the Study

The theoretical framework for this study was the stages of change theory (Manchaiah et al., 2015). The current applications of the stages of change theory have been adapted from James Prochaska and Carlo DiClemente's original trans-theoretical

model from the 1970s (Prochaska, DiClemente, & Norcross, 1997) and have been applied to a multitude of areas including addiction and recovery. There are five stages that signal a person undergoing behavioral modification. These include precontemplation, contemplation, preparation, action, and maintenance (Manchaiah et al., 2015). Precontemplation is when an individual has no current intention of modifying their behaviors (Kennedy & Gregoire, 2009). The contemplation stage is when the individual is thinking about addressing the problem and the preparation stage is when the individual has the intentions to make the change (Kennedy & Gregoire, 2009). The action stage is when the individual is making the change or modifying their behavior. Finally, the maintenance stage is when they are maintaining the change they made. Stages of change assists in determining the ways in which these individuals gain motivation based on the treatment received. In seminal work, the social-psychological form of treatment (Treatment Improvement Protocol, 1999) allows for peer driven support but is still dependent on the motivation of the individual to complete the tasks to move to the next phase. Additionally the stages of change model works on the premise that individuals make behavior changes based on knowledge delivered to them that leads to attitude shift (Whitelaw, Baldwin, Bunton, & Flynn, 2000). The model assisted me in interpreting the results of this study, in that quantitative increases in motivation could be interpreted as individuals moving through the stages and invested in making these changes as a reflection of treatment provided. The model can also predict sustained changes and the results can be interpreted as motivation changes. In short, based on utilizing the Stages of

Change in the current study, the model identifies that changes or lack thereof that are occurring through treatment are a reflection of the inmate's motivation.

Nature of the Study

I used a quasi-experimental, archival, correlational descriptive design. I used the quasi-experimental design because the sample was not randomly assigned to the TC program (see Frankfort-Nachmias & Nachmias, 2008). Archived inmate data were used to evaluate whether TC effects motivation levels pre and post treatment. The correlational descriptive component was determined by pre and post levels of motivation for treatment. The study addressed one research question with an independent and dependent variable. The first independent variable within the study was treatment; specifically the TC modality and the dependent variable was motivation for treatment.

Definitions

Throughout the study I have used the following definitions.

Therapeutic community (TC): Prison-based treatment for substance abuse in a housing area separate from the general population that uses a group-based approach in which peers support and influence each other in order to develop prosocial behaviors and work towards recovery (Galassi, Mpofu, & Athanasou, 2015).

Treatment needs and motivation (TCU MOTform; MOT): Is three motivation scales that show the level of readiness for treatment which includes 36 items from 5 scales; Problem Recognition, Desire for Help, Treatment Readiness, Treatment Needs Index, and Pressures for Treatment Index which is used upon entry and discharge from treatment (TCU Institute of Behavioral Research, 2016).

Assumptions

In this study, I assumed that the archived data was procured following the appropriate assessment protocol and was collected correctly. Specifically, I assumed that the data were collected upon admission and discharge from the TC programs and that the inmates completed the TCU MOT assessment. Given that the data were archived, I assumed that the MOT scores being provided to me would be complete. These assumptions must be made based on the inability of the researcher to confirm how the archived data was originally collected.

Scope and Delimitations

The target population consisted of all adult male inmates who were incarcerated in the state of New Jersey between January 1, 2014 and December 31, 2016, and had completed the TC program. The type of sampling frame were male, inmates, that have attended a therapeutic community program while incarcerated from January 1, 2014 to December 31, 2016. Excluded from the sample were females and male sex offenders, because the female prison and sex offender prison are separate in the state of New Jersey. In addition, male inmates who were not in the TC program while incarcerated were excluded. Because the sample encompassed male inmates in TC, the results can be generalized to the larger population of inmates who attended TC.

The sample of archival data from inmate files were selected from five prisons in the state of New Jersey. The following prisons were utilized in the current study; Mountainview Youth Correctional Facility, Northern State Prison, Garden State Youth Correctional Facility, Southern State Correctional Facility and South Woods State Prison.

Since there is potential error in obtaining data not specifically collected by me, the sample of data that I selected was fully completed assessments done by the inmates throughout the prison system. The variables that I specifically being addressed were pre and posttest scores on motivation.

Due to my use of a quasi-experimental design, the potential threats to the study include maturation, selection, morality and interaction of selection due to uncontrollable threats (Creswell, 2008). In addition, when pre and post tests are used, additional threats occur such as those associated with history, testing, instrumentation and regression (Creswell, 2008) One threat to external validity included testing reactivity because there is no guarantee that scales are administered prior to exposure to treatment. MOT questionnaires are self-administered or completed in an interview style by staff upon entrance, after phase change in treatment and when discharged from the TC program.

Limitations associated with using archival data were that I did not obtain the information directly; thus, it cannot be assured that the results are entirely accurate. Using secondary or archived data presents the researcher with multiple issues including the inability to establish authenticity (Frankfort-Nachmias & Nachmias, 2008).

The first threat to internal validity was that the study focused entirely on self-reported data. A second threat was maturation due to the length of time the research was conducted. The archived MOT scores that I used to determine motivation from pre to post treatment were collected through self-report. The changes or differences in scores could be attributed to the changes over that time and not in relation to the type of MOT questionnaire being used in pre and posttest treatment. Maturation is another threat that

could have led to confounding outcomes in which the treatment caused an effect that was not related to other variables. Finally, due to the non- random selection, there was no comparison group to which to parallel results. Therefore, it is harder to generalize the sample to the larger inmate population, and could result in sample bias affecting research outcomes.

Limitations

The limitations of the study are as follows; experimental design, population sampled, and use of archived data. The type of experimental design used was Quasi-Experimental, archival, study with a correlational descriptive component. The population in this design was not randomly selected because only inmates in the TC program participated in the current study. Specifically, using archival data or secondary data means that researchers are not obtaining the information directly; therefore, the indeterminate accuracy of the results creates limits in the current study. Using secondary or archived data presents the researcher with multiple issues including the inability to establish authenticity (Frankfort-Nachmias & Nachmias, 2008). Since the research is not collected directly by the researcher, establishing authenticity is not possible, as I could not guarantee that the evaluation or MOT assessment is credible. Using data that a researcher does not collect themselves, or verify data collection, leaves the researchers open to a variety of issues including inability to answer research questions correctly and/or accurately, inability to validate the study, distorted results, misleading information, and potentially causing harm to the participants (Ohrt, 2014). I took reasonable measures to address the limitations by taking the time to discuss and meet

with the contracted substance use treatment provider, Gateway Foundation, over the MOT assessments regarding their collection protocol, as well as reviewed the archived data thoroughly, removing any incomplete assessments.

Significance

In this study, I sought to provide insight into the drug related offender population by detailing information associated with them and their motivation for treatment. This study held the potential to determine the relationship between treatment and motivation. Motivational factors that I addressed in the study were the inmates' desire for help, treatment readiness, and treatment needs. The advantages for identifying changes in motivation throughout the treatment duration are that it will aid in determining the impact of in-prison treatment.

It should be noted that changes in an inmate's desire for help was measured through administration of the MOT assessment (Knight, Holcom, & Simpson, 1994). Desire for help was identified as potentially a response to treatment efficacy, as typically over time when an individual is engaging in treatment, they learn the ability to implement coping skills, and therefore become sustained on their own. Most recently, Morgen and Kressel (2010) measured Circumstances, Motivation and Readiness Scales to assess motivation and readiness; however I found no other studies addressing motivational factors upon entry and discharge from treatment in a prison TC program, making this study significant. This is imperative to address within the field, as with the number of incarcerated individuals rising, those who are incarcerated in prisons and jails are less likely to receive adequate treatment and therefore are returning to prison or the

drug/criminal lifestyles (Wexler & Prendergast, 2010). Identifying motivation allows for tailored treatment needs and practical application of treatment in the prison setting. In 2013, the recidivism rate in New Jersey was 29.8% (State of New Jersey, Department of Corrections, 2015). The findings of my study may show the utility of TC programs in changing offender behavior, thereby making inmates more productive members of society and strengthening public safety. In addition, since this study provided insight into how treatment affects motivation, it could potentially provide prison administration and lawmakers the awareness of the impact of treatment in prison. In 2010, in the state of New Jersey, incarceration cost the Department of Corrections $1.2 billion dollars in prison costs, with the total cost on average to house 25,822 inmates being $1.4 billion (Vera Institute of Justice, 2012). Substance abuse treatment has been shown to represent a cost effective form of intervention (O'Callaghan et al., 2004) with evidenced based research showing the effectiveness of TC treatment (Wexler & Prendergast, 2010). Continued research related to in-prison treatment programs like TC would allow for increased focus on the prison setting.

Summary

Chapter 1 included all of the background and general information regarding this study. Specifically, I discussed the reason I conducted the study, highlighting the positive social change and the utility of TC programs to change offender behavior, thereby making inmates more productive members of society and strengthening public safety. I also discussed specific research previously conducted on the topic, presented the research question and hypotheses, identified the theoretical framework, and reviewed research

method, scope, delimitation, and limitations. Finally, I addressed the study's significance by discussing its potential contributions regarding the effects of treatment with the inmate population on motivation. Chapter 2 provides a detailed background of the study by investigating previous research conducted on TCs and motivation for treatment.

Chapter 2: Literature Review

Introduction

The purpose of this study was to determine whether motivation in incarcerated adult male offenders changed during treatment in a prison-based TC which was measured by differences in motivation levels pre and post TC involvement.

As of January 2015, 96,324 inmates were incarcerated in the United States for drug-related offenses (Federal Bureau of Prisons, 2015). This figure represented 48.7% of the total U.S. inmate population (Federal Bureau of Prisons, 2015). In the state of New Jersey specifically, of a total population of 21,486 inmates, as of January 2, 2015, of the overall population that encompassed 21,486 incarcerated inmates, 3,670 were convicted of drug offenses. This number incorporated 17 percent of the population, also found to be the second highest charged offense behind violent crimes in the state (New Jersey Department of Corrections, 2015). The sentencing and use of mandated treatment policies throughout the country have heightened the number of inmates incarcerated for drug related offenses. With the drug epidemic related to the 1960s and 1970s, this led to the enforcement of tougher drug laws, which resulted in harder sentencing (Wexler & Prendergast, 2010). In response, treatment has been recommended as a stipulation of sentencing or because of referral from state entities. One of the major treatment modalities that were initiated due to the federal initiative, 1986 Anti-Drug Abuse Act (Hartmann, Wolk, Johnston, and Colyer, 1997) in prison settings was a Therapeutic community (TC) (Wexler & Prendergast, 2010). As a result, there was a dramatic rise in prison population through the 1990s (Wexler & Prendergast, 2010). TC models are

utilized in more than 65 countries for substance abuse treatment, and the TC model has been found to reduce drug use and recidivism and to lead to a better quality of life in areas such as employment, and social and emotional functioning (Morgen & Kressel, 2010).

What motivates inmates to seek treatment while incarcerated has been the focus of some research. In a seminal study by Sacks et al. (2004) when researching a modified TC, researchers determined that there were significantly lower rates of repeat incarceration, however little is known about whether motivation changes over the course of treatment in TC. In an original study by Morgen and Kressel (2010), researchers identified that at the time their research was conducted, there was a deficiency in the amount of published studies that addressed motivation change over a period in order to identify if motivation does or can change in inmate populations. In a study that focused on motivation, Gideon (2010) determined that motivation to achieve changes is imperative in predicting the ability of the addict to change their behaviors and that high levels of motivation for treatment is associated with these behavior changes.

Research to date has shown that little can be generalized about the effects of motivation on an addict's change in behaviors. These types of changes are not possible to identify without distinguishing treatment motivation. The gap in the research that this study addressed regards the effects of the TC program on motivation as measured by archived admission and discharge data.

I measured motivation was measured in a sample of adult male substance abusers, in five prison-based TC programs within the state of New Jersey. The sample of inmates

was comprised of prison custody statuses of both medium and minimum security. Specifically, by identifying changes in the level of motivation for treatment from entry to discharge, I sought to determine whether the TC program is effective at changing offenders' motivation. The purpose of the literature review was to provide a summary of a TC, motivation, and motivation for treatment in TCs to better understand the effects of motivation for treatment and motivation changes.

Literature Search Strategy

I used online databases to conduct an exhaustive search of relevant literature. Specifically, I searched the following databases via Walden University's library: Academic Search Complete, eBook Collection, Education Research Complete, Education Source, ERIC, PsycARTICLES, PsycBOOKS, PsycCRITIQUES, PsycEXTRA, and PsycINFO. The primary search terms included *therapeutic community*, *prison*, *treatment motivation*, and *stages of change*. The combination of search terms included; *therapeutic community and prison*, *therapeutic community*, *prison*, *and treatment motivation*, and *therapeutic community and treatment motivation*. Because few studies have been conducted in the last 5 years related to motivation and TC programs, I conducted an exhaustive search to gather seminal research, which proved to be the most relevant to this current study. The articles I utilized were primarily peer reviewed journal articles published between the years of 1994 and 2014.

Theoretical Framework

The stages of change model served as the framework for this study. The stages of change model is based on the concept that behavior change is achieved through various

stages. This model comprises 18 different psychological and behavioral theories, which provides frameworks for describing behavior changes defined by a timeframe and tasks that are associated with the movement through the stages (Kennedy & Gregoire, 2009). These behavior changes consist of four dimensions: stages, processes, markers, and context of change (Kennedy & Gregorier, 2009).

The current applications of the stages of change are adapted from James Prochaska and Carlo DiClemente's original transtheoretical model from the 1970s and have been applied to a multitude of areas including addiction and recovery (Prochaska et al., 1997). Addicts and criminals can struggle with awareness that they have a problem; therefore, it is not enough for individuals to attempt to make changes; but they need to make the conscious decision to change their behaviors to produce a positive outcome (DiClemente, 1993). The changes that are made result in sustained behavior changes and can lower the rates of relapse (DiClemente, 1993).

There are five stages that determine change within a person: precontemplation, contemplation, preparation, action, and maintenance (Manchaiah et al., 2015). Precontemplation is when an individual has no current intention of modifying their behaviors (Kennedy & Gregoire, 2009). The contemplation stage is when the individual is thinking about addressing the problem and the preparation stage is when the individual has the intentions to make the change (Kennedy & Gregoire, 2009). The action stage is when the individuals are making the change or modifying their behavior. Finally, the maintenance stage is when they are maintaining the change they made.

The motivation for change can range with inmates who are entering treatment, as some inmates do not intend to change their behaviors upon release and therefore have less of a chance of entering new stages or even leaving certain stages in the model. Researchers have shown that individuals who were referred by the courts were less likely to leave the precontemplation stage than people who were not court referred (Kennedy & Gregoire, 2009). In addition, Soberay et al. (2014) determined that individuals with high levels of precontemplation are associated with premature release from treatment, and therefore have less of a chance to make changes or move through the stages. Similarly, in prison-based treatment, inmates who are in the precontemplation stage of change upon entrance can struggle with more than just remaining in treatment. The precontemplation stage of change is more closely associated with minimal symptom improvement than the other stages (Soberay et al., 2014) and therefore could potentially affect recidivism rates based on the negative correlations of the precontemplation stage to change in any behavior.

On the other hand, other inmates, for a multitude of reasons, made the decision to change their actions prior to or during treatment pertaining to their addiction or criminal behavioral patterns, so that they do not return to prison. In the TC modality, similar to that of the stages of change, there are three phases through which inmates progress. New behaviors are learned in timed increments within each phase. In order to progress, an inmate must show internalized change along with the completion of certain stage tasks.

The inmate has the ability to decide whether to move forward in phase within their treatment, that is determined by their level of motivation.

Stages of change assists in determining the ways in which these individuals gain motivation based on the treatment received. In TC programs in New Jersey, inmates complete paperwork geared towards chemical dependency, conduct groups providing their peers with psychoeducation, identify their cognitive distortions and model appropriate behaviors for their peers within each phase in order to progress through treatment. Treatment improvement protocol allows for peer driven support but is still dependent on the motivation of the individual to complete the tasks to move to the next phase. The stages of change model works on the similar idea that behavior changes are made based on delivering knowledge that leads to attitude shifts which result in behavior change (Whitelaw et al., 2000). In the TC program in New Jersey, programming and treatment is based on the premise of sharing knowledge amongst peers. As a result, what was learned and implemented in treatment should result in treatment success. Additionally, the model could identify changes and the result could be interpreted as motivation changes. If readiness for change were assessed and taken into consideration in treatment decisions, as well as tailoring treatment approaches based on the stages of readiness that are identified, treatment effectiveness could be improved (Da Silva Cardoso et al., 2003).

Therapeutic Communities

TCs have existed for about 40 years and are generally drug free residential settings that use a hierarchical model with three treatment stages, which indicate an

increase of personal and social responsibility by the client (Kerr, 2008). Although first developed for community use, TC is the most widely used modality in prisons throughout the country and has been since the 1960s. It has shown positive results despite the limitations of the prison environment (Kennard, 2004). TCs were developed in response to the increasing number of inmates convicted of drug charges (Prendergast et al., 2001). The premise behind the implementation of treatment from community-based TC to prison-based, was to reduce drug use following release from prison that then would potentially decrease the number that reoffend (Prendergast et al., 2001).

The generic TC model is comprised of 12 components which include community environment, community activities, peers as role models, structure, phase, therapy, and education, TC concepts, encounters, awareness training, emotional growth training, treatment time and a continuum of care (Prendergast et al., 2001). Most individuals who enter into TCs have a history of issues due to their substance use with social functioning, education and vocational skills, and community and family ties (Kerr, 2008). In this case, recovery encompasses relearning, regaining and re-establishing or rehabilitation of life areas as well as habilitation or learning for the first time behaviors, attitudes and values (Kerr, 2008). These ideas are best displayed in the “community as a method” approach where members interact in ways that influence attitudes, perceptions, and behaviors (Kerr, 2008). Burdon et al. (2002) discussed TC programs displaying a different way of looking at inmates as treatment encompassed positive values, good social relationships and implementation of social interactions, role models, and transitions back into the

community. In the TC model, there are three phases, all of which have a specific timeframe in order to be phased through the program until eventual completion.

In addition to the components of TC, there are criteria that must be met by inmates in order to enter into TC, which can differ depending upon the state. In New Jersey, which is similar to many other states, inmates are screened and must meet an Addiction Severity Index score of a 5 or higher in drug and alcohol, as well as voluntarily enter into treatment. Voluntary admission would assume motivation for treatment especially related to progression through the phases of treatment within the program (New Jersey Department of Corrections, 2016). In a study conducted by Stohr et al. (2002) researchers investigated a residential substance abuse program similar to that of a modified TC modality in South Idaho, in which they found that there was a more positive perception of the program and treatment from individuals in the first and third phase of the program. Motivation for treatment was defined as an inmate's satisfaction of treatment. Motivation was determined by a 51-item likert scale questionnaire on program satisfaction. Treatment satisfaction was found to have an impact on perception and effort put into the program. This relates to the current study in that the type of treatment, specifically TC has been shown in previous research to have a strong correlation with motivation for treatment.

When TCs were first developed, a majority of the research conducted was based off the first two, main programs started. The two prominent TC Programs, The Stay 'N Out Program in New York, and Cornerstone TC program, have both undergone rigorous evaluation that has been utilized in ongoing research. The outcomes of studies related to

these two programs have indicated that inmates whom completed all three phases of TC are less likely to be arrested or use drugs after discharge than inmates not enrolled in treatment (Hartmann et al., 1997). In another study conducted on the "Stay 'N Out" program, Burdon et al. (2002) found that TC was more effective than no treatment or other forms of less intensive treatment in reducing recidivism (Burdon et al., 2002). Because of the positive findings Burden's study, it became the foundation for a federal and state initiative to support prison TC expansion in the 1990s.

The National Institute on Drug Abuse (NIDA) has determined that drug treatment outcomes showed that participants that completed TC treatment had lower levels of use, criminal behavior, unemployment, and depression (Kerr, 2008). In addition, multiple studies have found that inmates that participate in prison based treatment programs have a lower rate of repeat incarceration than inmates that do not or receive minimal treatment (Prendergast et al., 2001).

Motivation

Motivation for treatment is dependent upon a number of factors, which has been researched previously and can be related to motivation for treatment in my study. Most studies have found that high levels of motivation for treatment in TCs have led to treatment success, lower recidivism, and reduced substance use (De Leon, Melnice, Thomas, Kressel and Wexler, 2000). The following section will discuss motivation's impact on treatment.

Internal and External Motivation

There has been a dramatic increase in the connection between drug use and crime rates, which has resulted in the use of treatment within the criminal justice system (Czuchry & Dansereau, 2000). As with most treatment models, treatment readiness is a prerequisite for successful treatment (Czuchry & Dansereau, 2000). Regardless of a reason, inmates are brought into treatment within the preconditions of the law. The external motivation provided by the criminal justice system has been found to have beneficial outcomes and has resulted in an impact on treatment. For example, external pressures have been found to increase compliance and minimize unsuccessful discharges; however, it has been determined that it is imperative for participants to have enough motivation and treatment readiness for treatment to be beneficial (Czuchry & Dansereau, 2000). A number of factors can influence motivation for treatment. Most research that has been conducted ranges from external factors, to type of treatment being administered. In the case of my study, variables identified that could have an impact could be the TC treatment. In regards to this concept, in a study conducted by Darke, Campbell, and Popple (2012) researchers reviewed previous studies within the TC model, which showed that long-term treatment has resulted in a reduction of continued use, reduced crime psychopathology, and improvements in health. There were specific factors that predicted outcomes, which were found both internally within the client, as well as the within the type of treatment being used. One consistency that was determined is longer more stable treatment time has been associated with better outcomes, as well as a successful completion of a TC program was a predictor of abstinence of use (Darke, Campbell, & Popple, 2012). Darke et al. (2012) investigated length of stay, correlates of dropout, and

successful completions in the We Help Ourselves (WHOS) modified TC program for both men and women. Based on Darke's research, it was determined that lower rates of readiness for treatment was related to poorer outcomes, which resulted in treatment dropouts of approximately one in five participants (Darke et al., 2012). While previous research has shown that a lower level of motivation is correlated to poor outcomes, it is requisite that such findings be repeated my study in order to determine the viability of the aforementioned findings.

One of the major obstacles that individuals in treatment face is a lack of motivation, or uncertainty to stop using (Klag, Creed, & O'Callaghan, 2010). Researchers discussed Self-Determination Theory as a response to motivation issues by investigating autonomous versus controlled motivation. The different types of motivation in this case were found to be both internal and external. Individuals that are autonomously motivated have been found to be more invested in their behavior changes, whereas others felt that external circumstances are pressuring them to get clean (Klag et al., 2010). The degree of autonomy exists on a continuum, and the six different types of motivation that are identified results in cognitive, affective, and behavioral results (Klag et al., 2010). The purpose of the study was to address two purposes, in which one related to my study; identifying motivation strategies for individuals when they first enter treatment (Klag et al., 2010). Research was conducted on 350 substance users, from six TC programs in Australia using an adapted form of the Client Motivation for Therapy Scale (CMTS) for assessing treatment motivation (Klag et al., 2010). It was found that lower levels of external motivation and higher levels of internal motivation was associated with

treatment engagement and that being motivated was not enough, instead motivation needed to be displayed in a self-determined way (Klag et al., 2010). Individuals who had minimal external motivation and a self-determined position of treatment showed higher treatment engagement. Czuchry and Dansereau (2000) addressed the issue of motivation by examining a cognitively based treatment readiness program, or TC that researchers developed to be administered within a group setting.

Czuchry and Dansereau (2000) conducted their study at a 140-bed treatment center in Mansfield, Texas, in which TC treatment was provided for four months to residents (Czuchry & Dansereau, 2000). A prison community survey was administered, which was intended to identify the perceived numbers of the participants that were positively engaged in treatment and working a recovery program (Czuchry & Dansereau, 2000). Researchers determined that participants were more engaged in treatment as well as increased motivation and treatment engagement was found to be associated with higher treatment retention and favorable outcomes (Czuchry & Dansereau, 2000). These findings relate to my study, as increased motivation for treatment resulting in positive outcomes could be a reflection of the type of treatment modality.

Treatment Readiness

Morgen and Kressel (2010) defined motivation and readiness for change in TC treatment in order to predict retention, and engagement of inmates by assessing motivation and its changes over time. TC models facilitate psychosocial change in individuals that are in recovery from substance use; however, there is no research on how or why this occurs (Morgen & Kressel, 2010). Motivation and readiness for change were

variables examined in which research confirmed that motivation to change and readiness for treatment both had a positive effect in clients remaining and engaging in TC treatment. Data was collected during three aspects of the inmate's treatment; specifically entrance into treatment, 90 days and 150 days post entry (Morgen & Kressel, 2010). Therapeutic community clients experienced a negative rate of change or decreased motivation and others experienced an increase of motivation, which was signified by the lack of significant variance for the mean slope. These results showed changes, specifically in motivation, as both positive and negative changes were at the same rate (Morgen & Kressel, 2010). The reason that was determined as to why some clients in TC had decreased motivation was due to some inmates reporting that they were able to remain sober after the first stage of treatment. De Leon, Melnice, Thomas, Kressel and Wexler (2000) also similarly addressed the gap addressed by Morgen and Kressel (2010) as well as the effects on treatment readiness and completion within a study.

There is a gap in motivation for seeking out and continuing treatment in prison-based TCs that was addressed by De Leon et al., (2000). Motivational influences like lifestyle changes, hitting bottom, and cognitive reasons for quitting use, influenced reasons for entering and completing treatment (De Leon et al., 2000). De Leon et al. (2000) defined readiness for treatment as a self-understood need, which was also found to predict dropouts in TC. De Leon et al. (2000) addressed motivation levels among substance users entering into TC in prison, motivation, status in treatment, and the relationship between motivation, treatment and post prison outcomes. The sample was examined from the Amity TC at R. J. Donovan Medium Security Correctional Facility in

California, in which the population of 715 inmate volunteers and 658 motivation questionnaires were utilized (De Leon et al., 2000). Treatment outcomes were assessed one year after release, in which it was determined that motivation scores were lower for all other prisoners than the sample admitted to community-based TC (De Leon et al., 2000). Although no specific reason was determined for lower levels of motivation for general population inmates, it was hypothesized that intrinsic motivation and non-recovery related reasons had an effect on why inmates volunteered for treatment (De Leon et al., 2000). Internal motivation is also associated with higher levels of motivation. Level of motivation has been determined to be based on treatment readiness what is lacking in most research. As TC is based on the premise that substance abuse is a disorder that includes the whole person, therefore the goal of treatment is for the client to change their lifestyle through self-help and mutual help in the social environment which has been determined to impact treatment readiness upon entry (Goethals, Vanderplasschen, Vandevelde, & Broekaert, 2012).

Interactions between client and staff facilitate client insight and understanding in order to produce change (Goethals et al., 2012). In previous studies, motivation and readiness for treatment were predictors of client responses to treatment and retention (Goethals et al., 2012). An individual with low motivation and that is not invested in treatment, would not fully engage in treatment. Motivation would also measure the amount of insight a client has into their substance abuse problems. The population studied in Goethals et al. (2012) consisted of 180 clients, with a sample size of 157 from community TCs in Flanders, Belgium. Assessments were conducted thirty days after

entering treatment, with motivation as one of the factors that were evaluated (Goethals et al., 2012). The results showed that clients had a positive attitude towards treatment within the first month. Researchers inferred the findings were related to fear of imprisonment and the chance for the criminals to change their lives (Goethals et al., 2012).

In previous studies identified by Melnick, De Leon, Thomas, Kressel and Wexler (2001) researchers discussed the role of motivation on retention in which motivation affected the treatment process and the process determined the outcomes of treatment. With the use of cognitive strategies such as treatment, it has also been found that there was an increase in treatment engagement, which included commitment to treatment (Melnick et al., 2001). The TC treatment model is viewed as an intervention that utilizes educational and therapeutic groups as well as individuals, in which participation facilitates change. There is an interaction found between motivation and participation in treatment as motivation affects the amount of participation (Melnick et al., 2001). Therefore, Melnick et al., (2001) tested the hypothesis that motivation interacts with treatment participation, which dictates treatment outcomes. Research was conducted at Amity prison TC in California on a sample size of 715 clients that were placed into treatment and non-treatment groups (Melnick et al., 2001). Motivation was measured using the CMRS scale. The findings supported the hypothesis that motivation has an effect on participation, which determined treatment outcomes (Melnick et al., 2001). It was also found that criminal history and severity of drug use had an effect on motivation for treatment, which was also an indicator of future relapse and recidivism (Melnick et

al., 2001). Early motivation in treatment was also an indicator of treatment outcomes and similarly, previous research has found significant outcomes with TC effectiveness.

Similarly, cognitive skill training is a core therapeutic component in the criminal justice system; this is because many that enter treatment in prison display cognitive deficits that affect the effectiveness of treatment (Czuchry & Dansereau, 2003). Texas Christian University (TCU) assessments are utilized in the TC program to assess a multitude of issues. Texas Christian University Cognitive Skills Module was implemented because of researchers seeking to understand the processing difficulties that inmates face upon entry and mandated treatment results in inmates with lower motivation for treatment (Czuchry & Dansereau, 2003). Czuchry and Dansereau (2003) conducted research in Mansfield, Texas in a 140-bed facility with a sample of 540 probationers. Treatment motivation and readiness was measured using TCU Self-Rating Form, a 7-point Likert scale within the first month of treatment (Czuchry & Dansereau, 2003). When implementing a cognitive skills program, it was found that clients that displayed a higher readiness for treatment showed greater treatment involvement (Czuchry & Dansereau, 2003). In addition, for clients that entered treatment with lower levels of readiness found that increasing ones self-efficacy through cognitive skills influenced motivation for treatment (Czuchry & Dansereau, 2003).

The main theme that has been addressed within most of the archived studies is treatment readiness, which has been found to be a reflection of motivation. In New Jersey, inmates are given the opportunity to be released to the halfway house prior to treatment completion, which could have an effect on treatment readiness and motivation.

Length of Stay

Directly tied to the amount of motivation, research has found that length of stay is one measure of the effectiveness of treatment (Melnick, De Leon, Hawke, Jainchill, & Kressel, 1997). The Circumstances, Motivation, Readiness and Suitability (CMRS) was used in the study to measure external circumstance's effects on internal motivation, which were found to predict the highest rate of drop out during the first thirty days of treatment (Melnick et al., 1997). Other assessments used to measure motivation have found similar results in that they identified the importance of motivation and readiness variables on treatment. Indirectly supported by research but based off clinical experiences, findings were supported as it was found that adolescents are less motivated for treatment than adults due to less internal motivation because of experiencing fewer negative consequences (Melnick et al., 1997). Melnick et al., (1997) conducted their study on two samples of adults and adolescents in the first sample, and consecutive TC admissions from six different programs consisting of only adolescents in the second. Motivation was measured using the CMRS scales in which it was determined that motivation, both internal and external, was not correlated; however, both predicted retention. Adolescents were found to have more external motivation than adults did. In addition, internal factors contributed to long-term retention in treatment for adults; however, intrinsic motivation was a lower contributor to retention than extrinsic legal pressure (Melnick et al., 1997). By identifying motivation levels at the beginning of

treatment, this could assist in determining who is at a high risk of early dropout of treatment by enhancing initial motivation, readiness, and apparent appropriateness for TC. This in turn can determine treatment effectiveness.

The CMRS scale was also utilized in a study by De Leon, Melnick, and Kressel (1997). Researchers utilized CMRS scales to assess motivation and readiness for treatment in a sample of alcohol, marijuana, heroin, cocaine, and crack cocaine abusers admitted to residential TCs. Previous studies have identified that there is a relationship between retention and treatment effectiveness, which has been reinforced by longer treatment episodes with a positive post treatment outcome (De Leon et al., 1997). In addition, clients that are legally referred to TCs on average spend more days in treatment then individuals with voluntary admission (De Leon et al., 1997). It was determined that substance abusers that were not motivated for change or treatment had a higher risk for leaving treatment early or prior to a successful discharge (De Leon et al., 1997). The CMRS scale was also utilized in a study by De Leon, Melnick, and Kressel (1997).

Researchers assessed motivation and readiness for treatment in a sample of alcohol, marijuana, heroin, cocaine and crack cocaine abusers, admitted to residential therapeutic communities. Previous studies have identified that there is a relationship between retention and effectiveness, which has been reinforced by longer treatment episodes with a positive post treatment outcome (De Leon et al., 1997). In addition, clients that are legally referred to TCs spend, on average, more days in treatment then individuals with voluntary admission (De Leon et al., 1997). It was determined that substance abusers that were not motivated for change or treatment, had a higher risk for

discharging from treatment early (De Leon et al., 1997). In another study that utilized CMRS, researchers investigated motivation utilizing Texas Christian University (TCU) assessments. CMRS assesses motivation based on internal and external factors like support, legal problems or any feelings related to issues because of use. In TCU Treatment Motivation Model, TCUs are presented as a series of cognitive stages (Hiller et al., 2009). The stages include problem recognition, desire for help and treatment readiness (Hiller et al., 2009). The purpose of the study was to explore motivation among incarcerated inmates and the findings had the potential to identify the need to use motivation-enhancement interventions (Hiller et al., 2009). Hiller et al., (2009) conducted research at four Kentucky prisons, in which they utilized 661 inmates that were compared to a treatment group and general population group. The study determined that higher problem recognition was associated with higher levels of motivation (Hiller et al., 2009). Similarly, individuals that had ongoing issues at home, work or personal issues, showed higher motivation scores. The variable that was found to be the biggest predictor of motivation was age, as it was determined that the older the inmate was the higher the motivation for treatment (Hiller et al., 2009). Although in these variables motivation was high, overall motivation for treatment was found to be low in both groups, which showed that the treatment program did not have a clear impact on motivation (Hiller et al., 2009).

Similar results and outcome factors were also addressed by De Leon, Melnick, Kressel, and Jainchill (1994). Researchers investigated client factors that were related to early release from treatment in order to enhance treatment modalities like TCs. The CMRS tool that was discussed in Melnick et al., (1997) was utilized to assess four

domains including, circumstances, motivation, readiness, and suitability (De Leon et al., 1994). In this study, motivation referred to the internal reason as to why the person wanted to change, whether that reason was positive or negative. Some of the positive examples provided included a new lifestyle, external motivations such as growth, and good interpersonal relationships (De Leon et al., 1994). Whereas negative reasons included feelings of guilt and shame from use and drug/criminal lifestyle (De Leon et al., 1994). The study consisted of 2,372 participants from a New York City substance abuse treatment agency, which utilized a traditional TC modality (De Leon et al., 1994). The findings were consistent with previous research as it was determined that clients whom were not motivated for treatment were at a higher risk of early discharge and minimal success (De Leon et al., 1994).

TC Effectiveness versus Other Modalities

When comparing TC to other modalities, in a study conducted by Mitchell, Wilson and MacKenzie (2007) researchers combined results from 66 published and unpublished evaluations of prison based drug treatment programs, which included TCs, residential substance abuse treatment (RSAT), group counseling, boot camps and narcotic maintenance programs. Each is described differently. TC programs as previously discussed are peer driven and behaviorally focused treatment through utilization of cognitive behavioral therapy techniques. RSAT follows a different modality, in which individual and group counseling sessions include peer feedback and self-help groups (U.S. Department of Justice, 2005). Group counseling is treatment focused, boot camps resemble military training and narcotic maintenance programs are drug-based assistance.

Mitchell et al. (2007) examined the different interventions and their effects on re-offending upon release as well as drug use, in which both measures were considered. The results were found to support the effectiveness of TC programs on both outcome measures of re-offending and use, in which the other results did not support any of the other interventions (Mitchell et al., 2007). Similarly, Prendergast, Greenwell, Farabee, Haser (2009) attempted to examine the impact of Amity prison in California's treatment center at 12 months following release. The sample size consisted of 200 male inmates that were interviewed by researchers regarding their time since incarceration (Prendergast et al., 2009). Results determined that the days to first illegal acts, incarceration, and use, were all significantly delayed for the treatment groups (Prendergast et al., 2009). These findings support the purpose of my study by specifically examining the effectiveness of TC and this form of intervention being the most beneficial for addicts incarcerated. Overall, recidivism rates were reduced when engaged in the TC modality. This evidence is clear and supportive within a majority of previous research identified.

Mandated Treatment

Length of stay and reasons for admission play a part in motivation for treatment. Evidence has found that drug users commit a high percentage of crime. In addition, treatment has moderate effects on both a reduction in recidivism and client's engagement in treatment (Prendergast et al., 2009). Since prison treatment is both recommended and sometimes mandated, most participants are required to participate. This could be a positive or negative component related to the level of motivation. The extent to which the

client will engage in treatment is dependent upon how much of a choice they believe they have and if they are motivated for treatment (Prendergast et al., 2009).

Specifically, by looking at motivation for treatment in previous research, the current research builds upon the foundational question of whether treatment has an effect on motivation. In a study conducted by Messina et al. (2006), researchers attempted to address the gap in literature related to gender and treatment outcomes. Data was collected from California prison based TC programs, which consisted of 4,164 women and 4,386 men who entered and participated in treatment between July 1998 and March 2001 and paroled before February 2002 (Messina et al., 2006). It was determined that motivation for treatment was correlated with age in that older offenders had higher internal motivation and were more likely to succeed upon release. In regards to repeat incarceration, time and aftercare were positive correlations to reduce recidivism in women whereas only time in aftercare was a deterrent for repeat incarceration for males (Messina et al., 2006).

Motivation was also found to be predictive of completion and have an effect on treatment outcomes. Previous research has found that individuals with high motivation were found to be more likely to actively involve themselves in treatment and individuals with less motivation had higher dropout rates (Prendergast et al., 2009). The Substance Abuse and Crime Prevention Act (SACPA) was a program designed to assess and evaluate the impact of drug treatment services though utilization. The sample was comprised of 1,708 records collected from 2003 until 2006 that were referred by the courts as a response to Treatment System Impact and Outcomes of Proposition 36 (TSI)

assignments to SACPA programs. Based on the Addiction Severity Index (ASI), SOCRATES assessment on motivation and the Perceived Coercion Scale (PCS), lower motivation and problem identification were predictors of higher recidivism. Clients that were actively engaged in treatment as well as addressed their drug problems, were less likely to be re-arrested (Prendergast et al., 2009). To summarize, the higher the level of motivation, the more sustainable the treatment outcome will be.

Summary

Overall, Chapter 2 discussed studies related to TC models which determined mixed treatment outcomes related to motivation; however, most studies supported the use of the TC modality in prison and found it to have an effect on change. The gap in the research that current study addressed was the effects of the TC program on motivation as measured by archived admission and discharge data. The stages of change model was discussed in that the theory uses behavioral changes in order to move through phases similar to that of the TC program, which assisted with guiding my research. Overall, the current chapter discussed motivation, treatment readiness, and length of stay, TC effectiveness and mandated treatment, all of which have an impact on inmate treatment. This will further be connected to my study in the research methods of Chapter 3.

Chapter 3: Research Method

Introduction

In this chapter, I discuss the study participants, selection method, and how the data were collected. The purpose of the study was to determine whether there were motivation changes during TC treatment among a group of incarcerated adult male offenders, as measured by differences in pre and post TC levels of motivation.

I measured motivation in a sample of adult male substance abusers in five prison-based TC programs within the state of New Jersey. The sample of inmates was comprised of prison custody statuses of both medium and minimum security. By identifying changes in motivation for treatment from entry to discharge, I sought to determine whether the TC program had an effect on an inmate's motivation for treatment. This was a Quasi-experimental, archival study, with a correlational descriptive component to address the following research question and test the associated hypothesis:

Research Question. Do levels of motivation change during a TC program among a group of incarcerated adult male offenders, as measured by differences in pre and post TC levels of motivation on the Texas Christian University, Treatment Motivation scale, (MOT)?

The sample was selected using random purposive sampling and I used pre and post treatment MOT scores to determine motivational changes using a paired sample *t* test.

Research Design and Rationale

In this study, I addressed one research question with an independent and dependent variable. The independent variable within the research question was treatment, specifically the TC modality. The dependent variable was motivation for treatment. A quasi-experimental design was most appropriate for this correlational descriptive study. Specifically, I used a single-group interrupted time-series design because the sample was not randomly assigned to the TC program and the measures for a single group were recorded for both before and after treatment (see Frankfort-Nachmias & Nachmias, 2008). This design was important for a multitude of reasons. The first reason is that by analyzing data that is collected at different times like the pre and posttest scores, I could also describe the patterns of change, which resulted in an attempt to explain their causes (see Frankfort-Nachmias & Nachmias, 2008). Another reason is that using archived data allowed for unobtrusive measures in that the method of collection removes any direct interactions, which avoids data contamination (see Frankfort-Nachmias & Nachmias, 2008). Finally, this design choice was consistent with research designs needed to advance knowledge in the discipline because replication is made easier as the population was not randomized and the data set can be available for other researchers with appropriate approval. Motivation for the purpose of this study consisted of archived scores derived from pre and post levels of treatment motivation from the sample of only inmates in the TC program.

Methodology

Population

The target population consisted of all adult male inmates who were incarcerated in the state of New Jersey between January 1, 2014 and December 31, 2016, had completed the TC program. The total population of inmates served in 2014, 2015, and 2016 in New Jersey was 64,111 inmates (Gateway Foundation, 2017). However, the exact TC completion number was unknown from 2014 to 2016.

Sampling and Sampling Procedures

The type of sampling frame included male inmates who had attended a TC program while incarcerated from January 1, 2014 to December 31, 2016. The sample of archival data from inmate files was selected from five prisons in the state of New Jersey. I used data from the following prisons; Mountainview Youth Correctional Facility, Northern State Prison, Garden State Youth Correctional Facility, Southern State Correctional Facility and South Woods State Prison. Since there are potentials for error when obtaining data not specifically collected by researchers, I selected a sample that was selected was fully completed assessments done by the inmates throughout the prison system who completed treatment and were released back into society.

I used a non-probability sampling strategy (see Creswell, 2008). Because the inmate population was pre-selected and the archived cases were inmates in TC, I not use random sampling and therefore used purposive sampling. I selected all inmates who attended TC beginning January 1, 2014 and were discharged successfully by December

31, 2016, with pre and post treatment MOT scores that were completed correctly. The inmate scores that I excluded from the study were cases with two sets of admission or discharge data for the same case as I could not determine which admission and discharge data were from the same treatment episode. In addition, I excluded cases due to having incomplete data. Incomplete was defined as missing one or more individual numbers in the data set. In order to secure a successful completion, inmates in the TC program must have completed at least 6 months to a year and have been in Phase 3 of the program. I conducted a G*Power analysis with the assistance of a statistical analyst, in which it was determined that the sample size would consist of 220 inmates based on the *t*-test (see Faul, Erdfelder, Lang, & Buchner, 2007).

Procedures for Recruitment, Participation, and Data Collection

I gathered the samples of inmate data, MOT scores, from five prisons in the state of New Jersey. Prior to admission into TC programs in New Jersey, professionals screen inmates and administer a respective drug and alcohol score in the Central Reception and Assignment Facility (CRAF). Inmates are then classified into a prison and into the TC program. When inmates enter into the TC program in New Jersey's prison system, they are administered multiple assessments. One in particular is the motivational questionnaire, the TCU MOT (Knight, Holcom, & Simpson, 1994). This assessment is self-administered or completed in an interview style by staff upon entrance, after phase change in treatment, and when discharged from the TC program. For this study, all inmates enrolled in the TC program and submitted to the TC staff complete the MOT

scale. Once submitted, the MOT is scanned by the TC administrative assistant and scored into the main database for the contracted substance use treatment provider.

The Walden University IRB approved my study. Once I secured Walden IRB clearance, I obtained New Jersey Department of Corrections (NJDOC) IRB approval. Gateway Foundation is the contracted employer for the Department of Corrections that runs the TC programs in the state of New Jersey and is referred to as *contracted substance use treatment provider* in my study. Due to a data use agreement between the contracted substance use treatment provider and NJDOC, IRB approval was required in order to gain access to the archived data through the contracted substance use treatment provider. The archived data was collected by contacting the contracted substance use treatment provider's main office in Chicago, Illinois, to request total MOT scores for inmates who were in TC programs in New Jersey between January 1, 2014 to December 31, 2016. The data were de-identified and the only additional demographic information I requested was age and race. Since the data were collected through archived assessments of inmates, no face-to-face contact was made with any inmate.

Instrumentation and Operationalization of Constructs

The motivational questionnaire, TCU MOT (Knight, Holcom, & Simpson, 1994) was developed during an initiative in 2002 by the Criminal Justice Drug Abuse Treatment Studies (CJDATS) in order to improve drug treatment services (Leukefeld, Gullotta, & Gregrich, 2011). The MOTForm was specifically developed by Texas Christian University's Institute of Behavioral Research (IBR; Simpson et al., 2012). The MOT includes 36 items from five scales and is used to monitor client performance and

psychosocial changes during treatment (Texas Christian University, 2017). This scale is used to assess motivation for treatment by addressing stage of readiness, specifically problem recognition, desire for help and treatment readiness (Texas Christian University, 2017). I used the overall total score of the scale for this study, as identifying need for treatment and motivation coincide in that there will be no identified need if there is no motivation and vice versa. This scale measures acceptance and readiness for both behavior and cognitive changes, which have been shown to be predictors of treatment engagement (Pankow, Simpson, Joe, Rowan-Szal, Knight, & Meason, 2012). Specifically, the measures of the MOT enumerate and monitor client performance and psychosocial changes during treatment in order to evaluate treatment interventions (Texas Christian University, 2017). The MOT is a Likert-type scale assessment that has five subscales that make up the overall assessment, including Problem Recognition (PR), Desire for Help (DH), Treatment Readiness (TR), Pressures for Treatment (PT), and Treatment Needs (TN). The MOT scores are automatically scored on a 5-point scale, which ranges from *disagree strongly* to *agree strongly.* PR is a 9-item scale that identifies whether the inmate recognizes if substance use is an issue. DH is a 6-item scale with an example question of "You are tired of the problems caused by your use" (Simpson, Joe, Knight, Rowan-Szal, & Gray, 2012). TR is an 8-item scale that questions the need for treatment and TN is a 5-item scale, which identifies the perceived need for treatment (Simpson et al., 2012). The MOT is administered upon entry, upon phase completion and at discharge. The MOT assessment is a scannable paper version that is automatically converted into individualized reports for each inmate (Knight, Beacon, Landrum, Joe, &

Flynn, 2014). Because the scale identifies motivation and need, I used the total score of the scale that identifies level of overall motivation for pre and post testing.

Reliability and validity was tested in a sample of 1700 clients in 87 programs using a confirmatory factor analysis. Based on utilization of the MOT scale, the program-level coefficient alpha is .88 for DH, TR is .90 and TN is .90 (TCU Institute of Behavioral Research, 2004). Reliability of the PR scale was found to be .87, DH reliability .66, and TR reliability .80 (Simpson et al., 2012). Predictive validity was determined from a multiple regression analysis based on the research conducted by Simpson et al. (2012) that determined the MOT form had correlations in the .20 to .30 range which were significantly related to treatment engagement (Simpson et al., 2012).

Data Analysis Plan

The research question that I addressed in this study was; Do levels of motivation change during a TC program among a group of incarcerated adult male offenders, as measured by differences in pre and post TC levels of motivation on the Texas Christian University, Treatment Motivation scale, (MOT) in which total MOT scores was used for overall motivation? The hypothesis that was tested was that there will be significant differences between levels of motivation as measured upon entry and discharge from treatment. I used SPSS software for data analysis. Data comprised a compilation of archived pre and post treatment (MOT) scores. The total score was used to evaluate effectiveness of the TC program to enhance motivation based on pre and posttest evaluations. A total score of the MOT scale was calculated that represented overall motivation (Simpson et al., 2012). Once the MOT total score was procured, I performed a

paired sample *t* test was performed to determine if there was a statically significant change in their motivation scores from the beginning to end of treatment (Hendry, 2013). A paired sample *t* test is used to determine whether there are mean differences between two sets of observations as each subject is measured twice (Witte & Witte, 2007).

Threats to Validity

Due to the use of a quasi-experimental design, the potential threats to the study included maturation, selection, morality, and interaction of selection due to uncontrollable threats (Creswell, 2008). In addition, when pre and posttests are used, there are potential additional threats related to history, testing, instrumentation, and regression (Creswell, 2008) some of which pertained to this study and will be discussed in this section.

External Validity

Threats to external validity arise when experiments come to incorrect inferences based on the sample data when compared to other persons, settings or situations (Creswell, 2009). One threat to external validity included testing reactivity. Testing reactivity is when a person changes their responses based on awareness that they are being observed or due to being influenced by some part of the survey instrument (Lavrakas, 2008). Specifically, related to the MOT scores, motivation and treatment readiness items have different meanings after treatment begins (Simpson et al., 2012) and there is no guarantee that scales are administered prior to exposure to treatment. A subject can respond positively or negatively based on the surrounding reactions. MOT questionnaires are self-administered by inmates upon admission, during phase changes in

treatment and upon discharge. The questionnaires are then handed to staff associated with the contracted substance use treatment provider for scoring. Self-selection refers to clients who comply with treatment demands and follow process and procedures (Morgen & Kressel, 2010). One of the main issues that arise is the fact that inmates are mandated into treatment or it is given as a recommendation based on drug scores or sentencing. In addition, circumstances that lead to imprisonment and length of time they have been incarcerated prior to sentencing could affect the validity of their responses on the questionnaire.

Limitations associated with using archival data is that using secondary data means that I am not obtaining the information directly, instead it cannot be assured that the results are entirely accurate. Using secondary or archived data presents me with multiple issues including the inability to establish authenticity (Frankfort-Nachmias & Nachmias, 2008). Using data that a research does not collect themselves, or verify data collection, leaves the researchers open to a variety of issues including inability to answer research questions correctly and/or accurately, inability to validate the study, distorted results, misleading information, and potentially causing harm to the participants (Ohrt, 2014).

Internal Validity

Threats to validity affect the conclusions that can be made from the data. Internal threats to validity are experimental procedures, treatments or experiences that affect the ability of the researcher to draw correct inferences from the data about the population (Creswell, 2009). The first threat to internal validity is my study focused entirely on self-reported data. Self-reported data is found to be associated with memory recall and social

desirability making it impossible to verify the accuracy of the data collected (Rosen, Hiller, Webster, Staton, & Leukefeld, 2004).

A second threat is maturation due to the length of time the research is conducted. Maturation is defined when participants in the experiment mature or changes during the experiment due to the length of time, which influences the results (Creswell, 2009). The research is being collected from January 1, 2014 to December 31, 2016. The archived MOT scores that are being used to determine motivation from pre to post treatment were collected through self-report and can range from an inmate being in treatment for one month to over a year and completed the TC program successfully. The change in scores from pre to post treatment could also be due to factors other than treatment. Therefore, the amount of time between administrations of the pre MOT scale to the post MOT scale could have an impact on the information collected. The changes or differences in scores could be attributed to the changes over that time and not in relation to the type of MOT questionnaire being conducted in pre and posttest treatment. Finally, selection is defined as participants in the study that are selected due to certain characteristics that are inclined to produce certain outcomes (Creswell, 2009). Due to the selection not being random, there is no comparison group to compare the results, and it is harder to generalize the sample to the larger inmate population, which could result in sample bias affecting research outcomes. Maturation is another threat that could lead to confounding outcomes in which the treatment caused an effect that was not related to other variables. Maturation is the time between pre and posttest MOT administration that could have an effect on the research participants. As previously discussed, inmates in the TC program, in order to

secure a successful completion, must have completed at least six months to a year and have been in Phase 3 of the program. However, some of the inmates could be in treatment anywhere from six months to years depending upon program compliance and how long the inmate's bid, or time in prison they are sentenced to complete. Therefore, based on the time from admission to discharge, there are extraneous factors that could affect data collection during that period.

Ethical Procedures

Ethical procedures must be followed especially due to the archived data that is being procured is from a specialized population. No inmates were contacted for the current study however archived data was used to assess if levels of motivation change during treatment. The first contact made was with Gateway Foundation, the contracted substance use treatment provider for the New Jersey Department of Corrections, TC programs. A data use agreement between the researcher and contracted substance use treatment provider was established in order to secure the archived data. IRB approval was obtained from Walden University's IRB. Due to the sensitive nature of the archived data that is requested and having a dual agreement between the contracted substance use treatment provider and the New Jersey Department of Corrections (NJDOC), the researcher submitted for IRB approval from the NJDOC research review board. The archived data was already de-identified by the contracted substance use treatment provider when received. No one but myself had access to master code lists or key codes. Master lists were stored separately on a password protected file and encrypted on the computer that only I had access to. Files containing electronic data were closed when the

computer was left unattended. Data stored on the computer hard drive including the original data set, was erased using a commercial software application designed to remove all data from the storage device.

Summary

The research design in the current study used archived MOT scores that were administered in TC programs in New Jersey prisons. I contact the contracted substance use treatment provider and obtained consent for release of information. No inmates were contacted for the current study. Once the data was collected for pre and posttest treatment, a paired sample *t* test was performed to determine if there were significant changes over the course of treatment (Hendry, 2013). This analysis was conducted in Chapter 4.

Chapter 4: Results

Introduction

The purpose of this study was to determine whether motivation changes during TC treatment among a group of incarcerated adult male offenders, as measured by differences in pre and post TC levels of motivation. The hypothesis I tested was that there will be significant differences between levels of motivation as measured upon entry and discharge from treatment. In Chapter 4, I present the collected archived MOT data, and my analysis of them.

Data Collection

The community partner and contracted substance use treatment provider, signed a letter of cooperation, which I obtained on June 18, 2018. Walden University IRB approval (06-04-18-0351501) for this study was obtained on June 19, 2018. The NJDOC approved the research proposed on September 14, 2018, subsequent to review and recommendation by the DOC research review board in accordance with DOC policy. Once I secured all approvals, the contracted substance use treatment provider supplied de-identified archived data on December 21, 2018. Data review and compilation began on January 3, 2019 and continued until January 6, 2019. The data were provided to me via an encrypted email from the contracted substance use treatment provider, with a zip drive attachment. The zip drive consisted of data for five prisons. Each Excel spreadsheet in the prison file included 4 to 5 tabs of archived MOT data. Column A on each tab included de-identifiable numbers for inmates. Column E represented the administration number which displayed numbers 1-5; 1 being admission data and 4 being completion of

the program or discharge data. Numbers 2-3 were phase change data and 5 was early discharge data without TC program completion, all of which I did not use in the study. In order to compile the data, I used the tab with Administration Number 4 and searched in the workbook for matching sets of numbers from column A with Administration Number 1. Once matching Column A cases were identified with both admission (1) and discharge (4) administration numbers, I developed a second spreadsheet with compiled sums from column F-AO. Note: A total of 36 possible individual data sets makes up the overall MOT score.

Initially, I determined that the ideal sample size based on G* Power analysis of archived data would consist of 220 inmates. Of the 2,289 unique cases in the set, only 168 cases met inclusion criteria. A total of 2,098 cases were not included because they were missing data, specifically both Administration Number 1 and Administration Number 4 data were not available. Out of the five prisons, three prisons did not have any usable data for the study. I could not use 23 data sets because there were two sets of admission or discharge data for the same case or they were incomplete. Specifically, eight cases had two data sets for admissions (Administration Number 1) and two cases for discharges (Administration Number 4) under the de-identified inmate number. Therefore, I could not determine which admission and discharge data were from the same treatment episode. In addition, 13 of the 23 cases could not be used because of incomplete data. I defined *incomplete* as missing one or more individual numbers in the data set (column F-AO). In total, the sample size consisted of 168 cases of archived admission and discharge MOT score totals.

At the time of compiling and completing the analysis, it was my intention to collect and analyze demographic information. However, demographic information could not be provided because the contracted substance use treatment provider informed me that due to system switches within the company, the data file for demographics was from a prior version of software that the company could not access at time of my research being conducted. Therefore, no demographic information was provided.

Results

Assumptions

I made the following assumptions; the data were numeric and continuous for level of measurement; the data were random, assuming independence of observations; and normalcy was approximately met due to distribution (see Figures 1 and 2). One mild outlier was determined in a case of admission data; however it did not have an impact on the analysis conducted.

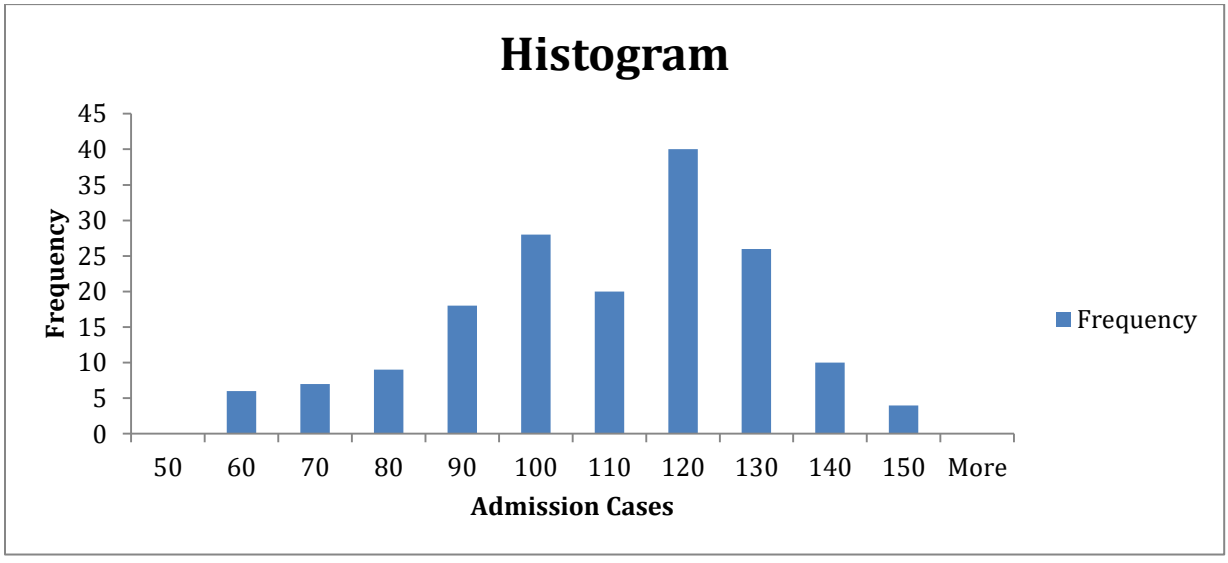

Figure 1. Admission cases, histogram distribution.

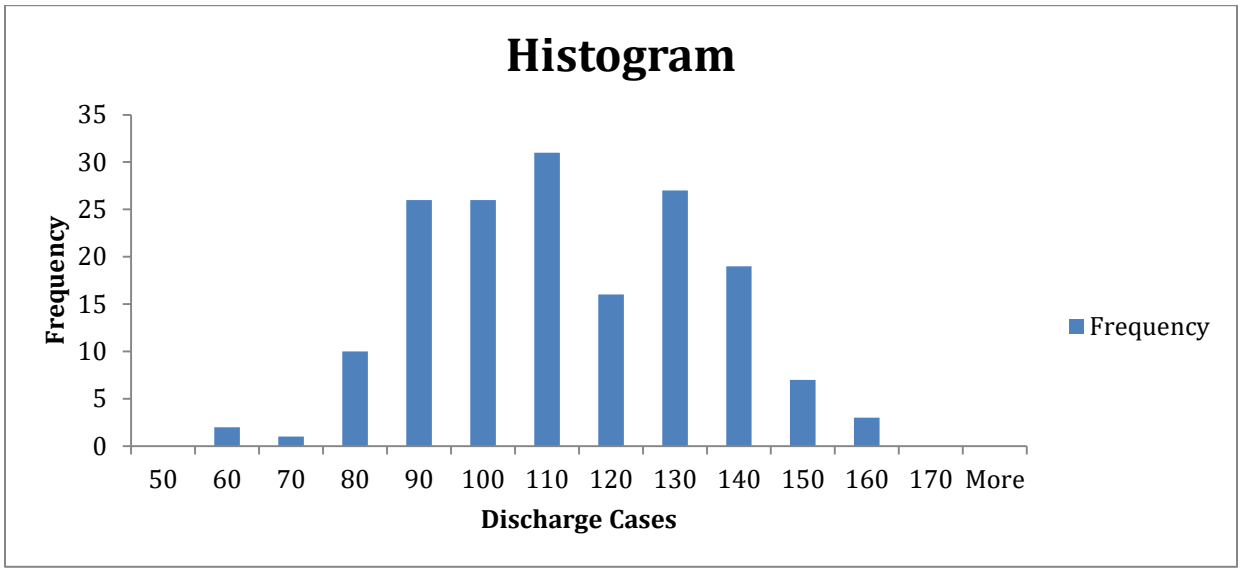

Figure 2. Discharge cases, histogram distribution.

Paired Sample *t* Test

Research Question. Do levels of motivation change during a TC program among a group of incarcerated adult male offenders, as measured by differences in pre and post TC levels of motivation on the Texas Christian University, Treatment Motivation scale, (MOT)?

I used a paired sample *t* test to compare changes in archived MOT scores from admission to discharge in TC programs. Paired sample statistics are displayed in Table 1.

Table 1

Paired Sample Statistics

	Mean	*N*	*SD*
Admission	104.81	168	21.01
Discharge	108.65	168	21.15

The paired sample *t* test identified a significant difference in the scores for admission (M=104.81, SD=21.01) and discharge (M=108.65, SD=21.15), t(167)=-2.26, *p*=.025. Based on these results, I could accept the alternative hypothesis and reject the null hypothesis in that there is a significant difference between levels of motivation as measured upon entry and discharge from treatment (*Table 2*).

Table 2

Paired Sample T-Test

	t	*df*	*Sig.* (2-tailed)
Pre and Post Test	-2.26	168	.025

I found that discharge MOT scores were higher than admission scores, which showed that participants' levels of motivation changed during their TC programs. Overall, MOT scores showed motivation to increase from admission to discharge.

The effect size was calculated using Cohen's *d*= (108.65 - 104.82)/21.080116=0.181688. This showed that there is a small effect size or 1/5 of a SD, which suggested low practical significance. SD of 21.01 and 21.15 indicated there is a dispersion of motivation (see De Leon et al., 2000).

Summary

I completed a paired sample *t* test that indicated a significant difference between levels of motivation from admission to discharge in the TC program. Based on these research findings, I was able to answer the research question: There was statistically significant change in pre and post TC levels of motivation on the TCU MOT among a group of incarcerated adult male offenders. In Chapter 5, I will discuss the findings and limitations, make any recommendations, and discuss implications of the study.

Chapter 5: Discussion, Conclusions, and Recommendations

Introduction

In this study, I sought to determine if treatment in a TC had an effect on motivation levels among a group of incarcerated adult male offenders. This study incorporated data from five prison-based TC programs within the state of New Jersey. I conducted this quasi-experimental, correlational, descriptive study using archival data to determine if there were changes in motivation levels from entry to discharge. The study findings indicated that there was an increase in offenders' treatment motivation during this period, which lead to the conclusion that TC treatment has an effect on offender motivation for change.

I conducted a paired sample *t* test to compare changes in archived TCU MOT scores from admission to discharge in TC programs. I found that discharge MOT scores were higher than admission scores. To summarize, MOT scores showed that treatment motivation levels increased from admission to discharge. In this chapter, I discuss and interpret the findings. I also address the study limitations and make recommendations for further research. This chapter ends with a discussion of implications as well as the overall conclusion.

Interpretation of Findings

Data analysis indicated a significant difference between motivation levels from admission to discharge in the TC program, $t(167) = -2.26$, $p = .025$. These results partially confirmed previous study findings related to motivation in TC programs. A majority of previous studies with results indicating significant outcomes compared

motivation to other factors, specifically treatment outcomes. De Leon et al. (2000) for example, addressed motivation levels among substance users entering into TC in prison, motivation and status in treatment and the relationship between motivation, treatment and post-prison outcomes. The researchers used a one-tail ANOVA to analyze motivation, and found a mean score of 67.17, 75% of the maximum possible score, indicating high motivation levels specifically in prisoners who completed TC and entered into aftercare (De Leon et al., 2000). I did not examine discharge planning like the studies discussed. However, based on the discharge data, which correlated with successful completion of the three phases in the TC program, my study's results indicated outcomes similar to those of De Leon et al. (2000). In addition, my study built on De Leon et al. (2000) research by looking at specifically pre and post treatment motivation.

Three other studies evaluated motivation in relation to engagement, treatment readiness, and participation, all of which supported my findings of increases in motivation. Although I did not delve into motivational comparisons, it is important to review the outcomes for similarities. In a study by Klag et al. (2010) the goal was to assess motivation using Vallerands' Hierarchical Model of Intrinsic and Extrinsic Motivation. This researchers found that integrated motivation was associated with high treatment engagement and external motivation was associated with lower levels of treatment engagement (Klag et al., 2010). To clarify, motivation levels overall tend to be lower in individuals with external motivation because they are not willingly entering into treatment. However, the findings of integrated motivation was defined as when someone internalizes the change and finds motivation internally (Klag et al., 2010), can be

generalized to individuals in my study. One idea I proposed from my research is that gaining insight into their addiction resulted in an increase in motivation on the cases examined.

In a seminal study, Melnick et al. (1997) studied motivation and readiness for TC treatment among adolescent and adult substance abusers. Melnick et al. (1997) conducted their study on two samples of adults and adolescents in the first sample, and consecutive TC admissions from six different programs consisting of only adolescents in the second. Motivation was measured using an instrument that assessed Circumstances, Motivation, Readiness and Suitability (CMRS). CMRS was developed and tested for the purpose of measuring client perceptions of themselves, related to TC retention (De Leon & Jainchill, 1986). Melnick et al. (1997) found that the internal and external motivation were not correlated but did predict retention in treatment. The univariate and multivariate results showed that motivation and readiness for TC treatment increased with age (Melnick et al., 1997). These findings indicated a lack of personal insight in younger populations. Although I could not obtain demographic information for this study, the differences in outcomes of motivation changes from Melnick et al. (1997) could be a reflection of inmates' ages in my study. The age range of participants in my study was unclear, aside from knowing that all prisoners surveyed were from the adult population, with inmate ages starting at 18. Without demographic information, generalizations are difficult to make; however it can be inferred that motivation in this study, when understood in light of Melnick et al.'s findings, could be due to the sample being from the adult population. I will discuss demographic concerns in the limitations section.

Melnick et al. (2001) also found significant correlations between motivation and participation in TCs. The researchers studied 715 inmates in a California prison placed into treatment and non-treatment groups. Motivation was measured using the CMRS scale. By using a path analysis, the researchers found that motivation had an effect on participation, which determined treatment outcomes (Melnick et al., 2001). Participation is the basis for the TC model and therapeutic interventions. Based on the different stages in the TC program, participants have to complete tasks such as oral presentations in order move on to the next phase. With my study showing an increase in motivation and completion of the TC program, the outcomes of Melnick et al.'s study can relate as the participants had to have motivation to participate in order to move through the program, thereby showing the outcomes of both studies to be similar.

I have found only one other study that examined TC motivation using a timespan similar to this study; however, the results contrasted with those of my study. Morgen and Kressel (2010) found that motivation slightly decreased across time points that they assessed; 30, 90 and 150 days. The researcher's interpretation of the analysis does not depict such decline in motivation. The negative slope found by Morgen and Kressel does not show a decrease in motivation; in fact, a slope is the average of individual motivation. By examining means during each stage, motivation actually showed minimal change and the reduction was not dramatic (Morgen & Kressel, 2010). A factor for the findings remaining the same or reducing could have to do with the different timeframes that motivation was surveyed, which differs from the frames in my study. Overall, I determined that there is a slight increase in motivation, specifically a difference of 3.84.

My findings added to those of Morgen and Kressel (2010), in that, by looking at a broader timeframe like admission and discharge data, I found an increase in motivation changes. These outcomes could be due to the amount of time it took for inmates to actually complete the program, which was not measured in this study. However, in order to secure a successful completion, inmates in the TC program must have completed at least 6 months to a year and have been in Phase 3 of the program. Therefore, it can be generalized that motivation could have changed during this time span but overall showed the increase in motivation.

De Leon et al. (2000) addressed motivation levels among substance users entering into TC in prison, motivation and status in treatment, and the relationship between motivation, treatment, and post prison outcomes. The results determined motivation scores from admission to discharge depended significantly on the discharge plan or post prison aftercare, and those that did not attend aftercare showed lower motivation scores (De Leon et al., 2000). De Leon et al. found significant correlations between motivation and participation; however, path analysis showed a similar effect of treatment on motivation in which motivation is sustained throughout treatment based on participation. These findings contradicted the results of my study. One reason could be that the continuation of treatment in aftercare could have had an effect on motivation. The TC program is voluntary, and although inmates come into prison with substance abuse scores, they do not necessarily attend or complete the program. De Leon et al. hypothesized that intrinsic motivation and non-recovery related reasons had an effect on why inmates volunteered for treatment, resulting in an effect on motivation.

Other findings in previous work have shown negative or no changes in motivation, which differs from the finding in my study. Hiller et al. (2009) sought to elaborate on the relationship of findings related to motivation, problem severity, and age. Hiller et al. found when comparing the treatment group and general population group that both reported low levels of motivation. Using a correlational analysis, findings were similar between motivation and problem severity across both groups, and similar patterns of coefficients were found during the correlational analysis of motivation, sociodemographic items and problem severity (Hiller et al., 2009). The difference between Hiller et al.'s research and mine is that they sampled a larger population (*N*=661). The difference in research findings may be related to Hiller et al.'s more accurate sample size.

The gap in the research that I addressed was the effects of the TC program on motivation as measured by archived admission and discharge data. Overall, the findings showed that, when compared to the minimal research related to motivation changes across a timespan, the study has addressed the gap and provided openings for future research.

Limitations

Limitations in a study are essential to review as they can diminish the validity of the research being conducted and impact the results and conclusions (Frankfort-Nachmias & Nachmias, 2008). It was determined that there were major limitations of my study which were as follows; experimental design specifically the population sampled, and use of archived data. The type of experimental design used was quasi-experimental with a

correlational descriptive component. A quasi-experimental design has its limitations and disadvantages. In general, variables are less controlled (Frankfort-Nachmias & Nachmias, 2008). Specifically, pre-existing factors or other internal or external influences are taken less into consideration which affects variables in the study (Frankfort-Nachmias & Nachmias, 2008). Finally, not using random selection could also result in an effect on the statistical analysis due to the lack of randomization.

The sample in this design was not randomly selected as only inmates in the TC program were used in my study. The sample that was used consisted of archived MOT scores, specifically of the 2,289 unique cases in the set; only 168 cases met inclusion criteria. When a sample is not randomly selected, researchers cannot eliminate systematic bias from the selection procedure or estimate parameters of the data, that the findings obtained are representative of the overall population (Frankfort-Nachmias & Nachmias, 2008). Out of the five prisons, three prisons did not have any usable data for the study, which limited my ability to generalize the findings to the population within my conclusions.

Another limitation is the use of archival data in the current study. Specifically, using archival data or secondary data means that researchers are not obtaining the information directly, therefore, it cannot be assured that the results are entirely accurate which limits my study. Using secondary or archived data presents the researcher with concerns including the inability to establish authenticity (Frankfort-Nachmias & Nachmias, 2008). Authentic research refers to research that is genuine and represents an actual data set and not a reproduction or copy (Frankfort-Nachmias & Nachmias, 2008).

For the current study, a total of 2,098 cases could not be used due to there not being both admission and discharge data available. Although it is understood that all inmates are administered MOT questionnaires at every phase of treatment, I could not guarantee that questionnaires are fully completed or returned to the program by the inmate.

Since the data is not collected directly by the researcher, establishing authenticity is not possible, as the researcher could not guarantee that MOT assessment is credible. In this case, the study could not guarantee that the MOT scores were completed by the inmate reported, it can only be inferred. Ideally, MOT questionnaires are self-administered or completed in an interview style by staff upon entrance, after phase change in treatment, and when discharged from the TC program. The MOT forms are then scanned into the contracted substance use treatment provider database.

I took reasonable measures to address limitations to the best of my ability by taking the time to discuss with the contracted substance use treatment provider their collection protocol for the MOT assessments, as well as reviewed the archived data thoroughly, removing any incomplete assessments. All inmates enrolled in the TC program, and that have completed the MOT scale then submits the form to the TC staff. Once submitted, the MOT is scanned by the TC administrative assistant and scored into the database for the contracted substance use treatment provider main office in Chicago, Illinois. From there, scores were compiled and the data was provided to me.

The data that was provided was an encrypted email from the contracted substance use treatment provider, with a zip drive attachment of workbooks for the five prisons. In order to compile the data, I searched in the workbook for matching sets of numbers and

when these were identified, a second spreadsheet was developed with compiled sums of the cases. I determined that in addition to the 2,289 cases unable to be used as previously discussed, an additional 23 data sets were omitted from the study. By using these techniques, I was able to minimize limitations and concerns for the study which lead to recommendations for further research.

Recommendations

Recommendations for future research would be for the researcher to obtain a larger sample size, including a more comprehensive set of data cases. Of the 2,289 unique cases in the set, only 168 cases met inclusion criteria and of the five prisons examined, only three had usable data, which does not fully provide an accurate depiction of the population as discussed previously in the limitations section. The more the mean sample deviates from population mean, the greater the chance of the variability obtained from the findings of each sample, which heightens the risk for making a larger error in estimating the parameter (Frankfort-Nachmias & Nachmias, 2008). This indicates that since the sample size obtained is a very small subset of the population, there can be an overall lack of consistency with how the data points diverge from the average, which then allows for more risk when generalizing the findings for the whole population. In order to increase generalizability, it is recommended that the next researchers select samples by using a method that assures representativeness (Frankfort-Nachmias & Nachmias, 2008) as in my study, due to the use of a quasi-experimental design, this was not achievable. The prerequisite of any sample in research is that it be as representative as feasible to the population (Frankfort-Nachmias & Nachmias, 2008). Therefore, the sample size obtained

is not representative of the population and when conducting future research, obtaining a larger sample should be considered.

It is also recommended for future research that a design other than quasi-experimental be used so that the cases surveyed are randomly assigned. In this case, a true experimental design would be ideal. The sampling strategy was non-probability, purposive; however, the disadvantage is that the data may not be a representative sample and leaves the research sample open to biases (Frankfort-Nachmias & Nachmias, 2008). In order to reduce biases, it would be recommended that the sample is also voluntary. The benefit of using voluntary scores is it provides a more comprehensive perspective of motivation, complete with assessing for underlying reasons for motivation. Being motivated is not enough for change, as the client needs to have a self-determined motivation for positive outcomes to occur (Klag, Creed, & O'Callaghan, 2010). The focus of the study was motivation changes, however ideally it would be recommended for the next researcher to delve more into reasons for motivation to find a more definitive relationship between treatment and motivation in order to sustain long-term changes. This would be beneficial for tailoring of treatment processes in future research outcomes. Voluntary participation and self-disclosure allows for a more detailed analysis and provides a different perspective than my study provides, specifically related to the foundation for motivation when relating it to treatment. The advantage of taking this direction is that this can then lend itself to other avenues of research, specifically related to social change which will later be discussed.

It is recommended that demographic information be obtained, as demographic information determines whether the sample is an accurate depiction of the population (Frankfort-Nachmias & Nachmias, 2008) and can show additional patterns of motivation for treatment. At the time of compiling and completing the analysis, it was my intention to collect and analyze demographic information; however, demographic information could not be provided. Demographic information is the composition of the population and can provide some direction for future research, as it would be important for researchers to understand what aspects of race, ethnicity, and age play a part in motivation changes to identify patterns and focus future research on these areas.

The final area that should be explored for future research and can build on my study is investigating the relationship between motivation for treatment as a predictor of recidivism. Minimal research has been conducted related to the effects of motivation to abstain from use, and recidivism (Gideon, 2010). In fact, research is divided in that some studies have found TC failed to reduce repeat incarcerations despite research findings that generally show that prison TCs display the strongest and most consistent reduction in drug use and recidivism (Welsh et al., 2014). This can relate to social change as when inmates are released from prison with minimal to no treatment, they are likely to continue to use or engage in criminal behaviors, resulting in rearrests when compared to other non-drug using felons (Galassi, Mpofu, & Athanasou, 2015).

Implications for Social Change

Social change is defined as changes in human interactions and relationships that transform social and cultural institutions (Dunfey, 2017). My study contributed to the gap

in research, as there is minimal research investigating a specialized population like prisoners and the effects of in-prison based treatment on motivation across a timespan. By evaluating motivational changes from pre and post treatment, it has provided evidence that motivation does change and in fact increases upon discharge, which supports the benefits of treatment in prison. The motivation changes provide prison administration and lawmakers the awareness of the impact of treatment in prison. The findings also support the idea of substance abuse treatment being a cost effective form of intervention and a more suitable avenue to explore then continuous reincarceration (O'Callaghan et al., 2004). With continued research related to in-prison treatment, specifically TC programs, this would allow the focus to be more on rehabilitation within the prison setting, which can lend to lower incarceration rates leading to positive social change.

Stages of Change Theory

The theoretical framework for the current study was the stages of change theory (Manchaiah, Ronnberg, Andersson, & Lunner, 2015). The current applications of the stages of change theory is adapted from James Prochaska and Carlo DiClemente's original transtheoretical model from the 1970s (Prochaska, DiClemente, & Norcross, 1997) and have been applied to a multitude of areas including addiction and recovery. There are five stages that determine change within a person including precontemplation, contemplation, preparation, action, and maintenance (Manchaiah et al., 2015).

The goal of the study was to identify if motivation changes from admission to discharge in the TC program. The analysis showed overall MOT scores increased throughout the treatment episode. The model assisted with interpreting the results of my

study, as motivation increased to discharge coincides with movement through the stages of change model. However, this does not necessarily mean that each inmate went through the five stages fully. What this does tell us is that overall, it can be assumed that inmates moved from precontemplation to contemplation or further in the theory. The stages of change model works on the idea that behavior changes are made based on delivering knowledge that leads to attitude shifts that results in behavior change (Whitelaw, Baldwin, Bunton, & Flynn, 2000). These results are interpreted that since inmates moved through stages, that this is a reflection of behavioral changes. These changes could not have otherwise happened without the guidance and therapy provided by the TC's treatment provided, which lends itself to the social change of my study. Although the motivation for change reasons can range for different inmates, overall, what the stages of change theory correlated with treatment identified is that treatment efficiency in the prison setting is effective.

Conclusion

The sentencing and use of mandated treatment policies throughout the country have heightened the number of inmates incarcerated for drug related offenses. One variable related to TCs that has had minimal research conducted, which is why my research was important, was motivation for change across a timespan in the inmate population was minimally examined. The gap in the research that my study addressed was the effects of the TC program on motivation as measured by archived admission and discharge data. The study determined, based on the paired sample *t* test that was completed, that there was a significant difference between levels of motivation from

admission to discharge in the TC program. Specifically, that motivation increased from admission to discharge. The results solidify the need for continued research related to motivation and in-prison treatment models. By continuing to evaluate motivation, as well as expanding on the relationship between motivation and recidivism, this would allow for continued development of the knowledge base for motivation and tailored treatment approaches.

References

Gateway Foundation. (2017). Annual report. Retrieved from https://gatewaycorrections.org/about/annual-reports/

Burdon, W. M., Farabee, D., Prendergast, M. L, Messina, N. P., & Cartier, J. (2002). Prison-based therapeutic community substance abuse programs-Implementation and operational issues. *Federal Probation, 66*(3), 3-8.

Bureau of Justice Statistics (2008, October). Drug and crime facts. Retrieved from http://www.bjs.gov/content/dcf/dt.cfm#prison

Campbell, D. T., & Stanley, J. C. (1963). *Experimental and quasi-experimental designs for research.* Boston, MA: Houghton Mifflin.

Creswell, J. W. (2008). *Educational research. Planning, conducting, and evaluating quantitative and qualitative research* (3rd ed.). Upper Saddle River, NJ: Pearson Prentice Hall.

Czuchry, M., Dansereau, D. F. (2003). Cognitive skills training: Impact on drug abuse counseling and readiness for treatment. *The American Journal of Drug and Alcohol Abuse, 29*(1), 1-18. doi:10.1081/ADA-120018837

Czuchry, M., Dansereau, D. F. (2000). Drug abuse treatment in criminal justice settings: Enhancing community engagement and helpfulness. *The American Journal of Drug and Alcohol Abuse, 26*(4), 537-552. doi:10.1081/ADA-100101894

Darke, S., Campbell, G., & Popple, G. (2012). Retention, early dropout and treatment completion among therapeutic community admissions. *Drug and Alcohol Review, 31*(1), 64-71. doi:10.1111/j.1465-3362.2011.00298.x

Da Silva Cardoso, E., Chan, F., Berven, N. L., & Thomas, K. R. (2003). Measuring readiness to change among individuals in Residential Therapeutic Community Programs for treatment of substance abuse. *Rehabilitation Counseling Bulletin, 47*(1), 34-45.

De Leon, G. (2010). Therapeutic communities: Is the therapeutic communities evidenced-based treatment? *International Journal of Therapeutic Communities, 31*(2), 104-128.

De Leon, G. (1993). What psychologists can learn from addiction treatment research. *Psychology of Addictive Behaviors, 7*(2), 103-109. http://dx.doi.org.ezp.waldenulibrary.org/10.1037/0893-164X.7.2.103

De Leon, G., Melnick, G., Thomas, G., Kressel, D., & Wexler, H. K. (2000). Motivation for treatment in a prison-based therapeutic community. *The American Journal of Drug and Alcohol Abuse, 26*(1), 33-46. doi:10.1081/ADA-100100589

De Leon, G., Melnick, G., Kressel, D. (1997). Motivation and readiness for therapeutic community treatment among cocaine and other drug abusers. *The American Journal of Drug and Alcohol Abuse, 23*(2), 169-189.

De Leon, G., Melnick, G., Kressel, D., & Jainchill, N. (1994). Circumstances, motivation, readiness, and suitability (the CMRS scales): Predicting retention in therapeutic community treatment. *The American Journal of Drug and Alcohol Abuse, 20*(4), 495-515. http://dx.doi.org.ezp.waldenulibrary.org/10.3109/00952999409109186

De Leon, G., & Jainchill, N. (1986). Circumstances, motivation, readiness and suitability as correlates of treatment tenure. *Journal of Psychoactive Drugs, 18*(3), 203-208.

Dunfey, T. D. (2017). What is social change and why should we care. Retrieved from https://www.snhu.edu/about-us/newsroom/2017/11/what-is-social-change

Faul, F., Erdfelder, E., Lang, A.G., & Buchner, A. (2007). G*Power 3: A flexible statistical power analysis program for the social, behavioral, and biomedical sciences. *Behavior Research Methods, 39,* 175-191.

Frankfort-Nachmias, C. & Nachmias, D. (2008). *Research methods in the social sciences* (7th ed.). New York, NY: Worth Publishers.

Galassi, A., Mpofu, E., & Athanasou, J. (2015). Therapeutic community treatment of an inmate population with substance use disorders: Post-release trends in re-arrest, re-incarceration, and drug misuse relapse. *International Journal of Environmental Research and Public Health, 12,* 7059-7072. doi:10.3390/ijerph120607059

Gideon, L. (2010). Drug offenders' perceptions of motivation: The role of motivation in rehabilitation and reintegration. *International Journal of Offender Therapy and Comparative Criminology, 54*(4), 597-610. doi:10.1177/0306624X09333377

Goethals, I., Vanderplasschen, W., Vandevelde, S., Broekaert, E. (2012). Fixed and dynamic predictors of treatment process in therapeutic communities for substance abusers in Belgium. *Substance Abuse Treatment, Prevention & Policy, 7*, 1-12. doi:10.1186/1747-597X-7-43

Gossop, M., Stewart, D., & Marsden, J. (2006). Readiness for change and drug use outcomes after treatment. *Addiction, 102*, 301-308. doi:10.1111/j.1360-0443.2006.01681.x

Hartmann, D. J., Wolk, J. L., Johnston, J. S., & Colyer, C. J. (1997). Recidivism and substance abuse outcomes in a prison-based therapeutic community. *Federal Probation, 61*(4), 18-25.

Hendry, M. C. (2013). *Hostile attribution bias as a dynamic risk factor in civil psychiatric patients and criminal offenders: Change over time and relationship to violence and recidivism* (Doctoral Dissertation). Retrieved from http://www.google.com/url?sa=t&rct=j&q=&esrc=s&source=web&cd=2&ved=0ahUKEwixz9jirsHLAhUJeT4KHUAFC94QFgglMAE&url=http%3A%2F%2Fsummit.sfu.ca%2Fsystem%2Ffiles%2Firitems1%2F13531%2Fetd7890_MHendry.pdf&usg=AFQjCNFC1WPGSorqkzjYVCgTPRtrF58jRQ&bvm=bv.116636494,d.cWw

Hiller, M. L., Narevic, E., Webster, J. M., Rosen, P., Staton, M., Leukefeld, C., Garrity, T. F., & Kayo, R. (2009). Problem severity and motivation for treatment in incarcerated substance abusers. *Substance Use & Misuse, 44*(1), 28-41. doi:10.1080/10826080802523301

Hiller, M. L., Knight, & K Simpson, D. D. (1999). Prison-based substance abuse treatment, residential aftercare and recidivism. *Addiction, 94*(6), 833-842. doi:10.1046/j.1360-0443.1999.9468337

IBM Corp. Released (2012). IBM SPSS Statistics for Windows, Version 21.0. Armonk, NY: IBM Corp.

Institute of Behavioral Research. (2007). *TCU treatment needs and motivation (TCU MOTForm)*. Fort Worth: Texas Christian University, Institute of Behavioral

Research. Available at ibr.tcu.edu. Retrieved from http://ibr.tcu.edu/forms/client-evaluation-of-self-and-treatment-cest/

Kennard, D. (2004). The therapeutic community as an adaptable treatment modality across different settings. *Psychiatric Quarterly, 75*(3), 295-307. doi:10.1023/B:PSAQ.0000031798.95075.26

Kennedy, K., & Gregoire, T. K. (2009). Theories of motivation in addiction treatment: Testing the relationship of the transtheoretical model of change and self-determination theory. *Journal of Social Work Practice in the Addiction, 9,*163-184. doi:10.1080/15332560902852052

Kerr, D. (2008). The therapeutic community, a self-help community proven effective for many different populations including co-occurring and prison inmates. Retrieved from http://blog.nj.com/njv_david_kerr/2008/07/the_therapeutic_community_a_se.html

Klag, S. M., Creed, P., & O'Callaghan, F. (2010). Early motivation, well-being, and treatment engagement of chronic substance users undergoing treatment in a therapeutic community setting. *Substance Use & Misuse, 45*(7-8), 1112-1130. doi:10.3109/10826080903499562

Knight, D. K., Becan, J. E., Landrum, B., Joe, G. W., & Flynn, P. M. (2014). Screening and assessment tools for measuring adolescent client needs and functioning in substance abuse treatment. *Substance Use Misuse, 49*(7), 902-918. doi:10.3109/10826084.2014.891617

Knight, K., Holcom, M., & Simpson, D. D. (1994). TCU psychosocial functioning and motivation scales: Manual on psychometric properties. Texas christian university. Retrieved from http://ibr.tcu.edu/wp-content/uploads/2013/10/kk6-srf-95.pdf

Lavrakas, P. J, (2008). Encyclopedia of survey research methods. Retrieved from http://methods.sagepub.com/reference/encyclopedia-of-survey-research-methods/n448.xml

Leukefeld, C. G., Gullotta, T. P., & Gregrich, J. (2011). *Handbook of evidence-based substance abuse treatment in criminal justice settings* (1st ed.). Springer, NY.

Manchaiah, V., Ronnberg, J., Andersson, G., & Lunner, T. (2015). Stages of change profiles among adult experiencing hearing difficulties who have not taken any action: A Cross-sectional study. *PLoS ONE, 10*(6), 1-15.

Melnick, G., De Leon, G., Thomas, G., Kressel, D., & Wexler, H. K. (2001). Treatment process in prison therapeutic communities: Motivation, participation, and outcome. *The American Journal of Drug and Alcohol Abuse, 27*(4), 633-650. doi:10.1081/ADA-100107660

Melnick, G., De Leon, G., Hawke, J., Jainchill, N., & Kressel, D. (1997). Motivation and readiness for therapeutic community treatment among adolescents and adult substance abusers. *The American Journal of Drug and Alcohol Abuse, 23*(4), 485-506.

Messina, N., Burdon, W., Hagoplan, G., & Prendergast, M. (2006). Predictors of prison-based treatment outcomes: A comparison of men and women participants. *The*

American Journal of Drug and Alcohol Abuse, 32, 7-28. doi:10.1080/00952990500328463

Mitchell, O., Wilson, D. B., & MacKenzie, D. L. (2007). Does incarceration-based drug treatment reduce recidivism? A meta-analytic synthesis of the research. *Journal of Experimental Criminology, 3*(4), 353-375. doi:10.1007/s11292-007-9040-2

Morgen, K., & Kressel, D. (2010). Motivation change in therapeutic community residential treatment. *Journal of Addictions & Offender Counseling, 30*(2), 73-83.

New Jersey Department of Corrections (2016). Division of Operations. Retrieved from http://www.state.nj.us/corrections/pages/about_us/org_struct/Division_of_Ops.html

O'Callaghan, F., Sonderegger, N., & Klag, S. (2004). Drug and crime cycle: Evaluation traditional methods versus diversion strategies for drug-related offences. *Australian Psychologist, 39*(3), 188-200. doi:10.1080/00050060412331295081

Office for Human Research Protections (1993). Institutional review board guidebook: Chapter VI, Special classes of subjects. Retrieved from http://www.hhs.gov/ohrp/archive/irb/irb_chapter6.htm#gt

Office of Policy and Planning. (2015, January 2). Offender characteristics reports. Retrieved from http://www.state.nj.us/corrections/pdf/offender_statistics/2015/Entire%20Offender%20Characteristics%202015.pdf

Ohrt, T. L. (2014). ICTR Clinical research manual: A guide to conducting clinical research within UW health. Retrieved from https://ictr.wisc.edu/wp-content/uploads/sites/163/2016/09/ClinicalResearchManual_12-17-2014.pdf

Pankow, J., Simpson, D. D., Joe, G. W., Rowan-Szal, G. A., Knight, K., & Meason, P. (2012). Examining concurrent validity and predictive utility for the addiction severity index and texas christian university (TCU) short forms. *Journal of Offender Rehabilitation, 51,* 78-95. doi:10.1080/10509674.2012.633021

Prendergast, M., Greenwell, L., Farabee, D., Haser, Y. (2009). Influence of perceived coercion and motivation on treatment completion and re-arrest among substance-abusing offenders. *Journal of Behavioral Health Services & Research, 36*(2), 159-176. doi:10.1007/s11414-008-9117-3

Prendergast, M. L., Hall E. A., Wexler, H. K. (2003). Multiple measures of outcome in assessing a prison-based drug treatment program. *Journal of Offender Rehabilitation, 37*(3-4), 65-94. doi:10.1300/J076v37n03_04

Prendergast, M., Farabee, D., & Cartier, J. (2001). The impact of in-prison therapeutic community program on prison management. *Journal of Offender Rehabilitation, 32*(3), 63-78. doi:10.1300/J076v32n03_05

Prochaska, J. O., DiClemente, C. C., & Norcross, J. C. (1997). In search of how people change: Applications to addictive behaviors. *American Psychologist, 47*(9), 1102-1114.

Rosen, P. J., Hiller, M. L., Webster, J.M., Staton, M., & Leukefeld, C. (2004). Treatment motivation and therapeutic engagement in prison-based substance use treatment.

Journal of Psychoactive Drugs, 36(3), 387-396. http://dx.doi.org.ezp.waldenulibrary.org/10.1080/02791072.2004.10400038

Sacks, S., Sacks, J. Y., McKendrick, K., Banks, S., & Stommel, J. (2004). Modified TC for MICA offenders: Crime outcomes. *Behavioral Sciences and the Law, 22*, 477-501. doi: 10.1002/bsl.599

Sharma, M., & Smith, L. (2011). Self-determination theory and potential applications to alcohol and drug abuse behaviors. *Journal of Alcohol and Drug Education, 55*(2), 3-7.

Simpson, D. D., Joe, G.W., Knight, K., Rowan-Szal, G. A., & Gray, J.S. (2012). Texas christian university (TCU) short forms for assessing client needs and functioning in addiction treatment. *Journal of Offender Rehabilitation, 51*(1-2), 34-56. doi:10.1080/10509674.2012.633024

Soberay, A. D., Grimsley, P., Faragher, J. M., Barbash, M., & Berger, B. (2014). Stage of change, clinical presentation, retention, and treatment outcomes in treatment-seeking outpatient problem gambling clients. *Psychology of Addictive Behaviors, 28*(2), 414-419. doi:10.1037/a0035455

State of New Jersey Department of Corrections (2015). Office of transitional services. Retrieved from https://www.state.nj.us/corrections/pdf/offender_statistics/2013_Release_Recidivism_Report.pdf

Stohr, M. K., Hemmens, C., Kjaer, K., Gornik, M., Dayley, J., Noon, C., & Baune, D. (2002). Inmate perceptions of residential substance abuse treatment programming. *Journal of Offender Rehabilitation, 34*(4), 1-32. doi: 10.1300/J076v34n04_01

Substance Abuse and Mental Health Services Administration (1999). Treatment improvement protocol (TIP). *Center for Substance Abuse Treatment, 35*, Retrieved from http://www.ncbi.nlm.nih.gov/books/NBK64972/.

TCU Institute of Behavioral Research (2016). Treatment motivation scales. Retrieved from http://ibr.tcu.edu/forms/treatment-motivation-scales/

Treatment Improvement Protocol (TIP) Series, No. 32. Center for Substance Abuse Treatment. Rockville (MD): Substance Abuse and Mental Health Services Administration (US); 1999. Retrieved from http://www.ncbi.nlm.nih.gov/books/NBK64342/

Vera Institute of Justice (2012, January). The price of prisons New Jersey: What incarceration costs taxpayers? Retrieved from http://www.vera.org/files/price-of-prisons-new-jersey-fact-sheet.pdf

Welsh, W. N., Zajac, G., & Bucklen, K. B. (2014). For whom does prison-based drug treatment work? Results from a randomized experiment. *Journal of Experimental Criminology, 10*(2), 151-177. doi:10.1007/s11292-013-9194-z

Wexler, H. K., & Prendergast, M. L. (2010). Therapeutic communities. *International Journal of Therapeutic Communities, 31*(2), 157-175.

Whitelaw, S., Baldwin, S., Bunton, R., & Flynn, D. (2000). The status of evidence and outcomes in Stages of Change research. *Health Education Research, 15*(6), 707-718. doi:10.1093/her/15.6.707

Witte, R.S., & Witte, J. S. (2007). *Statistics.* Hoboken, NJ: John Wiley & Sons, Inc.