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The Effects of Motivational Interviewing with the Dual Diagnosis Population

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This is to certify that the doctoral dissertation by

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Abstract

The Effects of Motivational Interviewing in Intensive Outpatient Programs

by

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MA, John Carroll University, 2000

BA, Notre Dame College, 1997

Dissertation Submitted in Partial Fulfillment

of the Requirements for the Degree of

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Abstract

Dual diagnosis clients continue to have low treatment completion rates. The purpose of the current study was to understand if motivational interviewing helped to increase completion rates for clients receiving cognitive behavioral therapy (CBT). Studying the problem was necessary for identifying an evidenced-based model for mental health counselors to help clients with dual diagnoses complete CBT treatment. There were no studies available for understanding the effectiveness of motivational interviewing as a tool for improving treatment completion rates for dual diagnoses clients in intensive outpatient programs. The research question examined if motivational interviewing was effective for improving treatment completion rates for the dual diagnosis population. A quantitative methodology with a quasi-experimental design used for this study and included a paired samples *t* test, a chi-square test, and a logistic regression analysis. The results showed a statistically significant association between receiving the motivational interviewing techniques and completing CBT. Clients who received motivational interviewing were 4 times more likely to complete CBT treatment compared to clients who did not receive the technique. Clients with increased self-efficacy levels were 2 times more likely to complete treatment, thus addressing the problem of dual diagnosis clients having low treatment completion rates. The overall results demonstrated that clients reduced substance use relapse and recidivism improved. Completing treatment helped to reduce crimes related to drug use; it also prepared substance users for return to society as productive citizens, which promoted positive social change.

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Chapter 1: Introduction to the Study

Drug overdose is among the leading causes of death in the United States (Winstanley et al., 2012). Over 50% of individuals who abuse drugs hold a comorbid mental health disorder known as dual diagnoses (DD) (Diaz, Horton, & Weiner, 2012). The combination of substance use disorder and mental health disorder exacerbates the effects of both diagnoses, causing difficulties for professionals to treat and maintain DD clients in treatment (Westra, Aviram, & Doell, 2011). According to Substance Abuse and Mental Health Administration (SAMHSA) (2011), the cost to treat dual diagnoses population is over $100 billion yearly. Practitioners treating the DD population look for ways to engage and maintain DD clients in treatment.

The purpose of this study is to increase understanding if the use of motivational interviewing (MI) is beneficial as an intervention for improving dual diagnoses (DD) client's treatment completion rates in intensive outpatient programs (IOP). Conducting the study is promising for identifying an evidenced based practice (EBP) for practitioners to utilize along with cognitive behavioral therapy (CBT). According to Aviram and Westra (2011), CBT is a leading treatment method used with the substance abusing population. Completing CBT treatment at higher rates benefit positive social change by decreasing DD clients relapse rates, which in turn, decreases early mortality. Furthermore, when DD clients remain abstinent they experience improved levels of functioning in mental health as well as improvement in gaining employment. Additionally, clients have less legal involvement, a decrease in medical complications related to drug abuse, and overall improvement in quality of life. Chapter 1 includes the problem for the current study, including identifying the gap in the literature and the purpose statement. Chapter 1 also includes the research methodology for the study along with research questions and the theoretical orientation. The chapter includes a presentation of key

terms and definitions of importance to provide clarification of the meaning of terms for the study. Assumptions about MI and its effect on the DD population are included, along with the scope, delimitations, and limitations of the study. Finally, the chapter concludes with a discussion on the scope, and significance of the study, along with a summary and transition to Chapter 2.

Background of the Problem

Treating substance abuse in the United States cost an estimated $148 billion over 12 months (SAMHSA, 2011). Over 30 million adults in the United States use illegal substances and have a substance use disorder (Diaz et al., 2012). Getting substance abusers into treatment remained a challenge for counselors and for those who engaged treatment, and the rates of treatment completion remained a concern (Guerrero et al., 2013). The treatment of substance abuse in the United States involved various therapies such as CBT and other treatment modalities such as rational emotive behavioral therapy and dialectical behavioral therapy (Cooper, 2012).

Researchers argued the need for other interventions that boosted treatment completion rates among drug users who also held a mental health disorder diagnoses (Westra, Aviram, & Doell, 2011). According to Brown (2009), only 1 in 10 Americans with a substance use disorder received treatment. The effects of persons with substance use disorder not in treatment affected families, communities, and the overall quality of life of the substance user.

Anglin, Nosyk, Jaffe, Urada, and Evans (2013) argued that legal ramifications and associated costs constitute the largest social impact of continued substance abuse. Thomas, Bacon, Randall, Brady, and See (2011) reported that non-treatment seeking addicts reported higher levels of stress, and increased substance consumption over longer periods. The increase

in consumption led to a rise in medical complications, which influenced the medical costs associated with treating ongoing addictions.

Gryczynski et al. (2012) reported the benefits of retaining substance-abusing clients in treatment caused marked levels of reduction in drug use and a decrease in ongoing criminal involvement. Davis and Ancis (2012) argued that retaining substance-abusing clients in treatment was most effective for increasing positive outcomes such as treatment completion. Additionally, the researchers reported that treatment completion correlated with a reduction in substance use, criminal activity, exacerbation of other mental health disorders, and a decrease in HIV infection rates.

According to Davis and Ancis (2012), treatment completion yielded positive results for employment, improved family stability, postnatal births, and mental health disorders. Conducting the current study provided benefits to mental health practitioners by examining the effects of MI to increase the completion rates for DD clients who engage in CBT programming.

Problem Statement

Researchers showed that illicit drug use was at a record high reporting that between the years of 2010 and 2012, approximately 15.2 million females, and 19.8 million males used illicit drugs in the United States (Diaz et al., 2012). Researchers reported that individuals who actively experienced addiction had an increased likelihood of depression and suicide attempts (Diaz et al., 2012). Cognitive behavioral therapy is effective as a treatment for substance abuse but the completion rates of treatment were low (Aviram & Westra, 2011). Motivational interviewing showed benefits as a clinical tool when conditioning clients to engage and complete CBT. Additionally, MI showed benefits for patients who engaged programs for smoking cessation, diabetes, and addictions in residential levels of care (Patterson, Buckingham & Wolf, 2010).

There were an abundance of articles on the utilization of CBT with the substance abusing population (Aviram & Westra, 2011); however, very few studies showed the benefits of utilizing MI as an ongoing treatment to increase treatment completion rates. The lack of research in this area presented a problem for understanding influences that led to increasing a client's treatment completion rates. A gap in the literature existed because there was a lack of research on the effectiveness of MI as an ongoing treatment to CBT when treating individuals with diagnoses of drug abuse, and mental disorders in IOP's. Closing the gap provides advantages for assisting mental health practitioners who lacked the tools necessary to help increase the completion rates for clients who engaged in CBT programming.

Purpose Statement

Utilized in the current study was a quantitative methodology, along with a quasi-experimental design to understand if MI was effective for improving (DD) client's treatment completion rates in (IOP). The independent variables were MI and behavioral self-efficacy and the dependent variable was CBT completion rates. The purpose of the study was to understand if (MI) was useful for providing clients with stimuli toward completing (CBT) treatment.

A goal of conducting the study was to help DD clients increase self-efficacy and commitment towards achieving recovery. The results of the study provided evidence-based tools for practitioners treating DD clients. The population for the study included adults living in the Cleveland, Ohio area holding dual diagnoses including a substance use disorder and a mental health disorder. Utilizing the quasi-experimental design determined if there was a significant difference in CBT treatment completion rates for clients who received MI, compared to clients who only received CBT treatment (McKay, 2009). The sample included records of secondary data from an outpatient treatment center in Northeast, Ohio.

Research Questions and Hypotheses

An aspiration for conducting the study was to understand any relationships between MI and self-efficacy on completing CBT treatment rates for DD clients. The following research questions and hypotheses provided utility for the exploration of the relationships in the current study.

RQ1. Is there a significant difference in the rate of successful completion of treatment between clients who receive MI and CBT and clients who receive CBT alone?

$H0_1$: There is no significant difference in the rate of successful completion of treatment between all groups based on group and treatment assignment.

Ha_1: There is a significant difference in the rate of successful completion of treatment between all groups based on group and treatment assignment.

RQ2. Is there a significant difference in behavioral self-efficacy to complete treatment for the experimental group after receiving MI with CBT treatment compared to before receiving treatment?

H_{02}: There is no significant difference in behavioral self-efficacy to complete treatment for the experimental group after receiving MI with CBT treatment compared to before receiving treatment.

Ha_2: There is a significant difference in behavioral self-efficacy to complete treatment for the experimental group after receiving MI with CBT treatment compared to before receiving treatment.

RQ3. What factors predict membership for completion of CBT?

$H0_3$: There are no factors that predict membership for completion of CBT and all beta values are equal to zero.

Ha_3: There are factors that predict membership for completion of CBT and not all beta values are equal to zero.

Theoretical Framework

In this study, I utilized the self-efficacy theory by Bandura (1977) as the theoretical foundation. Bandura developed the self-efficacy theory and argued that measuring self-efficacy was beneficial for understanding client's motivation to complete substance abuse treatment. Bandura found that increasing knowledge, mastering coping mechanisms, and overcoming resistance to change were predictors of behavioral change.

According to Romer, Peters, Strasser, and Langleben (2013) despite health warnings about the harmful effects of nicotine use, the desire to stop using did not decrease for many addicts. Stein, Zane, and Grell (2012) reported that the DD clients had difficulties in achieving abstinence because of low self-efficacy levels. The researchers found that DD clients continued to use substances even when there were psychological desires to discontinue. Physiologically, clients struggled with the ability to control drug use. Stein et al. demonstrated that understanding the client's self-efficacy level helped professionals understand how to increase behavioral change efficacy.

Utilizing MI to increase client's self-efficacy to remain in CBT treatment was the goal of the current study. Researchers argued that utilizing MI booster sessions was a prerequisite to starting CBT treatment; however, clients often failed to complete the CBT treatment (O'Connor & Stewart, 2010). Researchers argued the short-term benefits of using MI before beginning CBT treatment (Aviram, Alice, & Westra, 2011), but there were no available studies determining the long-term benefits of using MI during the entire CBT treatment process for DD clients. Understanding the effects of utilizing MI as a co-treatment determined that MI is beneficial for

increasing client's self-efficacy for remaining in CBT treatment, and for increasing CBT treatment completion rates.

According to Alleyne (2012), education and mastering intervention skills such as CBT increases self-efficacy. Increasing self-efficacy when practicing CBT skills motivated substance-abusing clients and helped to avoid relapse because of psychological cues and thereby, making progress toward a healthier lifestyle. Because many clients do not increase the necessary level of self-efficacy to complete treatment, utilizing the MI intervention was beneficial for accomplishing self-efficacy aspirations (Kuerbis, Armeli, Muench & Morgenstern, 2013).

Greenfield, Venner, Kelly, Slaymaker, and Bryan (2012) found that as clients gain new knowledge there is an increase in acquiring additional understanding about being addicted and the process of behavioral change. The findings of the study revealed that clients' self-efficacy levels improved after receiving residential treatment for substance use and depression. Similarly, Burditt et al. (2009) argued that there is a direct correlation between relapse rates and a client's perceived ability to practice new behaviors when changing behaviors becomes challenging. In the current study, measuring the participant's self-efficacy levels was useful when determining treatment interventions for improving treatment completion rates.

Nature of the Study

I conducted the current study utilizing the quantitative methodology with a quasi-experimental design that was effective for testing the MI intervention (Wise, 2010). The post positivist's worldview was the basis for the current study. Post positivism stipulates that there are many different answers to a single phenomenon and provided some of the answers to the current phenomenon, which is failure to complete CBT treatment (Alleyne, 2012).

Conducting a quantitative methodology study involved utilizing closed ended questionnaires and collecting data numerically (Wise, 2010). Other purposes for utilizing the quantitative methodology included testing the effects of self-efficacy when undergoing CBT treatment for DD clients. Additionally, the methodology provided benefits when responding to research questions and hypotheses by utilizing statistical models, after creating study variables (Greenfield et al., 2012).

Qualitative methodology was not beneficial for conducting the current study, because the methodology was better suited for strategies of inquires such as grounded theory, case studies, and phenomenology. Utilizing the qualitative methodology involves using open-ended questionnaires and is better suited when the focus is on concepts rather than theories (Raijmakers, 2013). Additionally, the methodology provides for the subjective interjection of the researcher, who is able to introduce personal values when analyzing data (Raijmakers, 2013). The mixed methodology was also not beneficial for the current study because of the qualitative aspect of the method. For the stated reasons, utilizing the quantitative methodology provided benefits for conducting the current study.

The quasi-experimental design was beneficial for the current study to understand the effects of MI on completing CBT for clients receiving CBT treatment. The quasi-experimental design allowed for the utilization of statistical models when measuring change between pre and post self-efficacy scores for participants in the experimental group. There were three groups identified for the study, those in the experimental group who received MI and where I observed the self-efficacy measure for the group. In addition, the second experimental group experienced MI with no self-efficacy observation measures. The control was the third group with no MI or self-efficacy measures.

The quasi-experimental design allowed for comparing completion rates of participants in the experimental groups to the completion rates of those in the control group to determine the effectiveness of MI for increasing CBT treatment completion. Additionally, the design did not involve any random assignment to an experimental group for participants receiving the MI treatment intervention. Further, random assignment did not take place with participants in the control group because of the nature of secondary data collection.

Although the true-experimental design includes many of the same elements of a quasi-experimental design, there is no random selection of the secondary participants for control or experimental groups (Jaffee, Strait & Odgers, 2012). The correlational design was not appropriate for the current study. According to Wise (2010), the correlational design provides benefit when testing relationships among variables, but the nature of the correlational design does not involve utilizing experimental and control groups as required for the current study.

Definitions of Key Terms

Behavioral self-efficacy: A theory that determined people's confidence in the perceived ability to complete an assigned task (Alleyne, 2012). For the current study, behavioral self-efficacy was the perceived ability for DD clients to follow through and complete treatment goals. A person with high behavioral self-efficacy continued with CBT until reaching the treatment goals. Additionally, a person with low behavioral self-efficacy often discontinued CBT treatment prior to meeting the treatment goals when progress was not immediately noticeable (Luszczynska, Benight, & Cieslak, 2009).

Client: For the current study, the definition of client included individuals who received treatment for substance use disorder. Additionally, clients were drug-addicted patients receiving outpatient level of care, as opposed to patients receiving inpatient care. A title change from

patient to client occurs often after discharging people from an inpatient level of care to outpatient treatment (McLaughlin, 2009).

Dual diagnoses (*DD*): Clients with DD were individuals meeting the clinical criteria for a substance use disorder and simultaneously met the criteria for another mental health diagnoses (Straus, 2010). According to Padwa et al. (2009), there were many possible combinations of DD, due to the multiple mental health disorders such as alcohol use disorder and anxiety disorder. Błachut, Badura-Brzoza, Jarzab, Gorczyca, and Hese (2013) utilized comorbid disorder to describe DD and argued that people with two or more diseases occurring simultaneously but independently of each other had a dual diagnoses. An example of a comorbid disorder is diabetes and depression. For the current study, the DD definition was limited to the arguments Padwa et al. provided.

Intensive outpatient program (IOP): Is a program for substance abuse treatment that allowed clients to attend treatment and return home after each treatment session. The program generally involved group therapy, individual sessions, and family programming. The average IOP program met three to four times a week and last three hours at a time on average (Rosik, 2011).

Mental health disorder: Is "a syndrome characterized by clinically significant disturbance in an individual's cognition, emotion regulation, or behavior that reflects a dysfunction in the psychological, biological, or developmental processes underlying mental functioning" (APA, 2013, p.20). According to First and Wakefield (2013) professionals using any of the above criteria to diagnoses a client with a mental health disorder, should ensure that clinically significant disturbance is at high levels. For the current study, mental health disorder is impairment in cognition, emotions, and or behavioral functioning of an individual (APA, 2013).

Motivational interviewing (*MI*): Is a theoretical approach that counselors use to build rapport and relationships with clients, focused on advancing behavioral change (Miller & Rollnick, 2013). According to Miller and Rollnick (2013), MI is a person-centered counseling style that focused on counselor alignment with therapeutic interventions to help client's increase motivation toward making change. MI has shown to be an effective treatment tool for many medical conditions, and mental disorders including anxiety, and diabetes (Aviram & Westra, 2011).

Substance use disorder: Continued use of a substance despite the dangers of continued use on the client's health and overall level of functioning (Frone, 2013). According to the new APA (2013) guidelines, rather than separating abuse and dependence, the term for both conditions is substance use disorder. Additional descriptions of substance use disorder includes an increased or decreased substance tolerance, cravings, physical or psychological symptoms of withdrawal, continued use in dangerous situations, increased problems in maintaining relationships as a direct result of substance use (Dawson, Goldstein, & Grant 2013).

Treatment completion: Is when clients achieve agreed upon treatment goals (Gryczynski et al. 2012). For the current study, treatment completion occurs once the client meets the CBT treatment goals based on the treatment plan (Guerrero et al., 2013). According to Guerrero et al., (2013) treatment completion is an indication that clients have shown a commitment to the change process that they are seeking.

Assumptions, Limitations, and Delimitations

Assumptions

The first assumption was that participants in the current study expressed the true nature of behavior and attitudes about CBT when responding to research questions. In addition, I assumed

that participants responding to the survey held a DD that included a mental health disorder and a substance use disorder, had experienced the substance use phenomenon, and that MI had an effect on self-efficacy levels to complete CBT treatment. To mitigate for the assumptions of the current study, I included a sample size that was large enough to understand the true nature of the study.

Limitations

Timeliness of receiving the secondary data records was a limitation of the study. Completing the study during the research period required the ability to receive all secondary data records in a timely manner. Failure to receive the required records was a limitation to completing the study. To mitigate for the timeliness of receiving data limitation, asking for written commitment from the facility program director became necessary. Further, a lack of representativeness was a limitation that affected the outcome of the study. To ensure that the sample represented all groups and levels of the phenomenon, I provided the program director with a list of 350 random record numbers between 1 and 5700 for inclusion in the study. Another limitation was access to an adequate sample size of secondary. To ensure there was an adequate sample size available, I required confirmation from the agency program director that a sufficient sample size of each group was available. Finally, accuracy of the data was a limitation of the study. The facility program director transferred data from patient records to a database for analysis in the study. A likelihood of data transcription errors during the transcription process was a limitation of the study. To mitigate for the likelihood of errors and representative of the sample, choosing a large enough sample size became necessary for observing the true phenomenon of the study.

Delimitations

The current study included secondary data for DD clients from an outpatient treatment facility. The observations for the current study were clients who held a mental health disorder and a substance use disorder. Participants were at least 18 years of age or older, and were not currently incarcerated. In addition, observations included people with a mental health disorder that was under control. Finally, observations for the study came from one outpatient clinic in the Northeast, Ohio region of the United States.

Scope

When I conducted the current study, I did not include observations of participants with single diagnoses such as either mental health diagnoses or substance use disorder. Additionally, when I conducted the current study, I did not include observations of participants who were incarcerated, pregnant, or who were minors. Finally, the observations excluded participants who were not under current treatment for any mental health diagnoses.

Significance of the Study

The results of the current study contributed to closing the gap in the literature and provided an understanding of the treatment method that is effective for increasing completion rates, thereby reducing the relapse rates for DD clients (Berman et al., 2010). Conducting the current study contributed to understanding if MI was effective for improving client's self-efficacy to complete CBT treatment. Providing treatment for the DD population interrupted the addiction process from progressing (Patterson, Buckingham, & Wolf, 2010).

Completing CBT treatment at higher rates benefited positive social change by increasing the control of substance use disorders. Additionally, when DD clients increased the amount of control over substance use disorder, clients experience improved relationships with friends and

family. Clients increased quality of life by experiencing a decrease in legal involvement and the ability to maintain employment.

Conducting the present study benefited meeting the needs of the DD population. Mental health professionals lack the necessary clinical tools needed to treat clients with a DD. The lack of tools and EBT contributed to the high rates of treatment non-completion in the DD population (Straus, 2010). Due to managed care constraints, separate providers treat each disorder for clients with DD. Mental health professionals treated the mental health diagnoses and a substance abuse professional treated the substance users. The disjointed attempt at treatment was a barrier in itself for clients attempting to address the DD. The ability to have a treatment approach that met the client's needs for both disorders simultaneously became evident (Tsai, Salyers, Rollins, McKasson & Litmer, 2009). Conducting the present study closed the gap in the literature and provided a tool for professional to use when treating clients with a DD.

Summary

In Chapter 1, I discussed the background of the study. The background section contained arguments on the history and the development of substance use disorder among people holding a mental health disorder. Additionally, in the section were arguments on the history of high attrition rates when treating DD clients utilizing CBT. In the problem statement section were arguments about the need for new knowledge and tools for increasing cognitive behavioral therapy treatment completion rates among dual diagnoses clients. Researchers such as Diaz et al. (2010) supported the need for the current study by delineating the effects of drug addiction in the United States. Arguments in the section exposed the current gap in the literature and discussions centered on the benefits of expanding the current body of knowledge.

Following were the research questions and hypotheses considered in the study. The theoretical framework centered on Bandura's (1977) self-efficacy theory and arguments for utilizing the theory centered on the benefits of increasing self-efficacy for improving cognitive behavioral therapy completion rates for dual diagnoses clients. Following the theoretical framework section were arguments on the benefits of utilizing the quantitative methodology with a quasi-experimental design. The arguments included the need to use three groups that were two experimental groups and one control group. Discussions of the assumptions, limitations, and delimitation for conducting the study included mitigation strategies to reduce the potential effects of these areas on completing the study. Finally, the significance of the study section included arguments on the potential benefits for making positive social change utilizing the results of the study. In Chapter 2 are arguments based on a thorough literature review of current literature on the utilization of motivational interviewing, cognitive behavioral therapy, the dual diagnoses population, and self-efficacy. Chapter 2 is next.

Chapter 2: Review of the Literature

Introduction

Motivational interviewing is effective for treating many disorders and for improving clients' self-efficacy toward sobriety (Aviram, Alice, & Westra, 2011). A research gap existed on the effectiveness of MI as an ongoing treatment with cognitive behavioral therapy when treating individuals with dual diagnoses in intensive outpatient programs (IOP). The gap in the literature presented a problem for mental health practitioners who lacked the tools necessary to help increase the completion rates for clients who engaged in cognitive behavioral therapy programming. The purpose of the current study was to determine if MI was effective for improving dual diagnoses client's treatment completion rates in Intensive Outpatient Programs. Cognitive behavioral therapy has shown effectiveness in treating many disorders including anxiety and depression, but according to Aviram and Westra (2011) in the treatment of substance abusing client's recidivism rates, and lack of treatment completion rates remained high.

According to Westra, Aviram, Connors, Kertes, and Ahmed (2012), cognitive behavioral therapy interventions were associated with high levels of client resistance. Westra et al. research results showed that treatment resistance is associated with high dropout rates. Burke (2011) suggested combining the cognitive techniques of cognitive behavioral therapy with client-centered rapport building of motivational interviewing, as an effective treatment model for increasing clients' motivation towards completing treatment. Flynn (2011) reported there are few studies that have used motivational interviewing and cognitive behavioral therapy for treating co-morbid disorders. There was a need for further research to understand the effectiveness of combing motivational interviewing and CBT as a treatment option when treating

DD clients. A combination of treatment promised effectiveness for increasing treatment completion rates among the DD group (Flynn, 2011).

Section Overview

In Chapter 2, I presented an exhaustive review of the literature that addressed the DD population, related to major mental health disorders, and commonly abused drugs. Included in the chapter I utilized self-efficacy as the theoretical foundation grounding the current study. Further, I provided a discussion on the effectiveness of the self-efficacy theory, assessing any relationship to the trans-theoretical model when utilizing MI and CBT to treat DD clients.

Literature Search Strategy

I utilized databases that included Psych Articles, ProQuest, ProQuest Dissertations, and Theses, and EBSCO Host that includes over 30 databases such as Academic Search Premier, and others. Google Scholar and Science Direct databases were particularly helpful for finding studies published within the last five years that were peer reviewed and scholarly. Additionally, I also included a literature search of the government information from the Substance Abuse and Mental Health Administration (SAMHSA).

In the current study search, results dated back 5 years and included peer-reviewed journal articles and books. Similar studies were explored when there was limited data available, consisting of articles and theories from like studies. Some key search terms and Boolean phrases utilized for finding suitable studies included *dual diagnoses, drug dependence, severe mental illness, suicidal ideation mood disorders, and substance-related disorders.* Key search terms utilized for drugs of choice studies include *addiction, alcohol, cocaine, and heroin.* Other key search terms for interventions included *motivational interviewing, motivational enhancement, treatment, stages of change, behavior change, harm reduction, self-efficacy, cognitive behavioral*

therapy, and Intensive Outpatient Programs. The following is a discussion of the theoretical foundation of the current study.

Theoretical Foundation

The theoretical foundation for the current study is Bandura's (1977) self-efficacy theory. Bandura utilized the theory to understand people's perceived ability to accomplish goals and make changes in life. Researchers utilized the theory in many areas of behavioral science to assess outcomes after treatment intervention. For instance, Greenfield et al. (2012) utilized the theory to understand how the Alcohol Anonymous 12-step intervention helped to increase abstinence self-efficacy (ASE) for clients with major depressive disorder (MDD).

The intervention was successful for increasing ASE during treatment. In addition, Stein, Zane, and Grella (2012) utilized the ASE when treating clients trying to quit tobacco use for DD clients. The results indicated that ASE increased when clients remained longer in treatment and the researchers suggested that a longer intervention period was beneficial to DD clients for improving overall outcomes.

Research results showed that there was an association between increasing self-efficacy and accomplishing goals such as behavioral change treatment for DD clients (Stein, Zane, & Grella, 2012). The results further show that by increasing self-efficacy, clients were more likely to remain in treatment until completion. The following is a discussion on the use and benefit of increasing behavioral change self-efficacy for DD clients during drug use cessation. The theory from the works of Bandura (1977) established in many studies underscore the benefits of self-efficacy as a suitable theoretical framework for the current study.

Bandura's (1977) self-efficacy theory provides an understanding of the effectiveness of motivational interviewing (MI) on dual diagnoses clients in intensive outpatient settings (Miller

& Rollnick, 2013). Bandura, Adams, and Beyer (1977) utilized the self-efficacy theory to argue that measuring self-efficacy is beneficial to understand efficacious behavioral changes in clients. Bandura et al. found that mastering the ability to change is necessary and determined that a person's efficacy level is a personal predictor of behavioral change.

Greenfield et al. (2012) found that self-efficacy is beneficial for improving the client's major depressive disorder (MDD) and alcohol abuse. Treatment interventions included 12-Step meetings, CBT, and motivational techniques. Greenfield et al. (2012) indicated that the treatment was beneficial for increasing self-efficacy to reduce alcohol use behaviors. The aforementioned statement supported Bandura's claim that interventions are beneficial for improving self-efficacy to reduce substance use, to improve overall mood.

Self-efficacy encompasses a person's belief about the ability to make behavioral changes, required for successful goal attainment (Greenfield et al., 2012). Behavioral efficacy includes assessing the way people think, behave, and feel about changing a behavior. For example, Greenfield et al. (2012) argued that a client with high levels of behavioral self-efficacy held a high level of confidence in the ability to complete treatment goals and objectives. The results indicated that clients with high levels of self-efficacy have high levels of belief in the ability to stop the use of addictive substances. The effects of high efficacy was demonstrated in a study by Luszczynska et al. (2009) who found that substance abusing clients with high levels of behavioral self-efficacy held a stronger commitment to the plan of change. Additionally, clients recovered from relapse quicker and remained committed to the change process.

In contrast, Luszczynska et al. (2009) found that clients with low levels of behavioral self-efficacy usually displayed low confidence in abilities toward treatment goals and objectives. The results indicated that a client's ability reduced when trying to make necessary behavioral

changes about ending drug addictions (Luszczynska et al., 2009). Stein et al. (2012) demonstrated the idea in a study and found that clients with low levels of behavioral self-efficacy who used tobacco did not attempt behavioral change strategies and often avoided changes.

When clients have low levels of self-efficacy, there is continued drug use behavior, but when exposed to self-efficacy enhancing programs, clients remain in drug cessation treatment (Elfeddali et al., 2012). The researchers further argued that exposing clients to psychological treatments such as MI is beneficial for increasing client's confidence to remain in treatment. The study results revealed that clients who completely stop using drugs experienced high levels of self-efficacy to remain in treatment during the research period. Clients using drugs intermittently experienced significantly low levels of self-efficacy to remain in treatment.

The results indicated that self-efficacy significantly increase through complete abstinence and not by gradual cessation of drug use. In contrast, Mason, Deane, Kelly, and Crowe (2009) found that clients with low levels of self-efficacy during drug use treatment experienced increased depression and stress. The results indicate that increasing self-efficacy benefits increasing behavioral change. For instance, Mason et al. found that introducing spirituality to drug addicted clients as a coping strategy increased self-efficacy. Increased spirituality helped to reduce cravings and behavior relapse. The study indicates that using interventions provides better controls over situational confidence for DD clients because of increased self-efficacy.

According to Arslan (2012), self-efficacy is a developmental process and described four methods for increasing self-efficacy that includes psychological/physiological cues, mastery skills, social modeling behaviors, and social/verbal persuasion. Psychological cues are powerful and are a continued desire for using substances or also referred to as a craving. Physiological cues include sweating, stomachaches, and anxiety, which are the physical symptoms people

experience during treatment (Arslan, 2012). The research results indicated that psychological/physiological cues are the first symptoms clients experience during treatment.

Berndt et al. (2013) found that high levels of self-efficacy are a predictor of a client's ability to control physiological cues such as cravings to engage in drug use behaviors. Without a high level of self-efficacy, the client's internal mood and physical reactions to a situation influences relapse potential. Berndt et al. argued that clients with a low level of self-efficacy relapse when experiencing physiological cues. Arslan (2012) argued that increasing mastery skills is beneficial for increasing behavioral self-efficacy, which occurs after a person experiences the necessary training that allows clients to meet a goal or task. Arslan further argued that attaining mastery skills occurs by practicing relapse prevention skills and is the greatest contributor to a substance-abusing client's confidence to obtaining sobriety. Caprara, Di Giunta, Pastorelli, and Eisenberg (2013) demonstrated the effects of mastery skills. The researchers found that clients with poor success rates at managing negative emotions improved after repeating attempts to manage their emotions in stressful situations such as experiencing psychological/physiological cues.

According to Elfeddali, Bolman, Candel, Wiers, and De Vries (2012), social modeling is another self-efficacy skill that occurs when people observe others in the process of meeting recovery goals. Observing people overcoming challenges helped clients develop a sense of possibility of success at recovery. The results of the Elfeddali et al. study indicated that observing peers achieving sobriety creates a vicarious experience that influences increased behavioral self-efficacy to change.

Elfeddali et al. (2012) demonstrated the effects of social modeling and found that social modeling increased self-efficacy to make positive changes when responding to

psychological/physiological cues. The efficacy to quit smoking increased when clients observed others conquering smoking cessation. Elfeddali et al. suggested that observation of others alone is not a reliable way to develop self-efficacy. The results indicated that clients achieve greater levels of self-efficacy when using mastery and social modeling skills together to increase behavioral self-efficacy.

Social persuasion is another technique that increases self-efficacy when responding to psychological/physiological cues and occurs when clients become motivated through positive statements and affirmations (Arslan, 2012). For example, Arslan (2012) argued that social persuasion occurs when a counselor tells a client that achieving treatment goals are possible, thus bolstering a client's own self-efficacy to accomplish behavioral change when experiencing to psychological/physiological cues.

The social persuasion strategy increases a client's confidence that achieving specific tasks such as denying a craving or taking medications or responding to psychological/physiological cues. Bandura (1977) suggested that social persuasion is effective for increasing behavioral self-efficacy and becomes more effective when combined with mastery skills and social modeling.

Summary of Theoretical Framework

A model of the theoretical framework found in Figure 1 illustrates the relationship between MI and behavioral self-efficacy, on the completion rates of clients receiving CBT for substance abuse treatment. The model demonstrates that assessment of dual diagnoses clients on the stages of change model is the first step in treatment. Further, the model shows that implementing MI while receiving CBT treatment promised to be beneficial for increasing behavioral self-efficacy, leading to high levels of treatment completion. Furthermore, the model

illustrates that dual diagnoses client's receiving CBT treatment without the benefit of MI, experienced low levels of behavioral self-efficacy, leading to low levels of treatment completion rates.

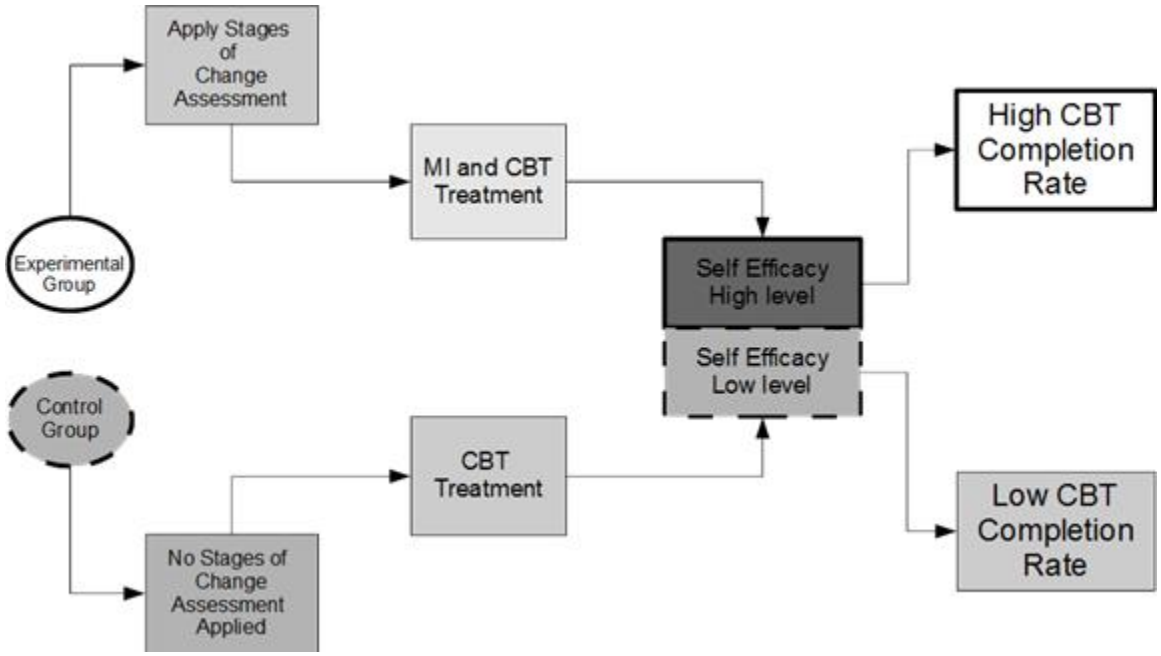

Figure 1. A model for factors leading to behavioral change self-efficacy that affect treatment completion rates. Adapted from Miller and Rollnick (2013).

Dual Diagnoses Population

People with a DD historically experienced poor treatment outcomes. According to Błachut, Badura-Brzoza, Jarzab, Gorczyca, and Hese (2013), the DD population included individuals with co-occurring disorders, such as simultaneously holding a substance use disorder and a mental health disorder diagnoses. Lynne, O'Donoghue, Clancy, and O'Gara (2011) indicated that there is an interrelation between suicide attempts, depression, and alcohol addiction. The arguments indicated that the combination of substances such as alcohol addiction and mood disorder is a high risk factor for completed suicides.

Cridland, Deane, Hsu, and Kelly (2012) argued that approximately 75% of clients who experienced substance use disorders (SUD) also have a concomitant treatable mental health diagnoses. Additionally, Cridland et al. (2012) argued that the most common dual diagnoses category included a mood disorder and alcohol use disorder. The results indicated that the treatment of mental health and substance abuse required extended inpatient treatment. Further, Benaiges, Prat, and Adan (2012) found that DD patients experienced higher incidences of inpatient treatment with longer hospital stays for multiple treatments.

Research results showed that DD clients experienced high levels of suicidal ideation when combined with substance abuse. Blachut et al. (2013) found that DD patients experienced higher levels of attempted suicide, which resulted in recurring hospital stays. When comparing clients with a DD to clients with just a substance use disorder (SUD), Cridland found that DD clients typically had higher relapse rates in comparison to SUD clients. Cridland argued that people with a DD experienced poor treatment outcomes and found that poor treatment outcomes included poor compliance with medication recommendations. Additionally, poor treatment outcomes indicated that people experienced high levels of relapse rates, often leading to high levels of legal involvement, and recidivism compared to clients with SUD only.

The population of people in the U.S. holding a DD remains high. According to a recent national report by Substance Abuse and Mental Health Administration (SAMHSA) (2011), more than 6.8 million adults held a mental illness and substance use disorder. The observations from the National Survey of Substance Abuse Treatment Services (N-SSATS) (2012) shows that 43% of all clients treated for substance abuse had a co-occurring mental health disorder. Following is a discussion of common mental health disorders for DD clients.

Mental Health Disorders

Mental disorder is “a syndrome characterized by clinically significant disturbance in an individual's cognition, emotion regulation, or behavior that reflects a dysfunction in the psychological, biological, or developmental processes underlying mental functioning” (American Psychiatric Association, 2013, p.20). First and Wakefield (2013) suggested that professionals using the criteria should ensure that clients are experiencing harm and dysfunction at a reasonably high level when diagnosing mental health disorders.

Categories of adult mental health disorders include depressive disorder, major depressive disorder, and dysthymia. Additionally, there are anxiety disorders, personality disorders, such as borderline personality and narcissistic disorder. Recent categories of disorders include trauma and stress related disorders such as Post Traumatic Stress Disorder (PTSD) (American Psychiatric Association, 2013).

In 2014, reports indicate that 70% of all adults who experienced either serious mental illness (SMI) or any mental illness (AMI), adults with the highest level of SMI and AMI are from ages 18 to 25. Additionally, 50% of adults between the ages of 26 to 34 experienced the second highest level of SMI or AMI diagnoses. The report indicates that people of all ages experienced mental health disorder and that a mental health diagnoses usually occurs early in people’s lives (SAMHSA, 2014).

The chart in Figure 2 summaries the results of the 2014 report and shows that adults that are ages 50 years old or older make up approximately 15% of all adults with SMI. Adults that are ages 18 to 25 years old make up approximately 40% of all adults with SMI. The report indicates that adults 18 to 25 year olds are diagnosed at a rate of approximately 3:1 to adults who are 50 years and older. Additionally, the report indicated that of all people with AMI, adults who

are 50 years and older made up approximately 5% of the group and 18 to 25 year olds who were approximately 30% of the group. The report shows that diagnoses among younger clients are 3:1 to older clients with AMI that is similar to the rate of diagnoses among SMI adults.

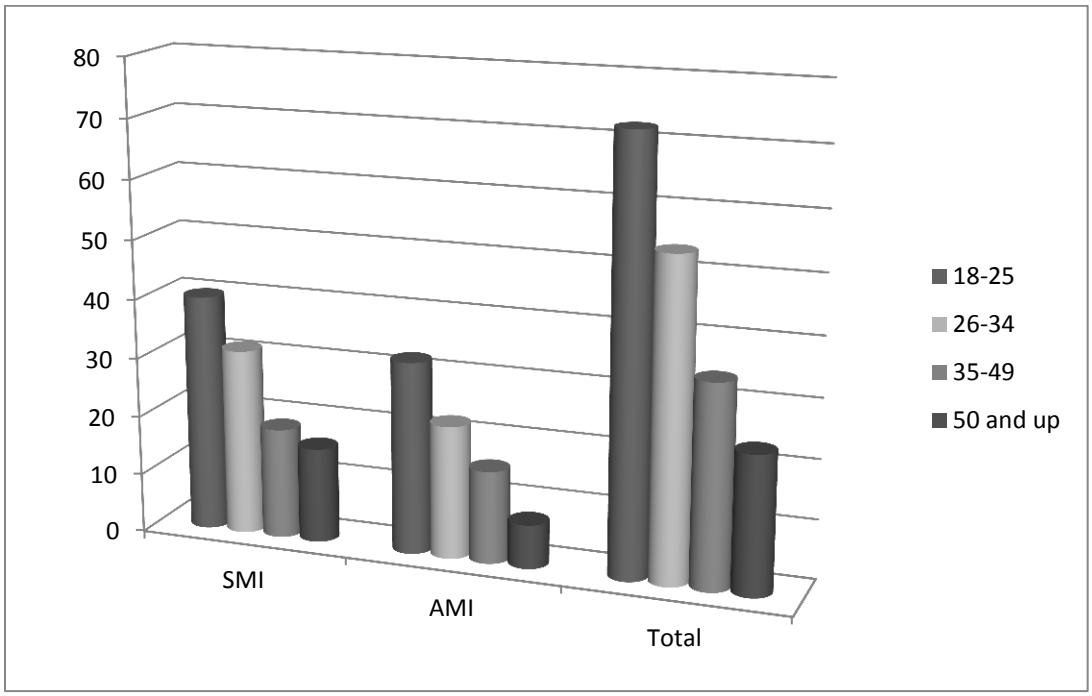

Figure 2. A model showing the effects of Mental Health Diagnoses based on Age groups. Adapted from (2014): Substance Abuse and Mental Health Administration National Findings Reported on adults who hold a SMI or AMI, (SAMHSA), (p.1).

Substance-Use Disorders

According to Dawson, Goldstein, and Grant (2013), there are 11 criteria for substance use disorder. Dawson et al. stated that the current DSM-5 uses a severity scale to determine a person's level of drug misuse, summarized in Table 1. The summary showed the severity ratings for substance-use disorder diagnoses. For instance, clients experiencing two to three of categories meet the mild severity diagnoses.

Table 1

Categories of Substance use Disorder

Criterion	Definition	Severity	Category
Consumption	Increased consumption of the substance	Mild	2 -3 categories
Discontinuation	Unsuccessful desire to discontinue using	Moderate	4 -5 categories
Preoccupation	Spending time to obtain the substance	Severe	6 or more categories
Cravings	Physical and mental desire to use		
Responsibilities	Substance use causing failure to meet responsibility		
Interpersonal	Continued substance use despite interpersonal conflict		
Recreational	Reduction in recreational activities		
Exacerbation of other conditions	Continued substance use in spite of physical or psychological conditions		
Safety	Using in hazardous situations.		
Tolerance	Increased or decreased tolerance		
Withdrawal	Physical withdrawal		

Prevalent Substances

Alcohol, marijuana, heroin, prescription painkiller, smoked cocaine, and methamphetamine abuse were the most popular substances that people received treatment for on a national level (SAMHSA, 2011). The rate of substance abuse among clients with mental health issues were at an all-time high and affected successful treatment of mental health disorders. Clients who used alcohol and other drugs experienced an increased sensitivity to drugs and often were unable to complete mental health treatment because of the increased effects of drug use (Ecker et al., 2012). The results indicated that treatment programs must address both

substance use disorder and mental health disorder when working with clients holding dual diagnoses. Following are discussions on various commonly used substances among clients with a mental health disorder.

Alcohol Abuse

The rate of excessive alcohol abuse in the U.S. remains at an all-time high, leading to complications among clients with mental health disorders (Cooper, 2012). According to the National Institute on Abuse and Alcoholism (NIAA) (2012), alcohol is the most frequently abused substance among the group and classified as a depressant. Brady and Li (2013) argued that alcohol abuse is the leading substance causing fatalities in the U.S. The combination of alcohol use disorder and major depression is the leading root of suicide among the DD population (Cooper, 2012).

Researchers such as Zakhari (2013) found that alcohol abuse affects major body organs including, the pancreas, liver, kidneys, and heart, and is the leading cause of many terminal medical conditions. Dual diagnoses clients who meet criteria for alcohol misuse disorder are at risk of brain damage. Van Eijket al. (2013) reported that many alcoholics exhibited brain damage that affected the thinking capacity, memory, and spatial processes. Damage occurred in the prefrontal cortex, also known as the executive functioning in the brain. For many alcoholics, addiction patterns began during the teen years. The addictive drinking pattern among teenagers is a direct correlation with alcohol addiction and other complications. Complications include violent episodic behaviors, risky sexual behaviors, driving under the influence of alcohol, and using other illegal substances (Komro, Tobler, Maldonado-Molina, & Perry, 2010). The results indicate that left untreated, alcohol use disorder among clients with mental health disorder leads

to negative outcomes in the DD population. Following is a discussion on the effects of marijuana abuses among clients with a mental health disorder.

Marijuana Abuse

Researchers found that the effects of marijuana abuse have destructive outcomes for many people and the use of marijuana starts recreationally at a young age. Many people do not understand the negative effects of marijuana on the body and particularly the brain. Negative effects include sensory deterioration, response delays, hallucinations, depression, anxiety, and long-term memory loss (Albertella & Norberg, 2012). According to Agrawal, Budney, and Lynskey (2012), marijuana is the most commonly abused illicit drug in the U.S. The National Institute of Drug Abuse (NIDA) (2013) classified the dehydrated sativa plant because the plant forms recreational marijuana, and is a hallucinogen.

The drug contains mind-altering chemicals such as the main ingredient delta-9-tetrahydrocannabinol (THC), discussed in later arguments (NIDA, 2013). In 1970, the U.S. government classified marijuana as a Schedule 1 drug, meaning that the drug has no medical purpose and is at high risk for abuse (NIDA, 2013). Legalized marijuana is not the same as recreational marijuana, because drug makers extract marinol, utilized as legalized marijuana. In recent times, some states such as Alaska, California, Colorado, and Washington, legalized marinol for medical purposes, is the extract of the THC and the main ingredient in marijuana (Lynne-Landsman, Livingston, & Wagenaar, 2013).

According to Walker et al. (2011), utilizing marijuana commonly occurs by smoking, by ingesting in teas, and in food. When smoked, the THC in the plant absorbs quicker in the blood stream compared to marijuana ingested or consumed in teas or food. When the THC enters the brain, the effects are different in people. For example, Agrawal, Budney, and Lynskey (2012)

found that the substance relates to feeling of euphoria for some while others feel a sense of tranquility. Marijuana use affects the cannabinoid brain receptors that relates to the ability to make decisions and solve problems. Using marijuana causes the THC to attach to the fatty cells in the body; therefore, resulting in a lingering presence in the body. As a result, when clients who use marijuana undergo a drug screening by urine test, the substance may show in the urine for weeks to months after initial use (NIDA, 2013).

In a 2013 study, Arterberry reported that marijuana affects the psychomotor skills of users such as driving ability that is similar to driving drunk. In a study by Owusu-Bempah (2014), the findings of impairment of drivers while under the influence of marijuana, reported a significant number of the participants with poor concentration and paranoia. Additionally, using marijuana increased heart rate, heart attacks, and exacerbated mental illness, such as psychosis (Dragt et al., 2012).

According to Owusu-Bempah (2014), marijuana users generally suspected that there is no harm when using marijuana. Researchers reported that marijuana use is harmful and may escalate from an experimental use to dependence use over time. The effects of those who are dependent on marijuana included cross addiction to other drugs, a motivational syndrome, and medical conditions including lung disease (Agrawal, Budney, & Lynskey, 2012).

Cocaine Abuse

In Moller's 2012 study, the research argued that cocaine is a stimulant frequently used by DD clients and the source of cocaine is from the coca plant. Using cocaine stimulates the central nervous system, which affects the neurotransmitter dopamine in the brain. Dopamine is a neurotransmitter associated in the pleasure center known as the limbic system. The release of

dopamine in the brain causes a normal response for people such as experiencing a pleasurable event analogous to a sexual orgasm (Moller, 2012).

Once brain stimulation completes, the dopamine hormone reverts to the brain cells, and reduces the pleasurable feelings. When cocaine enters the body, the process magnifies and causes the dopamine release to continue until the brain depletes all dopamine reserves (Beveridge, Smith, Nader, & Porrino, 2009). Blaylock et al. (2011) reported that over time, long terms cocaine users lose the ability to produce dopamine in the brain and experience feelings of depression because of the lack of dopamine.

According to Kiluk, Babuscio, Nich, and Carroll (2013), cocaine is available in many different forms including inhaled powder form, or in an injection. Another form of cocaine is knows as crack cocaine or the freebase process, used to form cocaine into a rock for smoking. Kiluk et al. (2013) reported powder cocaine injected or smoked offers the most rapid effect; however, the effect does not last very long.

According to Senbanjo, Wolff, Marshall, and Strang (2009) snorting cocaine takes approximately 15 to 30 minutes to feel the effects of the drug, but the euphoric effects last from 5 to 10 minutes in most cases Further stating that substance abusing clients reported increasing the use of cocaine when trying to lengthen the effects. The practice leads to tolerance, and possible dependence on the substance. According to Senbanjo, et al., the effects of cocaine included short-lived euphoria, increased energy, increased heart rate, increase blood pressure, and depression. Another consequence of using cocaine is the quick effect results in cravings for the substance quickly after use. Methamphetamine is another commonly abused stimulant by DD clients and is the focus of the following discussion.

Methamphetamine Abuse

Methamphetamine (meth) is a stimulant also called crystal, or ice and remains the most challenging substance to treat (Gonzales et al., 2012). Meth affects users much like cocaine, and affects dopamine production in the brain. People smoke, snort, or inject meth. People who engage smoking or injecting the drug experience an immediate and intense stimulation, compared to snorting the drug (Carsons, 2012).

Researchers found that using methamphetamines produced intense but short-lived stimulation, leaving users with immediate desires for more stimulation, and forms the basis for addiction and dependency. Methamphetamines are a drug of choice because users create the drug in high quantities with low cost, resulting in addiction, and abuse (Wang et al., 2013). The side effects of using methamphetamines includes, weight loss, open sores, teeth decay, high blood pressure, and psychosis. Heroin is another commonly abused drug that is the focus of the next discussion.

Heroin Abuse

Heroin use is a national health concern and one reason some users continue using heroin is to avoid a painful withdrawal (Dürsteler-MacFarland, 2012). The destruction of families is an example of the effects when people become addicted to using illicit drugs such as heroin. For example, Rothstein, Smith, and Olivas (2013) reported that heroin addiction caused an increase in family separation where children went to child protective services, because parents were addicted to heroin use. According National Institutes of Health (NIH) (2011), heroin is an opioid produced from morphine, and is available in the form of a white or brown powder, or black sticky form known as black tar.

People administer heroin by several means and Senbanjo, Wolff, Marshall, and Strang (2009) reported snorting, smoking, or injecting the substance is among the most popular form. The routes of administration provide rapid delivery to the brain, causing high levels of lethargy that leads to addiction, and drug seeking behaviors. When heroin enters the brain, the substance reverts to morphine that connects to the opioid cells or receptors. Opioid cells then have an automatic negative effect on bodily functions such as blood pressure, heart rate, and lung function.

An NIH (2011) report indicated that of all forms of heroin administration, intravenous use is the most common. According to Bell (2012), clients using heroin in the intravenous form reported euphoric feelings. Signs of withdrawal from heroin use include feeling drowsy, sleepy, and showing flushed skin. Similar to other opioids, heroin triggers tolerance and physical addiction in users quickly. The effects include withdrawal symptoms starting with symptoms of a common cold, resulting in full body pains (Bell, 2012). According to Mowbray et al. (2011), negative health effects of using heroin includes contracting human immunodeficiency virus (HIV) and Hepatitis because clients shared hypodermic needles used to administer the drug. Another commonly abused drug is prescription medications that are the focus of the next discussion.

Prescription Drugs

Using drugs prescribed by physicians is a necessary part of any society. Some drugs have specific use categories such as pain control. Clients reported that because doctors prescribed a drug, using the drug was safe and non-addictive (Coleman, 2012). Coleman (2012) found that when clients do not take prescription drugs as prescribed, the medications lead to addiction and fatal outcomes for many people. According to NIDA (2014), the most commonly

abused prescription drugs include opioid pain relievers, such as Percocet's, Vicodin, and OxyContin.

Similar to producing heroin, many drugs originate from morphine. Other abused medications include Ritalin, and Adderall, the drugs utilized to control children's Attention Deficit Hyperactivity Disorder (ADHD). Additionally, other addictive medications include drugs prescribed to treat anxiety, such as Valium and Xanax that are abused and highly addictive for many people (Coleman, 2012). Following is a summary of the drug abuse discussions.

Summary Drugs of Abuse

According to SAMHSA (2011), nationally the common drugs of abuse are alcohol, marijuana, heroin, prescription painkiller, cocaine, and methamphetamine. According to Thylstrup and Johansen (2009), over 40% of clients with mental health disorders meet diagnostic criteria for at least one substance use disorder. Sterling, Chi, and Himan (2011) stated that either clients with dual diagnoses began abusing substances in an effort to mask a mental health disorder or that the addiction exacerbated a mental health disorders such as depression. The challenge of the argument has continued throughout the years with dual diagnoses clients, and referred to as the chicken or the egg theory (Chi & Himan, 2011). Regardless of what came first, mental health practitioners are plagued with the challenge of treating dual diagnosed clients and findings ways to encourage clients to remain in treatment. Drug abuse is the number one issue that affects society negatively (SAMHSA, 2011).

Treatment Completion

According to Tate et al. (2011), there was a significant treatment dropout rate among substance-abusing clients. Sterling, Chi, and Hinman (2011) argued that due to complications when treating clients with co-occurring disorders in the U.S., treatment outcomes remained poor.

Treatment for the DD population is increasingly problematic for practitioners and challenges remain when assisting DD clients to successfully complete treatment (Błachut, Badura-Brzoza, Jarzab, Gorczyca, & Hese, 2013).

According to Patterson and Buckingham (2010), DD clients experienced multiple barriers that affected treatment outcomes. For instance, when clients needed dual treatment for dual diagnoses, treatment facilities offered treatment for one disorder, requiring clients to visit another facility for treatment for the other diagnoses. Further, Patterson and Buckingham found that often times, clients did not follow through for treatment on a second diagnoses, which remained untreated. The lack of an integrated treatment model for both diagnoses at the same time remains a barrier for clients. According to Padwa, Cleary, Hunt, and Walter (2009), additional barriers for the DD population included limited family support.

Many DD clients participate in maladaptive behaviors; causing family members to withdraw over the years, or causing family members to experience burn out due to the DD clients multiple treatment episodes (Padwa, Cleary, Hunt, & Walter, 2009). DD clients also experienced lack of supportive sober housing and a limited employment options. Padwa et al. (2009) suggested that in order to improve treatment rates for the DD population, a combination of person-centered approaches, and cognitive therapy offered from a multi-disciplinary team in the treatment for DD clients.

Trans-Theoretical Model

The Trans-Theoretical Model (TTM) created by Prochaska and DiClemente (1977) was beneficial for understanding DD client's willingness to change drug-abusing behaviors. Researchers found that TTM is a key component for understanding the level of motivation for behavioral change before and during treatment; signifying that change is a process, rather than an

event (Norcross, Krebs, & Prochaska, 2011). Clients begin or reentered treatment at various stages or at different stages. Utilizing TTM allow practitioners to understand, which of the five stages of change a client belongs (Norcross, Krebs & Prochaska, 2011). The five stages include; pre-contemplation, contemplation, preparation, action, and maintenance/relapse. Understanding a client's motivation to change is a pre-requisite for treatment of DD clients.

Norcross, Krebs, and Prochaska (2011) argued that a client's treatment outcome expectancy related to behavioral self-efficacy about change had significant effects on internal motivation for change. Norcross et al. suggested that TTM becomes beneficial for practitioners when determining the best treatment for clients, based on the client's motivational level toward behavioral change. Additionally, Norcross et al. found that when clients show ambivalence about a desire to change, embracing the client's ambivalence toward change becomes necessary for professionals rather than a barrier.

Pre-contemplation Stage

In a 2010 study, Patterson, Wolf, and Nochaski argued that pre-contemplation is the initial stage of the TTM model. Clients in the pre-contemplation stage see no need to change or believe that changing addictive behavioral change is not necessary. Clients in the pre-contemplation stage usually indicate a low self-efficacy level about any ability or need to change (Patterson, Wolf, & Nochaski, 2010).

Part of the ambivalence about change is that clients believe that behaviors are under control and the effects of drug abuse are minimal (Miller & Rollnick, 2013). The DD client's attitude in the pre-contemplation stage indicates that clients do not enter treatment willingly and many do not see the significance of being compliant with recommendations that pertain to the mental health diagnoses. Once clients begin to accept that changing behaviors becomes

beneficial for the overall condition, the client enters the contemplation stage of change (Prochaska & DiClemente, 1977).

Contemplation Stage

When clients become aware that changing benefits the DD condition, clients entered the contemplation stage outlined by Prochaska and DiClemente (1977). In the contemplation stage, DD clients show ambivalence about the need to make change and begin to verbalize some change by talking about maladaptive behaviors (Norcross, Krebs & Prochaska, 2011). Additionally, Norcross et al. (2011) argued that clients do not fully buy into the idea that making change is necessary or is ready to begin to take the steps necessary toward change.

Clients in the contemplation stage generally exhibit low levels of behavioral self-efficacy and fear embracing change. Norcross, et al. (2011) found that some DD clients fear occurred because of failures of past attempts. In addition, a low level of self-efficacy indicates that clients are not confident about the ability to accomplish steps toward behavioral changes. When clients begin to show some motivation and intention to follow recommendations about treatment plans, clients enters the preparation stage (Norcross, et al. 2011).

Preparation Stage

Accepting that treatment is beneficial and necessary was a milestone for many clients and clients begin to engage the treatment plan on a partial level. In the preparation stage, clients began to make small steps toward behavioral change. In a study, Norcross et al. (2011) described the preparation stage as the time when DD clients began to recognize the need for treatment and begin seeking out treatment. Clients at the preparation stage gathered information about options toward change and begin exploring possibilities. Many substance-abusing clients enter treatment due to being court mandated in lieu of jail (Patterson, Wolf, & Nochaski, 2010). The preparation stage for court-mandated clients is not by choice, but because the court intervention took place (Patterson, Wolf, & Nochaski, 2010).

Action Stage

Luszczynska, Benight, and Cieslak (2009) described the action stage as verbalization of a desire to take the steps necessary for changing behaviors. The action stage begins when clients try new behaviors and follow through with recommendations made by the treatment team. In the action stage, clients with high self-efficacy attempt new behaviors and when behaviors become challenging or there is no success (i.e. relapse), clients quickly recover, and continue practicing the behaviors until successful (Miller & Rollnick, 2013).

Maintenance Stage

In the maintenance stage, dual diagnoses client sustains new behaviors such as abstinence or compliance with medication management for a period. Kuerbis, Armeli, Muench, and Morgenstern (2013) reported that self-efficacy is a predictor of a client's ability to remain abstinent from alcohol, but further research determines if self-efficacy and motivation is effective for successful treatment outcomes. Lown (2011) implied that the TTM originated from the works of Bandura's self-efficacy model. The self-efficacy model provides benefit for the current study. The results of a study by Burditt et al. (2009) showed that there is a correlation between abstinence relapse rates and the client perceived ability to practice new behaviors, when changing behaviors becomes a challenge.

In aggregate, the relationship between behavioral self-efficacy and the TTM remains important. Miller and Rollnick (2013) argued that practitioners must determine a client's position on the stages of change model before treatment. TTM then becomes useful as a tool for increasing behavioral self-efficacy toward change, helping client's progress through behavioral change when receiving CBT treatment. Furthermore, Miller and Rollnick suggested that behavioral self-efficacy increase through utilizing MI.

Motivational Interviewing (MI)

MI techniques helped clients make behavioral life changes. Many clients moved through the stages of change without MI; however, a large proportion of clients were stagnant in efficacy to change. MI then becomes beneficial for helping clients move through the stages of change (Shuman, 2012). Client-centered therapy developed from Rogers (1951) was foundational to the development of MI in 1991 by Miller.

MI was effective with many disorders including smoking cessation, health related issues such as diabetes management, anxiety, depression and eating disorders (Westra, Aviram, & Doell, 2011). The overall goal of MI is to build the internal motivation that lies within the client to assist the client with identifying change goals and meeting those goals. There are four main principles included in the MI technique that are expressing empathy, developing discrepancy, rolling with resistance, and supporting self-efficacy (Miller & Rollnick, 2013).

Expressing Empathy

Miller and Rollnick (2013) found that expressing empathy is useful for understanding the client's experience without judgment. For instance, if a client shared using drugs in the home with children, a discussion may occur about the consequence of such behaviors without directly making judgment statements about the behavior. Expressing empathy was also useful for building rapport with clients. When the practitioner accurately conveyed empathy, the expression helped the client feel understood and validated the client's stance about change.

Developing Discrepancy

The next principle of MI includes developing discrepancy. The technique utilized in Miller and Rollnick's (2013) MI strategy was useful for exploring statements that clients made that were contradictory. An example is a mental health client that conveys a desire to stop auditory hallucinations but refuse to comply with any medication suggestions. The behavior demonstrated the desire to benefit from behavioral change without actually making the change. Utilizing the discrepancy technique helped the client to understand contradictions affecting the desired outcome (Westra, & Aviram, 2013).

Rolling with Resistance

Resistance to change was a behavior that coincides with the discrepancy behavior and is another principle in the MI tool kit described by Miller and Rollnick (2013). Westra and Aviram (2013) used the principle rolling with resistance to explore ways to address client's ambivalence toward change. Miller and Rollnick suggested that rolling with resistance is not directly confronting client's resistance to change, but rather engaging the client in techniques such as weighing pros and cons.

Utilizing the pros and cons technique allows a client to explore both sides of an issue. For instance, clients must note the advantages and disadvantages of continuing a behavior along with any consequences of continuing the behavior. Additionally, clients must write out the advantages and disadvantages of discontinuing a behavior along with any benefits for discontinuation. The exercise is useful for helping clients understand the consequences of choice (Westra & Aviram, 2013).

Supporting Self-efficacy

When professionals advocate to the client a belief that the client is able to accomplish change, the action increases the clients own self-efficacy about making behavioral change. Self–efficacy is a theory created by Bandura (1977) that described a person's belief in an ability to accomplish assigned tasks or goals. Miller and Rollnick (2013) utilized the theory as part of the MI model and described the process as a tool that supports a client's action to change a behavior.

Mayfield and Mayfield (2012) argued that self-efficacy connects to a person's motivational level that is foundational for change. The technique is beneficial when clients verbalized low self-efficacy about making behavioral change. Further, Mayfield and Mayfield

found that professionals who used motivational language increased behavioral change in clients up to 34% more compared to professionals who do not use the technique.

Reflective Listening

Utilizing reflective listening skills when implementing all principles of MI were beneficial for improving communication with clients. The technique developed by Rogers (1951) and adapted by Miller and Rollnick (2013) is a technique for building rapport with clients (Miller & Rollnick, 2013). The technique included summarizing and rephrasing client's points of view to ensure that the practitioner understands what the client is conveying. Asking open-ended questions is another reflective listening skill beneficial for eliciting further clarification from the client. Passmore (2011) argued that professional coaches who use reflective listening skills properly help clients with following through the steps toward positive behavioral change.

Summary of MI

Motivational interviewing is an approach that helps clients complete behavioral change treatment as designed by Miller and Rollnick (2013). The authors created four techniques known as MI to use during the treatment of DD clients. Depending on the needs of the client, each technique utilizes independently. For instance, using the empathy technique help clients feel less judged and promote feelings of comfort that allows the client to communicate openly with the professional. Professionals use the discrepancy technique to help clients explore the logic of behavior compared to a desired outcome. Rolling with resistance techniques benefit both clients and professionals, and are a way to avoid using resistance to change as a barrier and rather allow clients to rediscover discrepancies causing the resistance. Additionally, as clients begin to struggle with abilities to change behaviors, utilizing efficacious language helps to increase client's motivation in ability to accomplish change. Finally, utilizing reflective listening

skills throughout the process is a technique that improves communication and reduces misunderstanding among the pair.

The technique allows both client and professional to agree on terms in the communication and allows the professional to understand any cues not verbally communicated. According to Westra, Aviram, and Doell (2011), the use of all of the techniques and skills helps to accomplish the overall goal of expressing unconditional positive regard toward the client. A discussion in the following section provides the benefits of the relationship between motivational interviewing and cognitive behavioral therapy.

Cognitive Behavioral Therapy (CBT)

The origin of cognitive behavioral therapy (CBT) is essentially a combination of Cognitive Therapy created by Beck (1976) and Rational Emotive Behavioral Therapy (REBT) created by Ellis (1962). The basic concepts of CBT are identifying clients' irrational thoughts, feelings, and behavior interplay. Clients struggle with relapse, completing treatment, and maintaining treatment plans when receiving treatment for DD conditions. CBT is widely used as an appropriate treatment for DD clients who experience depression, other mental health disorders, and substance abuse (Flynn, 2011). CBT counselors use relaxation techniques, journaling techniques, and role-playing techniques to help the client address feeling, thoughts, and behaviors (Thylstrup & Johansen, 2009).

Relaxation Techniques

According to Murphy, Stojek, Few, Rothbaum, and MacKillop (2014), the relaxation technique benefits clients who are experiencing physiological cues such as withdrawal from drug addictions. For example, a client experiencing drug cravings use the relaxation technique, known as centering, to refocus thoughts that lead to destructive behaviors. Practicing centering

occurs through a meditation process where clients clear thoughts by focusing on new thoughts of appropriate behaviors learned in treatment, for a given situation such as drug cravings (Cooper, 2012).

Murphy et al. further argued that when substance-abusing clients experience thoughts of engaging in drug use and begin feeling physiological symptoms, the cues lead to anxiety. Feeling anxious, the client often engage in drug using behaviors to manage and eliminate anxiety experienced because of physiological cues. CBT counselors identify the behaviors as acting on a thought. The example indicates that some clients chose to engage the behavior rather than use coping skills to overcome physiological symptoms, and thoughts, and engage in drug use (Cooper, 2012).

Journaling Techniques

Journaling techniques are beneficial for documenting negative thoughts and perceptions (Cooper, 2012). For example, a client who is bulimic express fears of being overweight, when in reality the client is underweight. Because of the negative thoughts, the client stops eating or start purging food after eating. The first step in CBT is for the counselor to assist the client who is experiencing negative fears with identifying the maladaptive beliefs.

According to Cooper (2012), the process known as behavior chain analysis is vital for clients to learn how thoughts and feelings lead to maladaptive behaviors. Additionally, Cooper argued that CBT counselors must directly confront and challenge the thoughts and feelings that lead to the maladaptive behaviors such as purging food after eating. Working through behavioral change challenges many clients when gaining insight about how to prevent such actions from taking place in the future.

Role-playing Techniques

Role-playing is acting out new behaviors to address situations that lead to relapse. According to Thylstrup and Johansen (2009), engaging in CBT is beneficial for teaching clients how to identify thoughts that lead to relapse. Further, the authors argue that engaging CBT provides benefit when teaching clients new techniques to avoid acting out and instead use coping skills to prevent relapse. Thylstrup and Johansen argued that clients who generate thoughts and feelings that support negative beliefs result in manifestation of maladaptive behaviors. For, example, alcoholics learn coping skills through role-playing to help understand how to behave in situations where alcohol is served. Some clients utilize journaling and relaxation techniques to assist efficacious thoughts and actions in difficult situations.

The studies in Chapter 2, demonstrate that utilizing CBT as an intervention is beneficial for treating DD clients. Getting clients to complete treatment is challenging as described by Błachut, Badura-Brzoza, Jarzab, Gorczyca, and Hese, (2013), thus creating the need for further techniques such as MI to help clients successfully complete treatment. As Miller and Rollnick (2013) indicated, understanding a client's desire to change behaviors is the initial step when utilizing MI and CBT as the behavioral change treatment.

Summary of CBT

Flynn (2011) reported that cognitive behavioral therapy has shown efficacy for reducing suicide and depression in many clients; however, a major criticism of the treatment is that a significant amount of substance abusing clients who receive cognitive behavioral therapy have high rates of treatment recidivism. According to Westra, Aviram, Connors, Kertes, and Ahmed (2012), theoretical orientations that engage cognitive behavioral therapy report high levels of client resistance. For instance, clients argue with therapist about completing assignments, resist

recommendations, all leading to high rates of recidivism. Further, the authors argued that outcomes suggest that high levels of resistance in clients correlate with failure to complete treatment. Burke (2011) suggested the use of motivational interviewing, as an augmentation to cognitive behavioral therapy.

Summary of TTM, MI, and CBT

Utilizing the techniques of cognitive behavioral therapy often requires a combination approach for treating DD clients (Cooper, 2012). The researchers demonstrated that utilizing cognitive behavioral therapy, as an intervention is beneficial for treating DD clients. As argued by Błachut, Badura-Brzoza, Jarzab, Gorczyca, and Hese (2013), getting clients to complete the treatment is challenging, thus creating the need for further techniques such as MI to help client's complete treatment.

As Westra and Aviram (2011) indicated, to understand a client's stage of change, using the trans-theoretical model is beneficial for understanding a client's desire to change behaviors and is the initial treatment process. Using motivational interviewing techniques helps clients to understand discrepancies and resistance when engaging in cognitive behavioral therapy. Conducting the current study is therefore beneficial for understanding how TTM, MI, and CBT benefits DD clients completing drug treatment.

Summary and Transition

The discussion in Chapter 2 centered on the current literature regarding dual diagnoses clients and treatment interventions for improving treatment outcomes. The focus of the study is to understand how motivational interviewing together with cognitive behavioral therapy may affect higher rates of treatment outcomes for dual diagnoses clients. I introduced motivational interviewing as a motivational intervention to combine with cognitive behavioral therapy, due to

high levels of treatment dropout rates associated with cognitive behavioral therapy alone and is the reason for the current study. A review of the current literature provides arguments on the main variables in the study that are the self-efficacy theory, motivational interviewing, and cognitive behavioral therapy treatment completion. The discussion started with the literature search strategy, utilized to find the latest studies on each of the current variables in the study. Both short and long-term keywords and phrases proved beneficial within major databases for locating relevant articles for each variable.

A discussion of the self-efficacy theory provides the theoretical framework for the study and discussions demonstrated that the use and effectiveness of the theory is suitable for the current study. The theory advances the knowledge in treating dual diagnoses clients and closes research gaps on the effectiveness of motivational interviewing as a motivational approach to completing cognitive behavioral therapy treatment. A research diagram in Figure 1 provides optical arguments on the role of self-efficacy and the relationship changes required for increasing treatment outcomes.

Discussing the dual diagnoses population was necessary to provide a context for the study. Studying the population is beneficial because of the high levels of social benefits associated with successful treatment outcomes among dual diagnoses clients. For instance, researchers argued that reducing dependency on drugs improve dual diagnoses client's quality of life; reduce high rates of suicide, and recidivism. Discussions about drug dependency in the population included an examination of popular drugs of choice that included marijuana, alcohol use, cocaine, methamphetamines, heroin, and others. The discussion provides the latest studies on the effects of using the drugs and lack of ability to stop the behavior without proper treatment such as cognitive behavioral therapy.

A discussion of high levels of treatment incompletion among the dual diagnoses population provided segue to the trans-theoretical model and the benefits of understanding client's stage of change category towards treatment completion. A complete discussion of each of the five stages of change provided a clear understanding of the characteristics of each stage and the expected behavior of clients while progressing towards behavioral change.

Further, a discussion of motivational interviewing as a co intervention with cognitive behavioral therapy provides an understanding of the effects of motivational interviewing in other studies. Specifically, the discussions centered on the five strategies utilized in motivational interviewing to increase motivation throughout cognitive behavioral therapy treatment for dual diagnoses clients. The strategies are expressing empathy, developing discrepancy, rolling with resistance, supporting self-efficacy, and reflective listening as discussed in the main section of the review.

Additionally, arguments on the benefits of cognitive behavioral therapy as the main treatment for dual diagnoses clients focused on the main techniques utilized during cognitive behavioral therapy treatment. The treatments discussed included relaxation techniques, journaling techniques, and role-playing techniques. Further, a discussion of using trans-theoretical model of change, motivational interviewing, and cognitive behavioral therapy as a total treatment intervention plan demonstrated the need for the study and benefitted closing the research gap in the literature. Utilizing the self-efficacy theory as the foundation for the current study continues to add to the argument that using trans-theoretical model of change, motivational interviewing, and cognitive behavioral therapy increases abstinence self-efficacy for dual diagnoses clients.

In Chapter 3, discussions centers on the analytical portion of the current study. For instance, discussions focus on research questions and hypotheses, decision for choosing the quantitative methodology and the true experimental design. Additionally, discussions focus on the sampling theory including the population, sample frame, sampling selection, and required sample size justification.

Further, the analytical strategies discussion provides justifications for utilizing statistical models that respond to research hypotheses and for answering research questions. Since the current study involves utilizing an intervention, a complete discussion the intervention treatment design and application demonstrates the nature of the treatment. Finally, discussion surrounding ethical treatment of clients during the data collection period demonstrates the high standards current for the study. In Chapter 3, include discussions on portions of the current research study such as the research quantitative methodology, experimental design, analytical plan, and so on. Additionally, there are discussions on the instrument, the intervention, and measures utilized when analyzing research questions and hypotheses. In aggregate, the chapter is beneficial for understanding the appropriate analytical approach for use in quantitative studies such as the current study.

Chapter 3: Data Analysis

Introduction

Approximately 35 million Americans engaged in illicit drug use and many illicit drug users had a mental health disorder diagnoses described as a dual diagnoses (Diaz et al., 2012). The purpose of the current study was to determine if the utilization of an intervention known as motivational interviewing was effective for improving dual diagnoses client's treatment completion rates. The quantitative methodology with a quasi-experimental design was appropriate for understanding if the MI intervention increased behavioral self-efficacy and client's motivation to remain in the cognitive behavioral therapy programing in an effort to obtain abstinence. Chapter 3 includes a discussion on the research design and justification. Further discussions centered on the research methodology, sampling procedures, data collection procedures, and the analytical strategies for the current study.

Research Design and Rationale

A quasi-experimental design was appropriate for conducting the current study. Motivational interviewing (MI) and behavioral self-efficacy are the independent variables and cognitive behavioral therapy (CBT) completion rate is the dependent variable. The quasi-experimental design was beneficial for understanding the effects of MI on increasing self-efficacy, and thereby increasing CBT completion rates for dual diagnoses DD clients (Miller & Rollnick, 2013). Additionally, the quasi-experimental design allows for comparing completion rates of participants in the experimental group to the completion rates of those in the control group.

The design was appropriate for answering research questions about the effects of MI as an intervention for increasing CBT completion rates among DD clients who receive substance

abuse treatment. Lozano et al., (2013) engaged a quasi-experiential design to study substance-abusing clients in an outpatient program. The researcher studied a control group of standard treatment and an experimental group receiving initial sessions of MI. The goal of the study was to determine if the booster sessions of MI improved substance abuse client's retention rates in outpatient treatment. The results reported a significant difference between the control and experimental group's retention rates. The results of the study indicate that the experimental design was an effective strategy for understanding the effects of MI as an intervention for increasing CBT completion rates for DD clients.

The true experimental design was not beneficial for the current study. The true-experimental design contains several of the same elements of a quasi-experimental, but for the current study, there was no random selection of the secondary participants for control or experimental groups, which is a necessary element of a true experimental design (Jaffee, Strait, & Odgers, 2012). Additionally, the correlational design was not appropriate for conducting the current study because the design does not allow the use of interventions, or groups that are experimental or controlled. The correlational design was better suited when the goal of conducting a study is to understand any relationships among study variables.

Researchers demonstrated that using MI as an intervention was effective for behavioral treatments such as smoking cessation, diabetes management, eating disorder control, and so on (Westra, Aviram, & Doell, 2011). Clients who received MI completed treatment at significantly higher rates compared to clients who did not receive the MI intervention (Young, Gutierrez, & Hagedorn, 2013). The results showed that while MI was useful for improving treatment completion rates among other populations, there remained a gap in the literature on the benefits

of utilizing MI in the DD population. For the reasons provided, utilizing MI as an intervention in an experimental design was suited for conducting the current study.

Methodology

Utilizing the quantitative methodology was suitable when engaging the quasi-experimental design to provide an explanation of the effects of the MI intervention on CBT. The quantitative methodology allowed for utilizing closed-ended screening questionnaires when collecting numerical data and testing the effects of behavioral self-efficacy of DD clients during CBT treatment (Dermen, Ciancio, & Fabiano, 2014). Additionally, utilizing the quantitative methodology allowed for testing hypotheses, utilizing statistical models, and responding to research questions (Alleyne, 2012).

Utilizing the qualitative methodology was not beneficial for conducting the current study because in qualitative studies, researchers utilize open-ended questionnaires when focusing concepts as opposed to theories such as MI (Babbie, 2010). The mixed methodology was not appropriate for the current study because of the qualitative components of the methodology, already established as inappropriate for conducting the current study.

Population, Sample, and Sampling

Population

The population studied was DD clients within the United States. DD clients encompassed individuals who have a mental health disorder such as depression, and a substance use disorder such as alcohol use disorder (Błachut, Badura-Brzoza, Jarzab, Gorczyca, & Hese, 2013). According to substance abuse and mental health association (SAMHSA) (2014); nationally, the DD population represents over 40% of clients receiving drug and alcohol

treatment. To administer the sample for the study, necessary discussions of the sample frame, sample size, and sample selection became appropriate. Choosing a sample provided a representation of the population of DD clients in the U.S. so that the results of the current study were beneficial for understanding the effects of utilizing MI as an intervention for increasing CBT completion rates.

Sample Frame

The sample frame included participants located in the Northeast, Ohio region of the U.S. attending intensive outpatient program (IOP). The selection of the sample location occurred based on several factors. The first factor is that the sample is from a local geographical area. The second factor is that the sample provides a good representation for the entire population (Carlson et al., 2010). In Ohio there are many clients experiencing a substance abuse disorder who also have a mental health disorder also known as DD clients (SAMHSA, 2014).

The expectation was that participants in the Northeast Ohio area behaved similarly to the rest of the DD population in the U.S. Studying clients in the area was beneficial for understanding the study phenomenon. Additionally, studying clients in the region allowed for making inferences about the entire U.S. population.

Sample Selection

The purpose for choosing a random sample was to observe participants when making inferences about the population (Delıce, 2010). The sample for the current study included DD clients who received IOP treatment from a treatment center located in the Northeast Ohio region of the U.S. Clients in the region are an appropriate representation of people who suffer from mental health disorders and is representative of the U.S. mental health disorder population. For instance, Forand and DeRubeis (2013) studied clients with depression in the Ohio region and

utilized the cognitive behavioral therapy (CBT) treatment method to control the effects of anxiety. In addition, Winstanley et al. (2012) studied drug abuse clients in the Ohio region to understand the effects of prescription drug epidemic in the region. The results of the two studies indicated that studying a sample from the Northeast Ohio region was beneficial for understanding the effects of MI on completing CBT for DD clients in the region.

Sampling Procedures

Utilizing the random sample is beneficial for choosing observations for the current study (Bracken et al., 2013). The sample includes observations from secondary data for the study. The sample was chosen to represent three study groups that are (1) a control group receiving CBT treatment alone, (2) an experimental group receiving MI and CBT treatment, and (3) an experimental group receiving MI, and CBT, where self-efficacy was recorded pre and post MI.

Additionally, when choosing observations for inclusion in the study, I utilized a random generator table to randomly generate $N = 280$ cases from a pool of $N = 5750$ available records. The strategy for generating records was using the RAND function in Microsoft Excel 2010 to randomly choose $N = 280$ records for all available records. The process was necessary when reducing bias and providing representation of all levels of the phenomenon (Chacón, Alvarado, & Santisteban, 2011).

Sample Size, Recruitment, and Participation

Sample Size

Researchers argued that a large enough sample size became necessary when providing a meaningful understanding of the phenomenon and to avoid a type II error. For instance, Seier and Liu (2013) argued that the probability of rejecting a false null hypothesis is a function of power and that power is a function of sample size. In a 2006 study, Martino, Carroll, Nich, and

Rounsaville randomly assigned participants to an experimental group that received limited sessions of the MI intervention with psychiatric treatment. In addition, participants assigned to the control group only received usual psychiatric treatment without MI (N = 44). The findings of the study showed no significant improvement for clients who received MI. The results suggested that the small sample size and limited MI sessions provided inaccurate results and provided insufficient power to make a decision about the null hypothesis (Martino et al., 2006).

According to Balkin and Sheperis (2011), conducting a power analysis became appropriate for the current study when determining the appropriate sample size for understanding the phenomenon. Utilizing the G*Power application became beneficial for calculating the required sample size that provided adequate power to reject a null hypothesis when the hypothesis is false. Determining sample size based on the statistical model utilized is a prerequisite of using the G*power application. For the current study, utilizing an ANOVA test with three groups, when utilizing an error probability level of .05, a medium effect size, and a minimum power level of .80, the minimum sample size required for the current study is N = 269 (Peng, Long, & Abaci, 2012).

Recruitment

The purpose of drawing a sample for the current study is to make inferences about the entire population (Chen, Luo, Liu, & Mehrotra, 2011). The targeted sample for the current study included DD clients holding mental health diagnoses and substance use disorders from a treatment facility in Ohio. The population is approximately 5750 clients treated for various mental health and substance use disorders. Approval for access to the secondary data is in Appendix B.

The process of random sampling selection was beneficial when examining the effects of MI on completing CBT treatment. Hall, Higson, Pierce, Price, and Skousen (2013) argued that randomly selecting DD clients for inclusion in the study benefits creating a representative sample rather than haphazardly choosing clients for inclusion. Additionally, the researchers argued that randomly selecting DD clients provided the assumption that the problem of not completing CBT treatment normally distributes across the population.

Participation

A goal of conducting the current study is to do no harm to clients (ACA Code of Ethics, 2014, A.4.). According to the ACA (2014), the avoiding harm and imposing values section (A.4.) requires that doing no harm is an ethical responsibility of research practitioners. I received training on the protections of human subjects and maintaining the rights and dignity of participants from the National Institutes of Health (NIH). A copy of the NIH certificate is in Appendix A.

Data Collection

The data collection process involved observing secondary data from an outpatient treatment facility in the study location. The choice of the study location occurred because the location provided access to the records of patients for conducting the current study. Approval to use the data is located in Appendix B. The agency as part of the treatment protocols recorded demographic data for all groups. There was no instrument required for data collection, because there were no live participants in the current study.

Choosing observations for the study based on pre-determined variables that included age, educational level, gender, ethnicity, MI, self-efficacy, and CBT treatment completion. I received $N = 5750$ records in an electronic Excel spreadsheet format. The data did not include any

identifying information in compliance with HIPPA, and anonymity and confidentiality requirements of participating in the study. Once data integrity checks determine the readiness of the data for analysis, all data entered into an SPSS database for analysis.

The Intervention

The intervention for the current study was the *motivational interviewing technique* (MI). Before implementing the MI intervention, participants completed the self-efficacy survey. Each survey received an identification number so that clients with the number match with the final survey results. Participants received 18 sessions of MI over a six-week period. Participants attended three sessions of CBT treatment per week and in each session; for each session, clients were to describe the current struggle with substance use.

Counselors responded to clients by expressing empathy about the client's substance use struggles. The counselor utilized reflective listening skills to understand underlying behavior and feelings a client was experiencing, but was unable to verbalize accurately. Counselors then offered discrepancies between the client's behaviors and goals without being confrontational in order to build rapport with the client. Clients were to verbalize areas of struggles and strengths and counselors provided encouragement, motivation, and peer modeling techniques to help clients increase self-efficacy to make drug use behavioral changes.

Throughout the treatment process, counselors utilized the stages of change techniques to determine a client's progress towards completing CBT treatment. Counselors were able to apply the necessary motivational techniques to help clients progress and complete CBT. Counselors worked with clients who may re-engaged in drug using behaviors. Accepting that clients may at times engage in the behaviors causes counselors to continue engaging MI techniques such as rolling with resistance (Miller & Rollnick, 2013).

In conclusion, the counselor and client developed a relapse prevention plan. The relapse prevention plan included identifying CBT skills and techniques that the client has learned throughout the six weeks of treatment. The process of developing a relapse prevention plan was for clients to have tools that assisted with continued abstinence. On week six, clients filled out another self-efficacy survey for comparison with the week one self-efficacy survey results. The results determined if there was a change in self-efficacy due to exposure to the MI intervention. Furthermore, as a result clients completing CBT treatment showed an improvement in the quality of life including gainful employment, decreased legal involvement, and overall level of functioning.

Data Analysis Plan

Analysis Software

There were several well-known applications available to analyze results of the current study such as SAS and SPSS (Voelkel, 2009). After carefully considering all available statistical applications, the SPSS application was the most suitable application for analyzing the results for the current quasi-experimental design study. Dezhi and Shuang (2014) demonstrated the benefits of utilizing the SPSS in an experimental design study by measuring and testing teaching features before and after a teaching intervention.

The results of the Dezhi and Shuang (2014) study demonstrated that the SPSS application proved beneficial for providing descriptive results. In addition, the SPSS application provides results from various statistical models such as *t*-test, analysis of variance (ANOVA) test, and regression analyses. Further, I received training on using the SPSS application. Taken together, the SPSS application was highly suitable as the application of choice for conducting statistical test when making decisions on hypotheses in the current study.

Data Cleaning and Screening Procedures

Since data collection involved voluminous responses, often resulting in incomplete or missing data, implementing proper data cleaning techniques was essential to transform results into usable variables (Kochar & Chhillar, 2012). Freestone, Williamson, and Wollersheim (2012) suggested that to increase the quality of data, implementing data cleaning techniques such as variable coding, implementing mean imputation procedures, and removing extraneous responses becomes necessary.

According to Yuceel (2011), preserving sample size requirements is a normal function of research; therefore, discarding incomplete responses is not always possible. For instance, observations of secondary data included demographic information such as age. A normal age is from 18 to 80 years-old. I removed observations that were beyond the normal category, and replaced the response with the overall group mean for the variable. Yuceel (2011) utilized the technique and argued that the imputation process does not skew the results and in fact, preserve the variance structure of results.

To form variables from raw data, the first step was to organize the data after data cleaning. I placed all responses in an electronic spreadsheet such as the Microsoft Excel spreadsheet. Each item of a dimension such as the self-efficacy items received a label such as SE1, SE2, and SE3. The SE represented the self-efficacy dimension and each number represented an item in the dimension in numeric order.

I calculated the mean scores for all items in the dimension determining the average score that represented self-efficacy behavior of participants (Alleyne, 2012). Repeating the steps for each variable became necessary when cleaning, organizing, and transforming variables. In

aggregate, utilizing the SPSS software was beneficial for conducting data transformation procedures, performing mean imputation, and for analyzing data from variables.

Research Questions and Hypotheses

RQ1. Is there a significant difference in the rate of successful completion of treatment between clients who receive MI with CBT and clients who receive CBT alone?

$H0_1$: There is no significant difference in the rate of successful completion of treatment between clients who receive MI with CBT and clients who receive CBT alone.

Ha_1: There is a significant difference in the rate of successful completion of treatment between clients who receive MI with CBT and clients who receive CBT alone.

RQ2. Is there a significant difference in behavioral self-efficacy to complete treatment for the experimental group after receiving MI with CBT treatment compared to before receiving treatment?

$H0_2$: There is no significant difference in behavioral self-efficacy to complete treatment for the experimental group after receiving MI with CBT treatment compared to before receiving treatment.

Ha_2: There is a significant difference in behavioral self-efficacy to complete treatment for the experimental group after receiving MI with CBT treatment compared to before receiving treatment.

RQ3. What factors predict membership for completion CBT?

$H0_3$: There are no factors that predict membership for completion rates for clients who complete CBT and not all beta values are equal to zero.

Ha_3: There are factors that predict membership for completion rates for clients who complete CBT and not all beta values are equal to zero.

Data Analysis Plan

Descriptive Analysis

Researchers such as Courvoisier and Renaud (2010) argued the importance of descriptive analysis after an experiment. The researcher determined that descriptive analysis was to provide estimations and make inferences within a population when not affected by any other variables. I provided measures of central tendency to discuss overall conditions within a population before conducting specific statistical test such as Chi-square tests, *t*-test, or logistic regression analyses.

When providing the results of the current study, the goal was to provide measures of central behavior for dual diagnoses clients. For example, the results included the mean, median, and mode measures of behaviors for the self-efficacy variables for pretest and posttest variables. Additionally, results include frequencies for all groups along with completion rates for each group. For demographic variables, results include average age, most frequently reported level of education, ethnicity, and drug dependency.

As Briley and Tucker-Drob (2012) demonstrated, summarizing overall behavior by providing summary tables and graphical representations provided optical analyses of central behaviors and is foundational when providing research results. In aggregate, when providing results from the current study, reporting measures of central tendencies along with a summary of results in the form of graphs and charts was necessary and beneficial for inferring the behavior of DD clients in the population. Following are discussions on analyses for each research question in the current study.

Chi-Square

The first research question was to understand whether there was a difference in the rate of successful completion of treatment between clients who receive MI with CBT and clients who

receive CBT alone. The experimental groups were those who received the MI with CBT treatments compared to participants in the control group who received CBT treatment alone. McHugh (2013) argued that utilizing the non-parametric Chi-square test is suitable when analyzing differences of group frequencies, when the dependent variable measure is nominal, such as in the current study.

The null hypothesis is that there was no difference in completion rates between the experimental group and the control group. The Chi-square model benefits proportional testing between two groups such as the experimental group, and the control group because of the appropriateness of the data (Wright, 2010). The analysis provides results that indicated if hypothesized proportions are significantly equal or unequal. Wright (2012) further argued that when proportions are unequal, the expected frequencies were also unequal, indicating significant differences in treatment completion rates between the groups.

The treatment completion variable measures are nominal and were another reason for choosing the Pearson's chi-square test. According to McHugh (2013), the variable included participants from the experimental group and the control group. A coding of one identified participants who completed treatment and a coding of zero identified participants who did not complete treatment. Placing observations into groups based on treatment became necessary. Some of the records for the study included clients before the data collection agency began collecting self-efficacy behaviors of clients. For the stated reason, the first group included participants who received the MI intervention alone. A second group was participants who received the MI intervention with self-efficacy observations. The third group was participants who did not receive MI or self-efficacy measures. All participants received the CBT treatment.

McHugh (2013) argued that the sample size must be large (n = 5), but that group size need not be equal or approximately normally distributed. Additionally, choosing observations for the sample occurred randomly from all available records. Additionally, the observations are independent of each other. Further, the distribution of behaviors in each group forms an approximate $\chi 2$ distribution. The standard for determining significance is to utilize an alpha level of .05. If *p* value from the results is greater than the stated alpha level, the results are not significant and indicate that there is no difference in completion rates between the experimental and control groups.

If the *p* value is less than or equal to the stated alpha level, the results indicate significant differences between the group frequencies. As McHugh argued, if the results are .05 or less, the statistic indicates a 5% or less chance that there is really no difference in completion rates between the two groups. The Cramer's *v* statistic provides an estimate of strength between participants receiving MI with CBT or when receiving CBT alone. The $\chi 2$ analysis is prolific and provides prodigious amounts of information to understand the effects of using MI with CBT on treatment completion for DD clients.

Paired Sample *T*-Test

In a 2012 study, Mara and Cribbie found that the *t*-test was suitable when testing the same group scores before and after an intervention. The results of Mara and Cribble's study demonstrated that the paired-samples student's *t*-test becomes beneficial when determining if there a statistically significant difference in behavioral self-efficacy to complete treatment for the experimental group. The analysis measures differences between pre self-efficacy scores and post self-efficacy scores when receiving MI with CBT treatment. Similar to the Pearson's $\chi 2$ analysis, the standard for significance is a .05 alpha level. If the analysis results show a *p* value

that is less than or equal to .05, the difference is significant and any differences found are significant.

Since a measurement of participant's self-efficacy occurs at the beginning and in the end of treatment, the *t*-test is well suited to analyze the second null hypothesis. Researchers often implemented the paired-samples *t*-test in experimental designs. The model ($H0$: $\mu_1 = \mu_2$) is to understand if the means of continuous scale scores such as behavioral self-efficacy for the same sample changes because of an intervention such as MI when receiving CBT treatment (Mara & Cribbie, 2012). Liu, Loudermilk, and Simpson (2014) argued that although the *p* value is the standard for rejecting the null hypothesis when utilizing the *t*-test, the effect size provides greater precision on the observable strength of relationships between variables (Alleyne, 2012).

Fitzmaurice et al., (2014) argued that the 95% confidence interval provides estimates of mean differences between pre and post *t*-test scores in the population. When there are no zeroes involved in the range of the 95%, confidence interval (*CI*), the results indicates that a zero difference is unlikely in the population. The *CI* then supports the rejection of the null hypothesis when there was no significant change in behavioral self-efficacy because of MI when receiving CBT. Taken together, researchers have demonstrated that utilizing the paired samples *t*-test is beneficial for analyzing changes in behavioral self-efficacy for participants in the experimental group.

Logistic Regression

List (2011) argued that the experimental design is a cornerstone of research and utilizing predictive analysis argues the benefits of conducting experimental research. The logistic regression analysis is one type of predictive analysis that utilizes independent variables to predict the probability of an outcome on a binary dependent variable. Chen, Cohen, and Chen (2010)

argued that the goal of conducting a logistic regression is to understand the factors that predict membership for completion CBT. Sperandei (2014) further explained that a benefit of utilizing a logistic regression model is to utilize nominal, ordinal, or continuous measures to predict an outcome that is dichotomous (0/did not complete CBT treatment or 1/completed CBT treatment).

Sperandei (2014) further argued that independent measures are explanatory variables and supports that the logistic regression is suitable for the current study because the model provides the odds favorable to an outcome. For the current study, the outcome is completing CBT treatment, given the relationship between explanatory variables, and the outcome variable. To determine the variables suitable for the model, Sperandei suggested that entering all independent variables in the model is one way to understand the predictors that provide predictive qualities. Any predictor with an odds ratio of greater than one enters into the final model.

Clark (2014) argued that the results of a logistic regression include providing the standardized regression coefficient (β), the observed Wald $\chi 2$ statistic, the probability value (*p*) and the odds ratio (OR) value. As Sperandei (2014) pointed out, although the *p* value of a predictor is less than or equal to .05, the important statistic is the OR. If the OR is less than or equal to 1, the predictor is not favorable for predicting CBT completion. If the confidence interval (*CI*) includes a 1, the results indicate that the predictor is not favorable for predicting CBT completion in the population and should not be included in the equation.

According to Sperandei, the logistic regression equation is $Y = b_0 + b_1X_{1i}, + b_2X_{1i} + \ldots + b_n X_{ni} + \varepsilon_i$ where represents the dependent variable intercept, *b* is the coefficient of the predictor variable X. The (i) indicates that instead of predicting the value of each predictor variable, the value represents the probability of *Y* occurring. Taken together, the logistic regression analysis is suitable for understanding the factors that predict the probability of completing CBT.

Threats to Validity

Internal Threats

Threats to validity are either internal or external (Babbie, 2010). Babbie (2010) stated that that the method of the study determines the type of potential threats to the study. The method for the current project is quantitative using a quasi-experimental design. Potential threats to internal validity include maturation, mortality/attrition, testing instrumentation, history, and selection bias (Creswell, 2014).

One area of potential exposure to internal validity in the current study is sample selection and accuracy of secondary data. According to Raylu and Kaur (2012), attrition is the leading cause of non-treatment compliance among substance using clients. Because of the nature of dual diagnoses, clients practicing risky behaviors attrition and mortality may be a threat to validity. Additionally, clients in the current study could experience legal consequences because of their past drug use that may cause a return to prison while engaging in treatment. In an effort to mitigate the potential threat the sample size for the current study is large enough to account for possible attrition and mortality issues.

External Threats

Babbie (2010) stated that external validity is good when the results of the research can be generalizable across the population. Creswell (2014) argued the threats to external validity include interaction of selection and experimental variable, in other words participants responses are a result of the composition of the group rather than treatment. An additional external threat is reactive effects of experimental arrangements, which is the affect that can occur because of a participant knowing that they are a part of an experiment. Another possible external threat is multiple-treatment inference this can occur when a participant has received the given treatment

multiple times. In an effort to address and eliminate the possible threats to external validity the sample size for the current study is large enough to overcome any of the potential factors.

Institutional Review Board (IRB)

The American Counseling Association's Code of Ethics (2014) requires that counselors conducting research on human participants do so in an ethical manner (G.1.a., G.1.b., & G.1.d). Prior to moving forward with the current study, Walden's IRB reviewed the research process in the proposal. Walden's oversight of the current process is in place to uphold ethical standards and practice in an effort to protect the participants. I received IRB approval and a copy of the approval is in Appendix C.

Data Maintenance

According to Creswell (2014), the maintenance of data is an important step in the research process. In the current study, the data is stored electronically on a flash drive that is password protected. Data are maintained up to five years post the study and is discarded by wiping the hard drive clean and destroying the flash drive. In an effort to remain compliant with IRB, paper data will remain for five years and shredded thereafter.

Summary and Transition

Chapter 3 began with a restatement of the research problem that summarizes the study focus. The methodology section outlined the use of the quantitative methodology and the justification for using the methodology rather than other choices. A discussion of the experimental design provided the arguments on the benefit of utilizing the experimental design to understand the effectiveness of utilizing motivational interviewing to increase self-efficacy; leading to increased cognitive behavioral therapy, completion rates for dual diagnoses clients.

Further, there were discussions on the study population and the justification for using the convenience sampling method as the sampling method for the study. A detailed discussion on the methods for the sample choice utilizing the G*power application provided justifications for the required (N = 269) sample size that consisted of secondary and primary observations. Data collection and the process including requirements for inclusion in the study followed understanding participant's role and the process for recruitment.

The intervention section provided a brief overview of Motivational Interviewing as the intervention used to increase cognitive behavioral therapy completion rates. Included in this chapter is the instrument for the current study self-efficacy including demographic measures. Chapter 3 presents a full discussion about the methods that used for the current study, including internal and external threats, ethical considerations, and the research participants. The quantitative methodology of this research study will follow the ethical guidelines of the American Counseling Association and Walden University's IRB. Finally, chapter 3 closed with ethical considerations including informed consent and confidentiality. Chapter 4 is next including the data analysis and results of the study. Additionally, chapter 4 includes the process of the study conducted, any challenges that occurred throughout the study, and reports of the statistics generated from SPSS.

Chapter 4: Results

Introduction

Death from overdose of drugs is the leading cause of fatalities in the United States (Winstanley et al., 2012). Among the substance abusing population, over half of the total populations of individuals addicted to drugs have a comorbid mental health disorder, also known as dual diagnoses (DD) (Diaz, Horton, & Weiner, 2012). Researchers found that the dual diagnoses population does not successfully complete treatment at acceptable rates and successfully treating the population remains a challenge (Westra, Aviram, & Doell, 2011). The purpose of the current study was to provide an understanding of the effectiveness of Motivational Interviewing (MI) for enhancing cognitive behavioral therapy (CBT) treatment completion rates when treating DD clients in intensive outpatient programs (IOP).

Assessed in the current study were several research questions. The first research question sought to understand if a significant difference existed in the rate of successful completion of treatment between clients who received MI and CBT and clients who receive CBT alone. The null hypothesis was that no significant difference existed in the rate of successful completion of treatment between clients who received MI and CBT and clients who received CBT alone. The second research question designed to inquire if a significant difference existed in behavioral self-efficacy scores prior to and following treatment for the treatment group. The null hypothesis was that no significant difference existed in behavioral self-efficacy to complete treatment for the experimental group after receiving MI with CBT as compared to self-efficacy scores prior to receiving treatment. The final research question sought to determine if there were factors that could predict membership for completion of CBT. The null hypothesis was that no factors predicted membership for completing CBT among study participants. The factors measured in

question three included: clients received MI or CBT only, gender, drug of choice, education level, and self-efficacy measures completed. In addition, factors were measured nominally for example; gender group was coded as1 for males and 2 for females.

Chapter 4, includes results of the study analysis along with discussion the data collection process, and discrepancies in data collection from the data collection plan. Additionally, discussions include demographic characteristics and baseline descriptive results of the sample. Further, summaries and graphs showing the dispersion of responses from participants are presented.

Data Collection

Measuring client attitudes occurred in an outpatient facility in the Midwest area of the United States, from an existing data set. The program director from the treatment agency presented the data in an Excel spreadsheet on a flash drive. Compiling the sample from an Excel spreadsheet format allowed the creation of variables in the current study. Cleaning of the database entailed removing all missing and erroneous information from observation. The final dataset resulted was (N = 307) for use in this study and reflected the minimum required sample size required for the study (N = 280), based on the sample size analysis previously conducted.

The population in the current study of DD clients was 5,750 and the sample required for analyzing the population using the G*Power application, a medium effect size, an alpha level of .05, and a power level of .80, was N = 280. The current sample size (N = 307) more than satisfied the minimum sample size required for the study based upon the G*Power analysis. Data collection occurred by randomly choosing samples for analysis. Random selection of observation was preferred as the collection technique since all observation had an equal chance

of inclusion in the study (Bracken et al., 2013). There were no other known discrepancies in data collection compared to the data collection plan.

Study Results

Descriptive Analysis

The current study analyzed data that included 307 records of participants from a secondary data source to understand any relationships between MI and self-efficacy on completing CBT treatment rates for dual-diagnoses clients. The randomly selected sample included 210 males that made up 68% of the sample, and 97 females that made up the rest of the sample. The ethnic makeup of the group was analyzed and it was found that African Americans (n = 152) made up the largest proportion (49%) of the sample and Whites (n = 140) made up the second largest proportion (46%) of the group. People who identified as multi-racial (n = 13) and Hispanics (n = 2) made up the rest of the sample.

Most participants had a high school diploma or equivalent (n = 228) and made up 74% of the group. The second highest proportion of the group were people with less than a high school education (n = 51) who contributed to 17% of the sample. Clients who either completed or attended college made up the rest of the sample. The results indicated that approximately 1 in 10 people who engaged in drug use had some college education or higher and approximately 1 in 5 had less than a high school education. A summary of education levels are included in Table 2.

Table 2

A Summary of Education of Clients.

	Frequency	Percent	Cumulative Percent
Less than HS	53	17	17
HS/GED	228	74	91
Some College	12	4	95

Bachelor's Degree	13	4	99
Advance Degree	3	1	100

Alcohol was the most popular drug of choice used among clients (*n* = 155) and comprised 51% of the sample. The results demonstrated that 5 in 10 people required treatment for alcohol use. Marijuana was the next highest drug of choice (*n* = 70) and is 23% of the sample, indicating that for clients who use drugs, approximately 1 in 4 prefer to use marijuana. The results showed that approximately 1 in 10 used crack/cocaine (*n* = 33) and the rate is similar to heroin/opioids/prescription category of drugs. I provided a summary of drug use in Table 2 and the histogram found in Figure 1 shows the dispersion drug use by category.

Table 3

A Summary of Preferred Drug Usage.

	Frequency	Percent	Cumulative Percent
Alcohol	155	51.0	51.0
Marijuana	70	23	74.0
Cocaine/Crack	35	11.0	85.0
Heroin/Opioids/RX	43	14.0	97.0
PCP/Hallucinogen	4	1.3	98.0
Other Drugs	7	2.2	100.0

There are three groups of clients in the current study. The first group is the control group (*n* = 95), which made up 31% of the sample. Clients in the control group received cognitive behavioral therapy (CBT) but did not receive any motivational interviewing (MI). Additionally, there was no self-efficacy measure for the group. The second group included participants for the first experimental group (*n* = 81). The group made up 26% of the sample that received MI and CBT. Additionally, measures of self-efficacy attitudes for completing treatment occurred in week one and in week five of treatment. The second experimental group (*n* = 131) included

participants who received CBT and MI but for whom there were no self-efficacy measures available, because the agency had not begun to measure self- efficacy up until the last two years. The groups are summarized in Table 4.

Table 4

Frequency Based on Study Grouping.

Research Groups	Frequency	Percent	Cumulative Percent
Control Group (CBT only)	95	31.0	31.0
Experimental Group 1 (CBT, MI, & SE)	81	26.4	57.3
Experimental Group 2 (CBT & MI)	131	42.7	100.0

Eighty percent of all participants (n = 246) in the study completed CBT treatment. Of those in the control group, approximately 31% did not complete CBT treatment, and approximately 68% completed CBT treatment. Approximately 21% of all participants in the Experimental Group 2 who received MI and CBT did not complete CBT treatment, and approximately 79% completed CBT treatment. Approximately 95% of participants in the Experimental Group 1 who received MI and CBT with measures of self-efficacy completed, and approximately 5% did not complete CBT treatment. A summary of the treatment completion is in Table 5.

Table 5

*Frequency Analysis of CBT Treatment Completion (*N *= 307).*

	Control group	Experimental Group 1	Experimental Group 2
Treatment	CBT	CBT, MI, & SE	CBT & MI
Completed Treatment	65	77	104
Did not Complete Treatment	30	04	27
Total	95	81	131

The histogram found in Figure 1 shows the dispersion of the ages of clients in the study. The bell curve shows that the distribution looks approximately normal. The line in the middle of the curve shows the mean point in the distribution. The standard distribution indicates that 68% of participants who receive treatment are between 24 years and 47 years. Participants with ages less than 24 years and more than 47 years are outside the normal age range of substance users receiving treatment (SAMHSA, 2014).

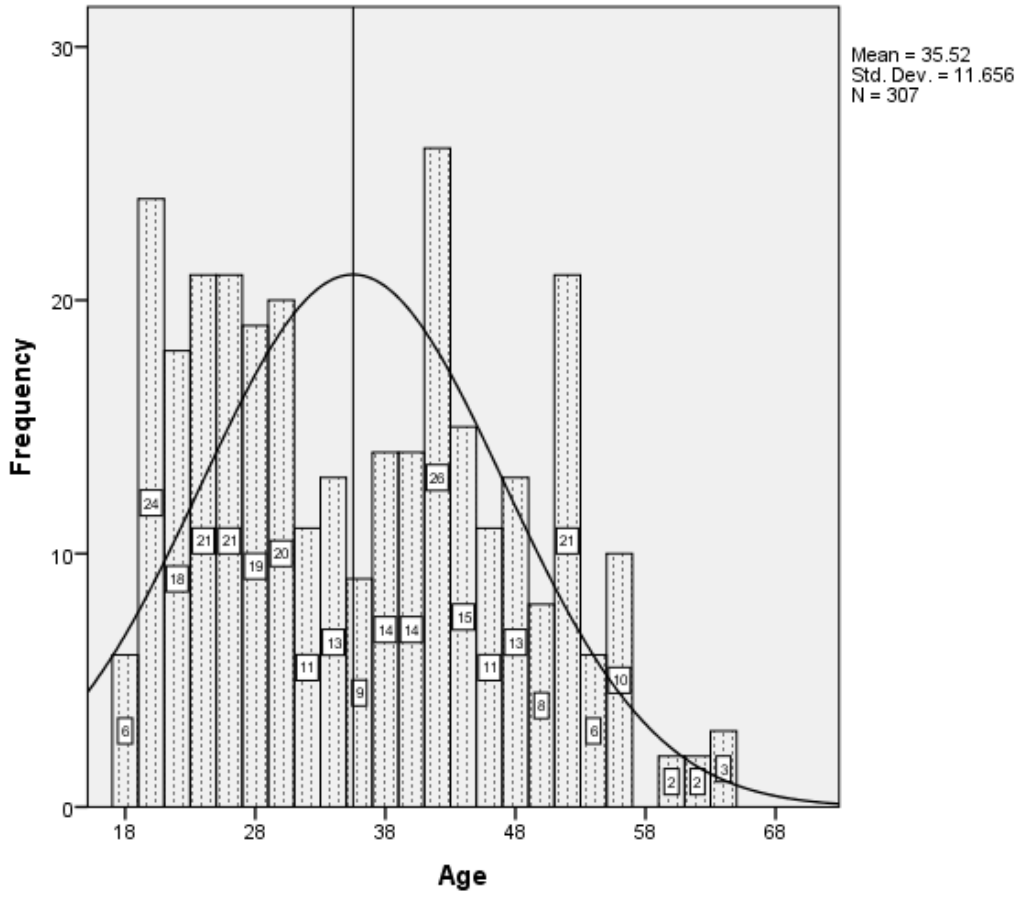

Figure 3. A histogram showing the distribution of ages for clients receiving substance use treatment.

On average, participants received 11 sessions (M = 11, SD = 8) of MI during the course of treatment. Participants in the control group did not receive any MI sessions. Approximately

31% of all participants (*n* = 95) did not receive MI, 59% (*n* = 181) of all participants received 18 session of MI, and approximately 10% of all participants received from 1 to 14 MI sessions. The histogram in Figure 2 shows the dispersion of MI among all observations in the study. Clearly, participants receiving all 18 sessions are modal and the median was 18 sessions.

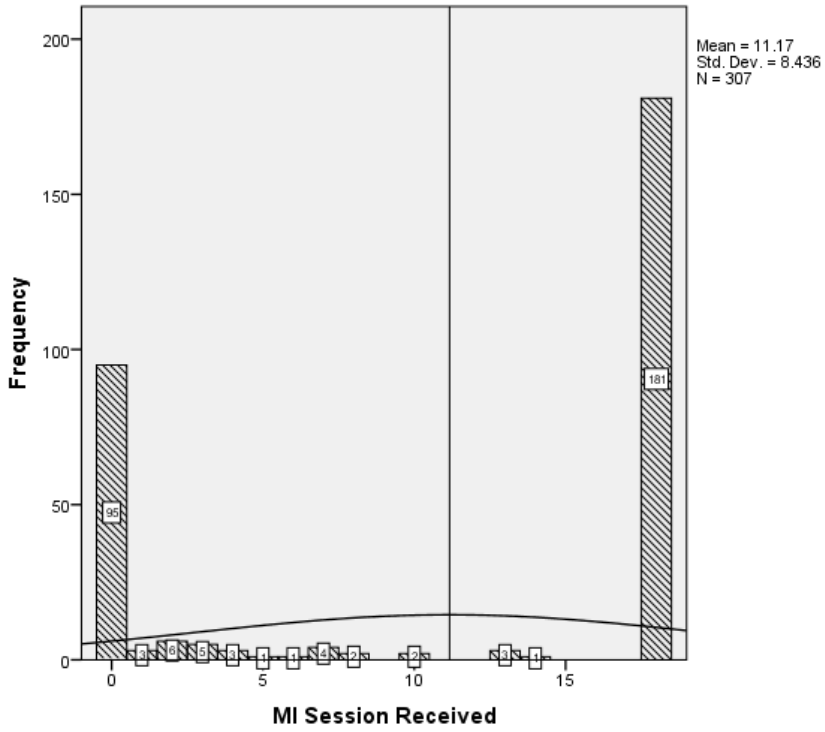

Figure 4. A histogram showing the dispersion of MI sessions among participants.

The cognitive behavioral therapy variable was examined and indicated that participants received (*M* = 15.71, *SD* = 4.94) sessions. Participants needed to receive 18 sessions to complete CBT treatment based on the design of this study. Due to circumstances beyond the researcher's control, the agency coded two of the files in the data set as completed with only 15 sessions, and not 18 sessions. When addressed the agencies director, informed the researcher that the two clients had completed all requirements and due to insurance reasons, the last three sessions of treatment waived. There were clients who enrolled in treatment but only completed one session of CBT treatment (*n* = 4) comprising one percent of the entire sample. Clients who complete

treatment and received all 18 sessions of CBT (n = 245) made up 80% of the sample. Those who did not complete treatment and received from 1 to 17 sessions made up the rest of the sample (n = 62). The histogram found in Figure 5 shows the dispersion of CBT treatment sessions received by clients.

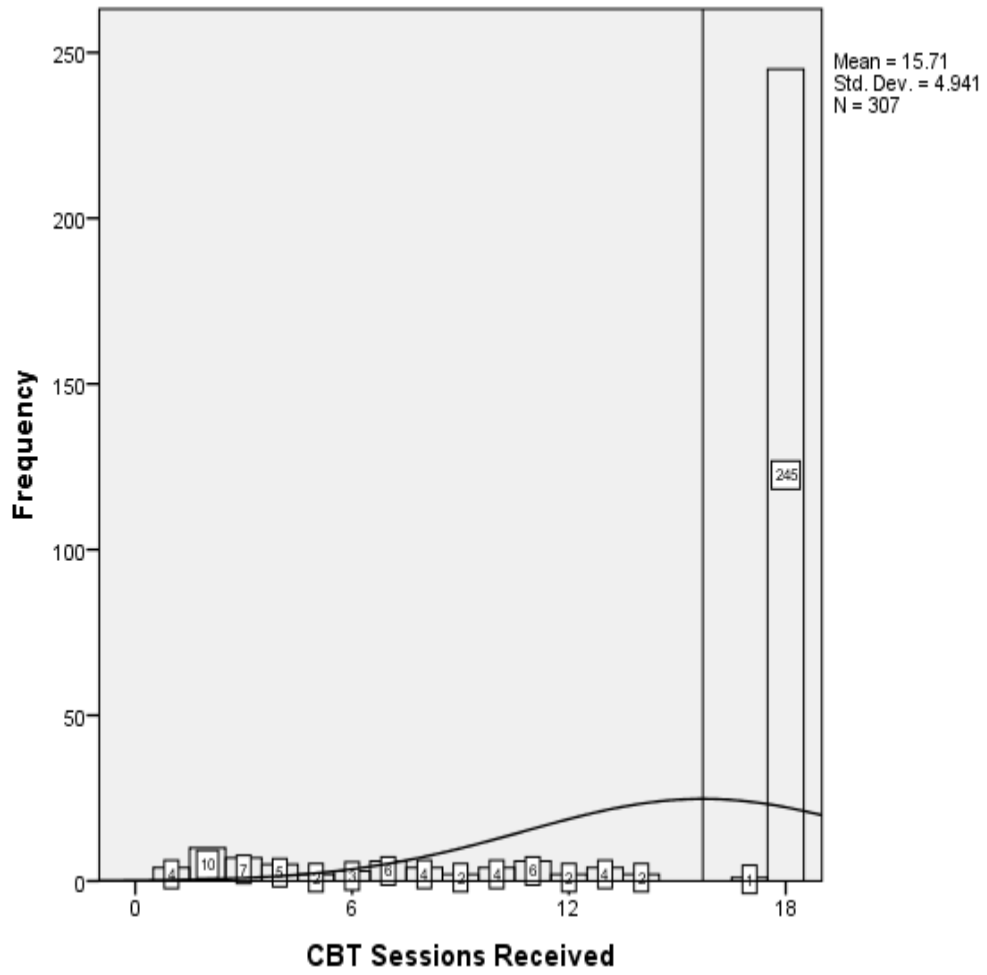

Figure 5. A histogram showing the dispersion of CBT sessions clients received.

The pretreatment self-efficacy scores of the clients were examined (N = 81) for Experimental Group 1. Self-efficacy was measured utilizing a 10-point Likert type scale for assessing client's self-efficacy. A one indicated a total disagreement and 10 indicated total agreement with assessment questions. Self-efficacy measures were taken twice, at week one and week five. The results showed that clients had a high level of self-efficacy for completing CBT

treatment during the first week of treatment (*M* = 7.56, *SD* = 2.52). A score of 10 was modal and a median score of 8.6 indicated that 50% of the sample scored nine and above. A score of less than five indicated that participants had low self-efficacy based on the instrument. Additionally, in week one approximately 19% of participants (*n* = 15) reported a low level of self-efficacy. A high level of self-efficacy score was from 8 to 10 and approximately 60% of all participants had high levels of self-efficacy (*n* = 49). Participants with a moderately high level of self-efficacy (*n* = 17) made up the rest of the sample. The histogram found in Figure 4 shows the dispersion of the pretreatment self-efficacy scores for the sample.

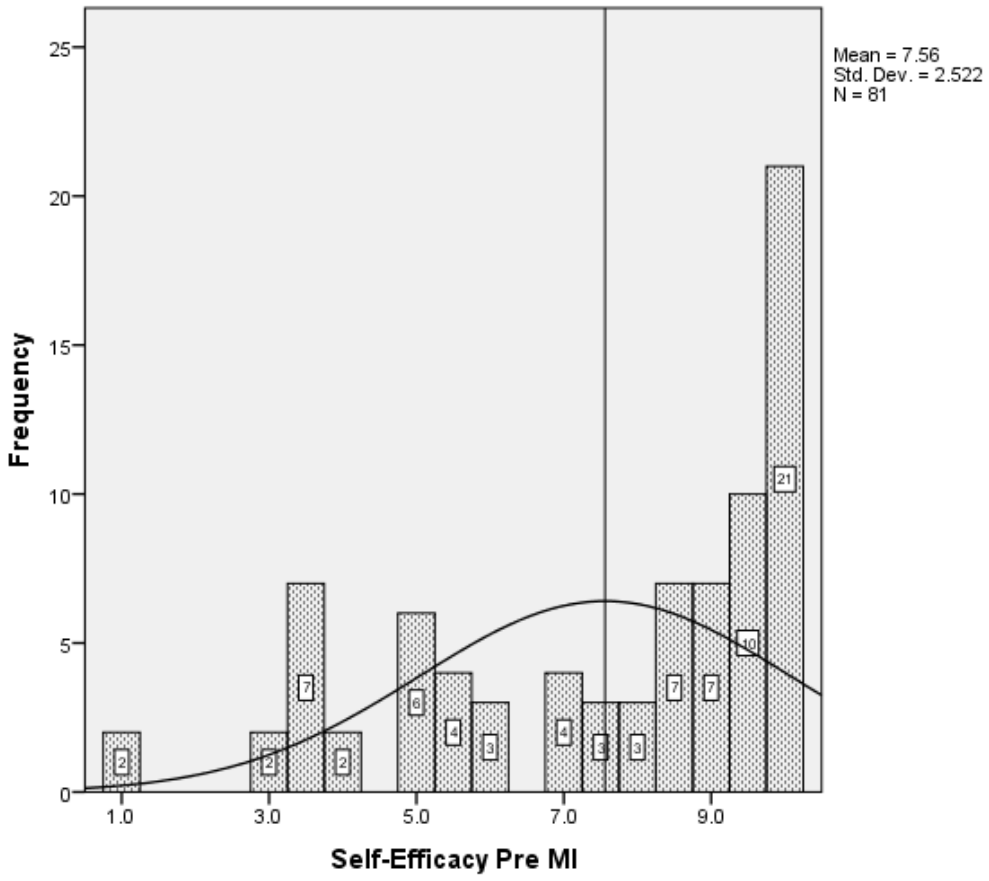

Figure 6. A histogram showing the dispersion of pretreatment self-efficacy scores for clients.

In week five measures of post treatment self-efficacy scores were analyzed for clients (*n*= 76) who received MI and CBT. The results show a six percent attrition rate (*n* = 5), indicating

that the missing clients did not complete treatment or refused assessment for the final self-efficacy rating. A large percentage of clients scored from six to 10 on the 10-point self-efficacy assessment scale (n = 75) with an increased rate of self-efficacy (M = 9.06, SD = 1.29) from pre scores. The lowest score reported is four and the highest is 10. The results indicate that 10 were also modal. A histogram found in Figure 5 shows the dispersion of scores for post self-efficacy rating to complete CBT treatment.

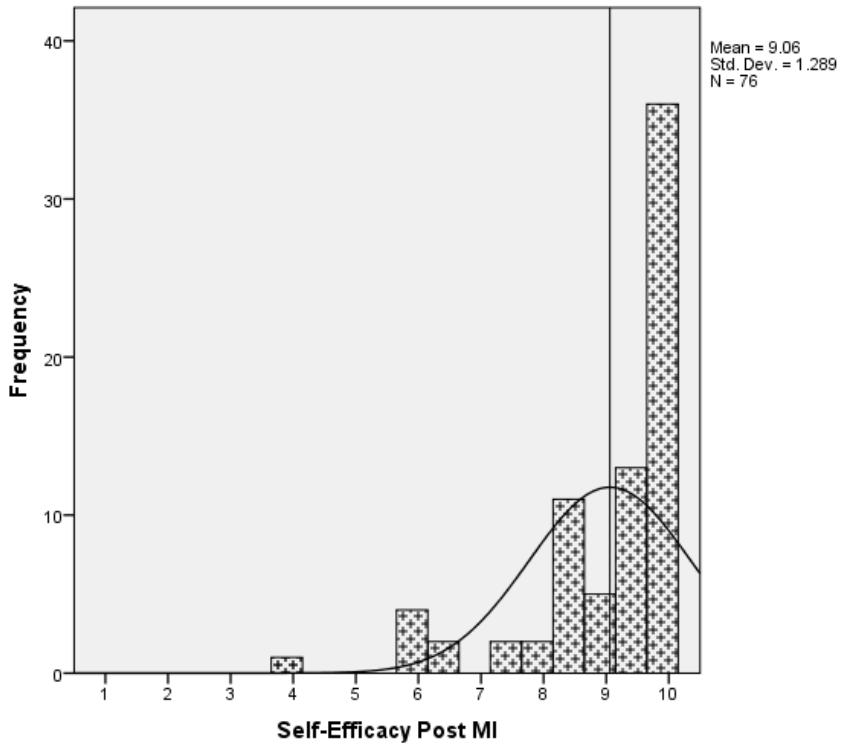

Figure 7. A histogram showing the dispersion of post self-efficacy rating in week 5 of treatment.

The difference in self-efficacy scores was examined to determine if there was a trend in increased self-efficacy after receiving MI (N = 76). A positive self-efficacy difference score indicates an increase in self-efficacy and a negative score indicates that self-efficacy declined during the course of treatment. Participants experienced an increase in self-efficacy (M = 1.38, SD = 2.04) during the course of treatment. No increase or decrease was modal, but at least 50% of all participants reported having a small increase in self-efficacy to remain in treatment and

complete CBT treatment. The lowest difference score was -1.50 and the highest was 8.50 on a 10-point scale.

Approximately 21% of all participants reported no change in self-efficacy (*n* = 16) and 5% reported a lower level of self-efficacy than before starting treatment. Approximately 74% of all participants reported a small increase (.10) to a large increase (8.50) in self-efficacy change. Approximately 16% reported a less than 1 point or 10% change in self-efficacy. Participants (*n* = 8) reported a 48% to 85% change in self-efficacy from the first week to the fifth week of treatment, and was less than 10% of the sample. The histogram found in Figure 6 shows that although the mean change was positive, most participants experienced little to no change in self-efficacy to remain in treatment and complete CBT treatment. The results of each research question and hypothesis is next.

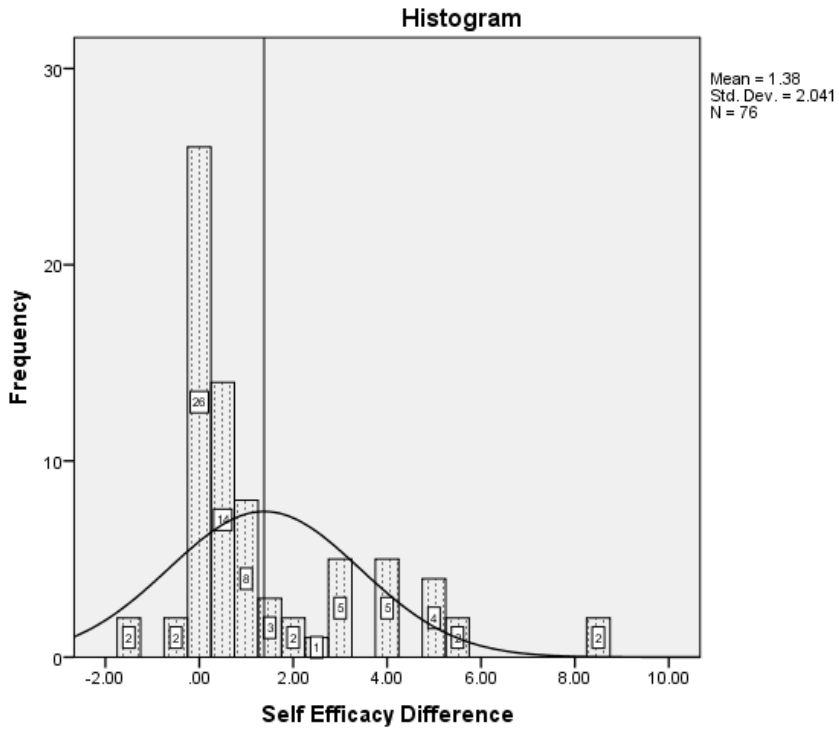

Figure 8. A histogram showing the distribution of self-efficacy change in participants.

Research Questions and Hypotheses Results

Research question 1.

RQ1. Is there a significant difference in the rate of successful completion of treatment between clients who receive MI and CBT and clients who receive CBT alone?

Hypothesis 1.

$H0_1$: There is no significant difference in the rate of successful completion of treatment between all groups based on group and treatment assignment.

Ha_1: There is a significant difference in the rate of successful completion of treatment between all groups based on group and treatment assignment.

Chi-Square analysis was conducted to determine if there was a significant difference in rate of completion based on receiving MI and CBT as compared to receiving CBT alone. Conducting the test required that observations be random and all scores independent. Furthermore, the distribution of the test results were approximately normally distributed since the sample size was large (N = 307). The statistical assumptions do not indicate any statistical violation; the data showed no dependency, therefore, yielding accurate results.

The results is a comparison of all participants who completed CBT treatment (n = 246). Those who completed CBT treatment and did not receive MI were 26% of the overall treatment group. Participants who completed CBT treatment and received MI made up the remaining 74% of the group. Participants who did not complete treatment (n = 61) were split into two groups. Participants receiving MI and CBT (n = 31) comprised roughly 51% of all who did not complete treatment. Figure 9 shows the frequencies for each group.

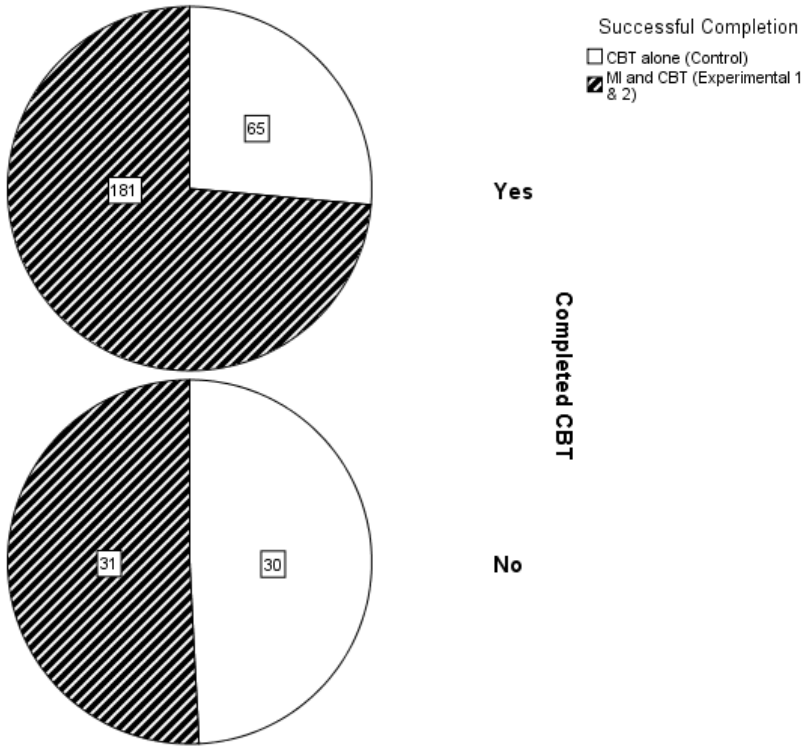

Figure 9. A pie chart showing the group frequency between participants completing treatment and the level of treatment provided

The Chi-Square results showed that there was an association between receiving MI and CBT as compared to receiving CBT alone $\chi 2(1, N = 307) = 11.85$, $p < .01$, $V = .20$ indicating that the null hypothesis is rejected. The results demonstrated that there was a significant difference in the rate of successful completion of treatment between all groups based on group and treatment assignment. The rate for participants who received CBT alone that was not expected to complete treatment was $n = 19$; instead, $n = 30$ did not complete treatment. The results demonstrate that more people did not complete treatment than was expected when receiving CBT alone. Similarly, less participants ($n = 65$) completed treatment.

The rate of participants who received MI and CBT that did not complete treatment (n = 31) was less than expected (n = 42). Additionally, the rate of completion for participants who completed treatment (n = 181) was more than expected (n = 170). The critical Chi-Square value for rejecting the null hypothesis is $\chi 2 = 3.84$. The results of the study show a value ($\chi 2 = 11.85$) higher than the critical value, indicating that the null hypothesis is rejected. The Cramer's V provided a small effect size (V = .20) between treatment completion and treatment level; the results were significant. A summary of the results are in Table 6 and a cross tabulation of group results are in Table 7.

Table 6

Chi-Square Analysis Results between Treatment Level and Treatment Completion.

	Value	*df*	Asymp. *p*	Exact *p* (2-sided)	Exact *p* (1-sided)
Pearson Chi-Square	11.85[a]	1	.001		
Continuity Correction[b]	10.81	1	.001		
Likelihood Ratio	11.21	1	.001		
Fisher's Exact Test				.001	.001
Linear-by-Linear Association	11.81	1	.001		
N of Valid Cases	307				

a. 0 cells (.0%) have expected count less than 5. The minimum expected count is 18.88.

b. Computed only for a 2x2 table

Table 7

Descriptive Results of Cross tabulation between Treatment Completed Treatment Level.

			Successful Completion		
			CBT alone	MI and CBT	Total
Completed CBT	No	Observed Count	30	31	61
		Expected Count	19	42.1	61.0
		% within Successful Completion	31.6%	14%	19.9%
	Yes	Count	65	181	246
		Expected Count	76.1	169.9	246.0
		% within Successful Completion	68.4%	85.4%	80.1%
Total		Count	95	212	307
		Expected Count	95.0	212.0	307.0
		% within Successful Completion	100.0%	100.0%	100.0%

Research question 2.

RQ2. Is there a significant difference in behavioral self-efficacy to complete treatment for the experimental group after receiving MI with CBT treatment compared to before receiving treatment?

Hypothesis 2.

H_{02}: There is no significant difference in behavioral self-efficacy to complete treatment for the experimental group after receiving MI with CBT treatment compared to before receiving treatment.

Ha_2: There is a significant difference in behavioral self-efficacy to complete treatment for the experimental group after receiving MI with CBT treatment compared to before receiving treatment.

A paired samples *t*-test was used to determine if there was a significant difference in self-efficacy pre and post MI for completing CBT treatment where self-efficacy measures were available ($N = 76$). An assessment of statistical assumption for conducting the test indicated no violations. A standardized distribution Z score of -1.96 to 1.96 indicated approximate normal distribution. The difference scores were normally distributed in the population ($Z = 1.24$) and cases were randomly chosen from the study population and observation scores were independent. The results demonstrated that the sample distribution was adequate for conducting a paired samples *t*-test.

The mean difference between pre self-efficacy scores ($M = 7.68$, $SD = 2.55$) and post self-efficacy scores ($M = 9.06$, $SD = 1.29$) was -1.38, indicating a 14% increase in scores for participants receiving MI treatment. The median score increased by .75 and the range decreased from 9 to 6 between the lowest and highest scores after MI treatment. The results showed that participants with low self-efficacy scores increased by 30% after receiving MI treatment.

Some clients started with a high level of self-efficacy ($n = 26$), but 61% of participants ($n = 46$) experienced a positive change in self-efficacy. Some change was as little as less than 10% while others experienced as much as an 80% increase in self-efficacy to complete CBT when receiving MI. Distributions of the difference scores are included in Figure 8.

The results of the paired samples *t*-test were significant $t(75) = -5.91$, $p < .001$, $\eta^2 = .32$, indicating that the null hypothesis was rejected. The results mean that there was a significant difference in behavioral self-efficacy to complete treatment for the experimental group after receiving MI in combination with CBT treatment as compared to levels assessed before receiving treatment. In addition, the 95% confidence interval (*CI*) of -1.85 to -.92 indicated that since there is no zero value within the interval, the populations mean difference is not likely to be

no difference, less than -1.85, or more than -.92, supporting a rejection of the null hypothesis. A summary of the results are in Table 8.

Table 8

A Summary of Paired Samples T-test results.

		Paired Differences							
					95% CI of the Difference				
		M	*SD*	*S.E.*	Lower	Upper	*t*	*df*	*p*
Pair 1	Self-Efficacy Pre MI - Self-Efficacy Post MI	-1.38	2.04	.23	-1.85	-.92	-5.91	75	.000

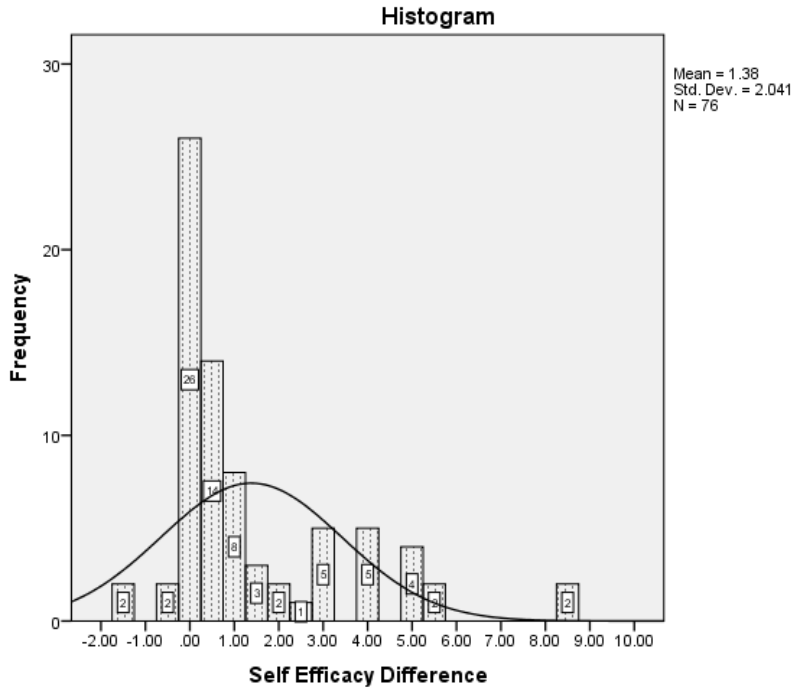

Figure 10. A histogram showing the distribution of difference scores for pre and post self-efficacy scores.

Research question 3.

RQ3. What factors predict membership for completion of CBT?

$H0_3$: There are no factors that predict membership for completion of CBT and all beta values are equal to zero.

Ha_3: There are factors that predict membership for completion of CBT and not all beta values are equal to zero.

Utilized in the current study was a logistic regression to predict the probability of factors for completing CBT. The predictor variables in the final model were gender, drug of choice, education level, MI treatment, and self-efficacy change. The predictor variable showed approximate normal distribution in each of the dependent variable groups with stable variances. The self-efficacy variable was continuous and the education variable was dichotomous where a zero represented less than a college degree and a one represented receiving a college degree. In addition, gender group was coded as1 for males and 2 for females. Finally, participants who received MI sessions were in the group coded as one and participants that did not receive any MI were in the group coded as zero. The results of the full model compared to the model with only the intercept result was statistically significant, $\chi 2(9, N = 307) = 59.68$, $p < .001$. The results indicated that the null hypothesis was rejected and the alternative hypothesis accepted. The model is useful for correctly classifying 84% of participants as completing CBT. A summary of the results are in Table 9.

Table 9

Results of Cross tabulation of MI Intervention with CBT Outcome.

			Predicted		
			Received MI	Received MI	
	Observed		No	Yes	Percentage Correct
Step 1	Completed CBT	No	17	44	28
		Yes	4	242	98
	Overall Percentage				84

a. The cut value is .500

The results indicated that the model is predicting that MI is effective for increasing CBT completion (-LL = 246.46 from –LL = 307.95). The overall results indicated that some Wald $\chi 2$ statistics are not significantly different from zero for some of the coefficients (*b*); however, several coefficients are making significant contributions to predicting CBT completion. The results of the logistic regression showed that some of the Wald statistics showed no significant difference, for instance males and females behaved similarly and did not predict CBT completion ($p > .05$). In addition, there was no difference in behaviors based on the education level of participants ($p > .05$). The results showed that some Wald statistics were significant, for instance, drugs of choice was significantly different from zero for alcohol, marijuana, and opiates. Additionally, the Wald statistic for receiving MI treatment was significantly different from zero ($p < .05$), indicating that receiving MI was a significant predictor of completing CBT treatment compared to not receiving MI treatment.

The results showed that receiving MI treatment had the strongest effect for completing CBT treatment. Clients who receive MI treatment were therefore 4.6 times more likely to complete CBT treatment compared to clients who did not receive CBT treatment. The 95% confidence interval (*CI*) for receiving MI from 2.31 to 9.18 indicated that in the population there is no one value in the interval and clients who receive MI are from 2 times to 9 times more likely to complete CBT treatment as compared to those clients who do not receive MI. The results of the *CI* support rejection of the null hypothesis. The model results indicated that the predictors accounted for approximately 28% of completing CBT when receiving MI as compared to not receiving MI (Nagelkerke $R^2 = .28$).

A summary of the results in Table 9 show the logistic regression coefficient, Wald $\chi 2$ test, and OR for each predictor in the model. The constant statistic indicated that holding all other variable constant, clients who receive MI are four times more likely to complete CBT treatment. Although not significant but noteworthy, clients with higher levels of education are six times more likely to complete CBT treatment than clients with low levels of education.

Also noteworthy is the drug preference of clients and completing CBT when receiving MI. Utilizing a .05 criterion of statistical significance, some change in drug use provided significant partial effect for completing CBT. The results were conclusive that an increase in self-efficacy to remain in treatment and receiving MI treatment is very effective for clients when completing CBT compared to clients who do not receive MI. Results for the two research questions and hypotheses are found in Table 10.

Table 10

Logistic Regression Predicting CBT Completion based on Receiving MI and Increasing Self-efficacy.

								95% *C.I.*for EXP(*B*)	
		B	*S.E.*	Wald $\chi 2$	*df*	*P*	Exp(*B*)	Lower	Upper
Step 1[a]	Gender(1)	-.65	.34	3.65	1	.06	.52	.27	1.02
	Drug			14.36	5	.01			
	Drug(1)	-.97	.42	5.20	1	.02	.38	.17	.87
	Drug(2)	-1.25	.49	6.55	1	.01	.29	.11	.75
	Drug(3)	-1.60	.47	11.55	1	.00	.20	.08	.51
	Drug(4)	-23.82	28219.08	.00	1	1.00	.00	.00	.
	Drug(5)	-1.82	1.65	1.21	1	.27	.16	.01	4.14
	Education_Group(1)	1.85	1.10	2.83	1	.09	6.36	.74	54.99
	Treat_Rec(1)	1.53	.35	18.83	1	.00	4.61	2.31	9.18
	SEDiff	.48	.18	7.26	1	.01	1.62	1.14	2.29
	Constant	1.38	.31	19.93	1	.00	3.98		

a. Variable(s) entered on step 1: Gender, Drug, Education_Group, Treat_Rec, SEDiff.

Table 11

Research Summary Results

Hypotheses	Results
$H0_1$: There is no significant difference in the rate of successful completion of treatment between all groups based on group and treatment assignment.	Rejected
Ha_1: There is a significant difference in the rate of successful completion of treatment between all groups based on group and treatment assignment.	Accepted
H_{02}: There is no significant difference in behavioral self-efficacy to complete treatment for the experimental group after receiving MI with CBT treatment compared to before receiving treatment.	Rejected
Ha_2: There is a significant difference in behavioral self-efficacy to complete treatment for the experimental group after receiving MI with CBT treatment compared to before receiving treatment.	Accepted
$H0_3$: There are no factors that predict membership for completion of CBT and all beta values are equal to zero.	Rejected
Ha_3: There are factors that predict membership for completion of CBT and not all beta values are equal to zero.	Accepted

Summary

Dual diagnoses clients who received MI successfully completed cognitive behavioral therapy when receiving Intensive Outpatient Programming 4 times the amount of who received cognitive behavioral therapy alone. The results further show that when behavioral self-efficacy is increased clients successfully complete treatment two times the rate. Dual diagnoses clients with increased self-efficacy are likely to overcome barriers that affect treatment completion (Greenfield et al., 2012). Results of each of the research questions are in Table 12.

Previous research has indicated that the dual diagnoses population's treatment completion rates are low and that engaging the dual diagnoses population with continuing treatment is daunting (Westra, Aviram, & Doell, 2011). Results from the current quantitative study demonstrate that improving treatment completion rates among dual diagnoses clients when receiving motivational interviewing is possible.

Chapter 5 is next which includes the limitations of the current study, social change implications, and recommendations for further research. The recommendations include best practice models for treating the dual diagnoses population and ongoing training for professionals for evidenced based practices including motivational interviewing.

Table 12

Summary of Research Question Results.

Research Question	Summary
Is there a significant difference in the rate of successful completion of treatment between clients who receive MI and CBT and clients who receive CBT alone?	1. Clients who received MI completed treatment at significantly higher rates compared to clients who did not receive MI. 2. There is a significant association between receiving MI and completing CBT.
Is there a significant difference in behavioral self-efficacy to complete treatment for the experimental group after receiving MI with CBT treatment compared to before receiving treatment?	1. Receiving MI is beneficial for increasing behavioral self-efficacy to remain in CBT program. 2. That there was a significant difference in behavioral self-efficacy to complete treatment for the experimental group after receiving MI with CBT treatment compared to before receiving treatment.
What factors predict membership for completion of CBT?	1. Clients receiving MI are 5 times more likely to complete treatment compared to clients who do not receive MI. 2. Clients who experience an increase in self-efficacy are 2 times more likely to complete CBT compared to clients who do not experience an increase in self-efficacy.

Chapter 5: Summary and Conclusions

Introduction

The purpose of the current study was to determine if motivational interviewing was a useful tool for improving dual diagnoses clients' cognitive behavioral therapy completion rates in Intensive Outpatient Program. The nature of the study involved utilizing a quantitative methodology with a quasi-experimental design for testing the effectiveness of motivational interviewing intervention for improving cognitive behavioral therapy completion rates. The findings of the study showed that motivational interviewing is a useful tool for increasing treatment completion rates among dual diagnoses clients, when compared to clients who do not receive motivational interviewing. Further, the results indicated that there was an increase in self- efficacy for clients who received motivational interviewing. Lastly, the results indicated that dual diagnoses clients receiving motivational interviewing are 4 times more likely to complete cognitive behavioral therapy treatment compared to clients who do not receive motivational interviewing.

Interpretation of the Findings

Research indicates that engaging and maintaining DD clients in treatment were historically difficult (Błachut et al., 2013). It was necessary to find a treatment modality for assisting DD clients on improving treatment completion rates. Conducting the current study was necessary for understanding the effects of MI on completing CBT for clients. The results of the current study showed that clients who received MI completed CBT treatment at significantly higher rates compared to clients who did not receive MI. The results of the current study confirmed the finding by Patterson et al. (2010) that MI is a suitable tool for motivating clients to remain in treatment. Paterson et al. found that using brief interventions of MI helps to increase

treatment completion for substance use clients with HIV. Further, Paterson et al. found that utilizing MI significantly improved retention rates when treating clients afflicted with the HIV disease and substance use disorder. The findings are similar to the results of the current study, that is MI significantly improved CBT completion rates when treating DD clients.

In the present study, the results showed a significant association between receiving MI and completing CBT. Ayres et al. (2014) studied MI when treating opioid-using clients with methadone over a 3-month period. The researchers utilized MI to understand any positive motivation to change behaviors with the self-determination theory as the foundation of the study. The results showed that clients experienced a positive behavioral change and increased determination to complete treatment after receiving MI, similar to the results of the present study. The results of the current study confirms that utilizing MI as a treatment tool shows reliability for keeping clients in CBT treatment when treating groups such as DD clients.

The results of the present study shows that receiving MI is beneficial for increasing behavioral self-efficacy to remain in CBT program and that 81% of DD clients who received MI and CBT completed treatment, in comparison to 69% completion rate of DD clients who received CBT alone. In a 2010 study, Berman et al. utilized as little as one MI session in the treatment of adult alcoholics in a detox program along with CBT. The results showed that post-treatment self-efficacy levels significantly increased for completing detox and maintaining high levels of sobriety after detox treatment. The study by Berman et al. demonstrated similar findings to the current study reporting a significant increase in self-efficacy for clients who received MI and CBT.

In another study, Greenfield et al. (2012) assessed changes in dual diagnoses (DD) clients' self-efficacy after receiving treatment interventions including 12-Step support, MI, and

CBT. The findings showed that utilizing MI helped to increase self-efficacy and was a predictor of sobriety. The results of the current study confirmed that clients receiving MI are more likely to complete treatment compared to clients who do not receive MI. In addition, clients who experienced an increase in self-efficacy are more likely to complete CBT compared to clients who do not experience an increase in self-efficacy. The results of the current study show that when behavioral self-efficacy is increased clients successfully complete treatment two times the rate, indicating when clients have low self-efficacy they are less likely to complete treatment. The results of the current study are found to be similar to the findings presented by Greenfield et al. and Berman et al. (2010) and further extend the body of knowledge about the usefulness of MI for increasing self-efficacy when completing substance use treatment for a variety of populations including DD clients. When self-efficacy is increased, clients are more likely to complete treatment at higher rates. The results of the current study suggest that CBT treatment should include utilizing MI to increase self-efficacy to enhance treatment completion. Finally, the results of the current study showed that factors measured such as clients receiving MI versus clients receiving CBT alone, was an accurate prediction that MI receiving clients would complete CBT treatment at higher rates. The findings of the current study is congruent with a study from Patterson, Wolf, and Buckingham (2010) that reported that clients receiving MI show a positive effect on treatment outcomes including treatment completion and retention rates.

Limitations of the Study

The sample size for participants in the self-efficacy group was small (n = 81), and reduced the power level for the results, possibly causing a Type I error, which is reporting a genuine effect in the study when there is not one. The overall sample size was large enough for genuinely understanding the effects of MI on completing CBT treatment, and the large sample

size provided high power level for rejecting the null hypothesis when false and avoiding a Type II error. Conducting the study utilizing a quasi-experimental design contributed the low representation in the self-efficacy group. A true experimental design study allows for random selection prior to starting the study and would mitigate for large enough group sizes with attrition for each group in the study. According to Greenhoot and Dowsett (2012), an additional limitation for secondary data collection is the time it takes for the researcher to become familiar and understand the data set collected. In the current study, I had to familiarize myself with the data set and contact the program director several times for clarity. This made the process longer than anticipated. Finally, I would have liked for the tool that was selected by the treatment team to measure self-efficacy to include additional demographic information such as marital status and any current legal involvement.

Recommendations

The current study focused on DD clients with mental health and substance use disorders. The study did not include DD clients with mental health, substance use disorders, and comorbidities such as hypertension or diabetes. Durvasula and Miller (2014) found that MI was effective for treating triple diagnoses clients with CBT. Diagnoses included substance use disorders, mental health disorders, and HIV. Future research could include studying the effectiveness of MI when treating triple diagnoses clients with CBT including mental health disorders, substance use disorders, and comorbidities such as diabetes and hypertension. Studying clients with triple diagnosis including medical conditions is valuable to the profession due to the overwhelming number of clients who have a substance abuse and mental health disorder that exacerbates the symptoms of the medical conditions.

Self-efficacy theory was foundational in the study for testing the effectiveness of MI on DD populations. MI includes a self-efficacy component in the treatment; however, there are no known studies at this time on the effectiveness of planned behavior. According to Duncan, Forbes-McKay, and Henderson, (2012) the theory of planned behavior is useful for predicting people's intentions and actual behavior. Duncan et al. stated when people intend to meet certain goals, the likelihood of meeting those goals increases due to planned behavior. The focus of future studies can include utilizing the theory of planned behavior as a pre-assessment to determine a client's desire for making a change. Clients with a low level of desire for making change are unlikely to complete CBT treatment and are likely candidates for receiving MI intervention. Clients with a high level of desire for making change are likely to complete CBT treatment and may not require a full course of MI intervention, if any at all (Duncan et al., 2012). An additional recommendation includes treatment agencies implementing an assessment or screening process that measures their client's self-efficacy levels prior to beginning treatment. This vital information can assist treatment agencies with identifying client's beliefs about the change process and their ability to make the needed changes toward treatment goals. In turn, this vital information will assist clinicians with developing treatment plans that are individualized and geared toward the client's needs. Finally, when treatment agencies have the knowledge of the client's self- efficacy levels then implementation of MI with the stages of change to motivate clients to increase their self-efficacy levels can occur. The increase in self-efficacy levels would assist with building better client and counselor rapport and in turn lead to higher rates of treatment completion.

Social Change Implications

Positive social change happens when new approaches are applied that lead to improving the quality of lives for clients, families, and society (Malott & Knoper, 2012). Blachut et al. (2013) argued that historically DD clients have had poor treatment outcomes without treatment techniques such as MI, leading to higher rates of relapse. Motivation levels for DD clients toward completing treatment goals and recommendations are generally low; causing many clients to experience recidivism. The results of the current study showed that utilizing MI increased treatment completion rates that are beneficial when applying long-term treatment for controlling substance use disorders. Social change occurs by helping clients reach and maintain sobriety, which is essential for increasing the quality of client's life. Client's lives reflect positive change through a decrease in crimes related to drug use, and increase in meaningful employment and improvement in family relationships.

According to Orford et al. (2010), there is a lack of family support due to strain and stress in the relationship with the DD client. The family system experiences strain and stress due to the continued use of drugs and non-compliance with treatment recommendations. Families with members who are DD experience a cycle of instability and chaos when dealing with untreated DD family members. The negative behavior of the DD client increases because of untreated drug use. Positive social change occurs when clients successfully complete treatment because of receiving MI. The results lead to an increase in improved family relationships between DD clients and families or support systems.

Untreated DD clients experience high incidences of legal involvement, such as high rates of recidivism due to illegal activity (Gryczynski et al., 2012). The need to engage in illegal activities is often in an effort to support drug habits. Treating DD clients with MI to increase

CBT completion rates leads to positive social change. Clients who maintain sobriety do not often experience illegal activity associated with drug use. Positive social change occurs when there are lower levels of crime in communities because of reduced substance use, leading to an increase in the quality of life for substance users and the community at large.

Untreated DD clients also experience high rates of unemployment due to an inability to function in the workplace at required levels of competency (Cridland et al., 2012). Untreated DD clients tend to have low levels of competency such as making errors on the job, causing accidents, and producing low quality of work. Drug screening by employers is a tool used to detect illegal substance users in the workplace. When DD clients lose employment because of drug use violations in the workplace, the loss of income often leads to homelessness, and an inability to provide for families. The results of the current study lead to positive social change by helping to reduce the amount of substance users in society. DD clients who complete CBT treatment are generally better able to maintain jobs, learn new skills, and ultimately provide for families. The outcome can lead to reduced strain on society by reducing public assistance rolls for families needing subsidies to maintain life.

Conclusion

People with low levels of internal motivation often need a cognitive boost to help complete treatment goals. There is a significant association between receiving motivational interviewing intervention and completing cognitive behavioral therapy. Motivational interviewing is therefore a technique that can be useful for building the internal motivation of clients for completing goals such as cognitive behavioral therapy with the dual diagnosis population. Dual Diagnosis clients needing treatment often experience treatment compliance issues and are great candidates for receiving motivational interviewing techniques. Practitioners

who utilize MI techniques at the beginning of treatment can help motivate a client through increased self-efficacy and a propensity to remain in treatment. Clients are more likely to complete cognitive behavioral therapy sessions when receiving motivation throughout the course of treatment. The results of the current study reflect when clients received motivational interviewing techniques they complete treatment at higher rates.

Having a treatment tool that is effective for improving dual diagnosis clients motivation for completing treatment, is useful for practitioners. Clients who received motivational interviewing completed treatment at higher rates compared to clients who do not receive motivational interviewing treatment. The results of the current study provided significant evidence to practitioners, researchers, and organizations on helping individuals with dual diagnoses to complete cognitive behavioral therapy treatment. Professionals working with the dual diagnoses population who received training to master the skills and abilities of motivational interviewing would be in a better position to serve that population by using a tool that shown to be effective in its treatment. Organizations that provide treatment to dual diagnoses populations are encouraged to promote the use of motivational interviewing to help increase positive treatment outcomes such as, preparing substance users to return to society and live as productive citizens.

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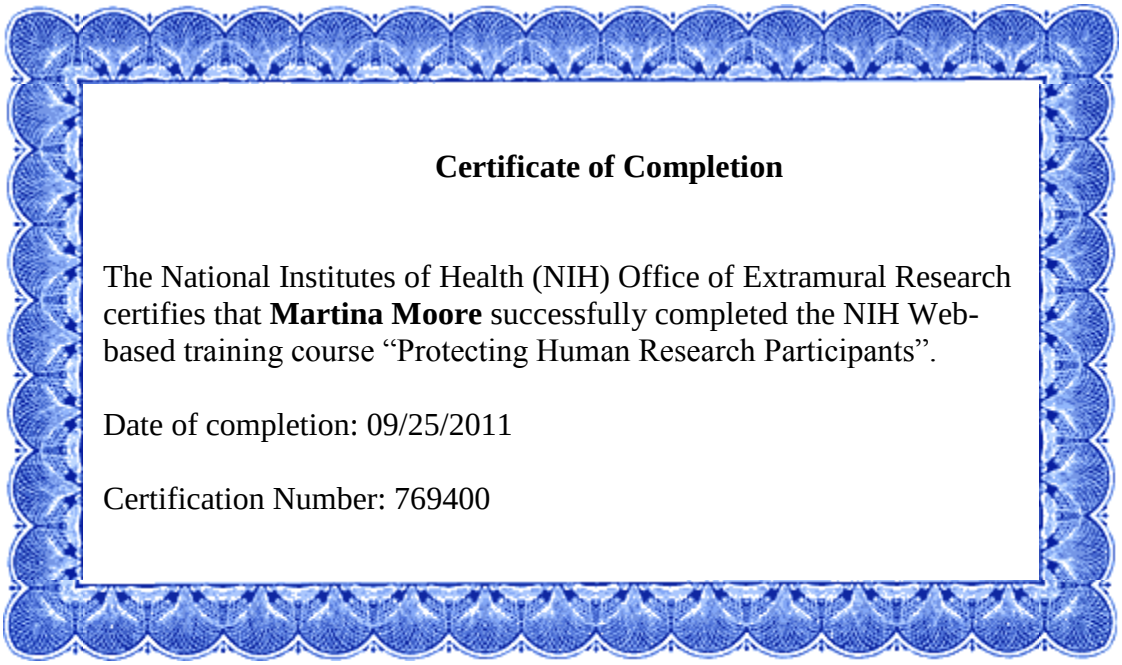
Appendix A: National Institutes of Health Certificate



Certificate of Completion

The National Institutes of Health (NIH) Office of Extramural Research certifies that **Martina Moore** successfully completed the NIH Web-based training course "Protecting Human Research Participants".

Date of completion: 09/25/2011

Certification Number: 769400

Appendix B: Data Use Agreement

This Data Use Agreement ("Agreement"), effective as of October 15, 2014, is entered into by and between Martina Moore ("Data Recipient") and MCMS ("Data Provider"). The purpose of this Agreement is to provide Data Recipient with access to a Limited Data Set ("LDS") for use in research in accord with the HIPAA and FERPA Regulations.

1. Definitions. Unless otherwise specified in this Agreement, all capitalized terms used in this Agreement not otherwise defined have the meaning established for purposes of the "HIPAA Regulations" codified at Title 45 parts 160 through 164 of the United States Code of Federal Regulations, as amended from time to time.

2. Preparation of the LDS. MCMS shall prepare and furnish to Data Recipient a LDS in accord with any applicable HIPAA Regulations.

3. Data Fields in the LDS. No direct identifiers such as names may be included in the Limited Data Set (LDS). In preparing the LDS, MCMS shall include the **data fields specified as follows**, which are the minimum necessary to accomplish the research (Client anonymous ID number that was generated solely for this study and not the actual client ID numbers of the agency identifiers, education level, ethnicity, diagnoses, number of treatment sessions, and non-identifying responses on pre and post self-efficacy surveys).

4. Responsibilities of Data Recipient. Data Recipient agrees to:

    a. Use or disclose the LDS only as permitted by this Agreement or as required by law;

    b. Use appropriate safeguards to prevent use or disclosure of the LDS other than as permitted by this Agreement or required by law;

    c. Report to Data Provider any use or disclosure of the LDS of which it becomes aware that is not permitted by this Agreement or required by law;

    d. Require any of its subcontractors or agents that receive or have access to the LDS to agree to the same restrictions and conditions on the use and/or disclosure of the LDS that apply to Data Recipient under this Agreement; and

    e. Not use the information in the LDS to identify or contact the individuals who are data subjects.

5. Permitted Uses and Disclosures of the LDS. Data Recipient may use and/or disclose the LDS for its Research activities only on The Use of Motivational Interviewing with the Dual Diagnoses Population in IOP.

6. Term and Termination.

    a. Term. The term of this Agreement shall commence as of the Effective Date and shall continue for so long as Data Recipient retains the LDS, unless sooner terminated as set forth in this Agreement.

    b. Termination by Data Recipient. Data Recipient may terminate this agreement at any time by notifying the Data Provider and returning or destroying the LDS.

    c. Termination by Data Provider. Data Provider may terminate this agreement at any time by providing thirty (30) days prior written notice to Data Recipient.

    d. For Breach. Data Provider shall provide written notice to Data Recipient within ten (10) days of any determination that Data Recipient has breached a material term of this Agreement. Data Provider shall afford Data Recipient an opportunity to cure said alleged material breach upon mutually agreeable terms. Failure to agree on mutually agreeable terms for cure within thirty (30) days shall be grounds for the immediate termination of this Agreement by Data Provider.

    e. Effect of Termination. Sections 1, 4, 5, 6(e) and 7 of this Agreement shall survive any termination of this Agreement under subsections c or d.

7. Miscellaneous.

    a. Change in Law. The parties agree to negotiate in good faith to amend this Agreement to comport with changes in federal law that materially alter either or both parties' obligations under this Agreement. Provided however, that if the parties are unable to agree to mutually acceptable amendment(s) by the compliance date of the change in applicable law or regulations, either Party may terminate this Agreement as provided in section 6.

    b. Construction of Terms. The terms of this Agreement shall be construed to give effect to applicable federal interpretative guidance regarding the HIPAA Regulations.

    c. No Third Party Beneficiaries. Nothing in this Agreement shall confer upon any person other than the parties and their respective successors or assigns, any rights, remedies, obligations, or liabilities whatsoever.

    d. Counterparts. This Agreement may be executed in one or more counterparts, each of which shall be deemed an original, but all of which together shall constitute one and the same instrument.

    e. Headings. The headings and other captions in this Agreement are for convenience and reference only and shall not be used in interpreting, construing or enforcing any of the provisions of this Agreement.

IN WITNESS WHEREOF, each of the undersigned has caused this Agreement to be duly executed in its name and on its behalf.

DATA PROVIDER	**DATA RECIPIENT**
Signed: _____	Signed: _____
Print Name: _____	Print Name: _____
Print Title: _____	Print Title: _____