EVALUATING OVERALL SUCCESS AND RELATIVE INFLUENCE OF DIFFERENT
TREATMENT SERVICES IN SUBSTANCE USE TREATMENT

A Dissertation

by

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BA, The University of Texas, 2009
MA, Texas A&M University-Corpus Christi, 2011

Submitted in Partial Fulfillment of the Requirements for the Degree of

DOCTOR of PHILOSOPHY

in

COUNSELOR EDUCATION

Texas A&M University-Corpus Christi
Corpus Christi, Texas

December 2015

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This dissertation meets the standards for scope and quality of
Texas A&M University-Corpus Christi and is hereby approved.

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December 2015

ABSTRACT

Substance use has serious consequences on individuals, families, public health, and society as a whole. Due to the availability of multiple treatment components, it is important for counselors to understand the relative influence that different treatment components have on outcomes. By understanding the relative influence of different treatment components, counselors are able to determine more effective treatment options for their clients. The purpose of this study was to provide information about the relative influence of three treatment components (case management, outpatient treatment, and residential treatment) to treating substance use.

This study evaluated the relative influence of three treatment components (case management, outpatient treatment, and residential treatment) in reduction of substance use over a six month time period. The study applied an archival analysis of 330 individuals who participated in a Substance Abuse and Mental Health Services Administration (SAMHSA) supported substance use intervention. Data was collected using the Government Performance and Results Act (GPRA) survey. A chi-square test of association and a repeated measures multivariate analysis of covariance (MANCOVA) were conducted to determine the overall success of the treatment program and the relative influence the individual treatment components had on outcomes.

Results from this study showed overall, the treatment program was successful, with 87.2% of participants reducing substance use. Additionally, outcomes indicated that participants who received a combination of case management and residential treatment had the best outcomes, followed by those who received all three treatment services, those who received case management and outpatient, and those who received case management only, respectively.

The implications of the study allow substance use professionals to understand the different relative influence that individual treatment components have on reducing substance use. Furthermore, these results serve substance use professionals to make more informed decisions when selecting treatment services for their clients. Further research is needed to determine a more precise dosing protocol (i.e., 30 days of residential treatment, 90 days of outpatient treatment, and 120 days of case management services), in order to increase treatment efficacy.

DEDICATION

This dissertation is dedicated first and foremost to God. Through Christ, all things are possible. He has blessed me with the means and abilities to pursue my dreams and provided me with endless love.

I would also like to dedicate this dissertation to my mother, Jodie. I have never seen such dedication to children, as you have dedicated to Andrea and me. Your love and support is what made me who I am today, and an endless amount of gratitude would never be enough to even begin to convey what your support means to me. You have set a wonderful example for me and I love the person you are. You've always made the impossible seem possible, the difficult seem easy, and the far away seem so close. I am forever indebted to you. I am incredibly proud to be your son and hope that I can make you just as proud to be my mom.

Finally, I would like to dedicate this dissertation to my beautiful wife, Tiffany. I sincerely thank you for the encouragement and support you have provided me throughout my life and academic journey. Your unwavering faith in me is inspiring. You provided me with the platform to do all of this, and for that, I thank you. As I reflect on the years spent towards receiving this degree, I am so humbly gracious for the love, patience, support, and encouragement you provided me. Your unconditional love allowed me to overcome any challenges that I faced. Thank you for the endless support, the late nights, the laughs, and all the fun along the way. Although this degree means a great deal to me, it pales in comparison to what you mean to me. There are not words to describe how incredibly thankful I am for your support. I will always and forever be gracious for your loving dedication.

ACKNOWLEDGEMENTS

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CHAPTER I – INTRODUCTION

Background

Substance use is one of the most prevalent issues in mental health (Substance Abuse and Mental Health Services Administration [SAMHSA], 2013). Reasons for substance use vary, with psychological distress being a key contributing factor in developing or worsening substance use (Teesson & Proudfoot, 2003). Other reasons for substance use include feelings of euphoria, as a coping mechanism for stressors, to improve mood and/or performance (i.e., anabolic steroid abuse, Adderall abuse, etc.), or out of curiosity and/or peer pressure (National Institute on Drug Abuse [NIDA], 2014). Substance use frequently begins during adolescence and young adulthood, with initiation of substance use most likely to occur between the ages of 15 and 18 (Gopiram & Kishore, 2014). Peer influence, curiosity, and a sense of maturation are cited as the most common reasons for initial substance use, with feelings of euphoria and socialization named as primary reasons for continuation of substance use (Gopiram & Kishore, 2014). Among individuals with mental disorders, tobacco and alcohol are primarily used as a means for coping while marijuana is primarily used for pleasure (Thornton et al., 2012).

People of all ages, genders, religions, races, sexual orientation, ethnicities, or socioeconomic status can be affected by substance use (SAMHSA, 2014). The Substance Abuse and Mental Health Services Administration (2014) estimates that in 2013, 21.6 million (8.2% of the population) persons aged 12 or older met criteria for substance dependence or abuse in the past year. "Of these, 2.6 million were classified with dependence or abuse of both alcohol and illicit drugs, 4.3 million had dependence or abuse of illicit drugs but not alcohol, and 14.7 million had dependence or abuse of alcohol but not illicit drugs. Overall, 17.3 million had alcohol

dependence or abuse, and 6.9 million had illicit drug dependence or abuse" (SAMHSA, 2014, p. 81).

In 2013, an estimated 24.6 million Americans had used an illicit drug within 30 days prior of being surveyed (SAMHSA, 2014). Additionally, more than half (52.2%) of Americans identified as a current alcohol drinker, with nearly one quarter reporting binge alcohol use within 30 days prior of being surveyed (SAMHSA, 2014).

Substance use negatively impacts the user, families, communities, and societies as a whole, and remains one of the most expensive societal problems (Horgan, Strickler, & Skwara, 2001). Substance users often inherit a multitude of problems as a result of the abuse, including financial, health, and relationship problems (Center for Substance Abuse Treatment [CSAT], 2004). Substance users are at risk of losing their job, which can lead to financial distress, and possibly homelessness (Center for Substance Abuse Treatment, 2004). Substance users are also at risk of having family and relationship issues including domestic violence and divorce (Center for Substance Abuse Treatment, 2004). Health issues, which often plague substance users, can lead to chronic illness and/or death (National Institute on Drug Abuse, 2014). Finally, legal problems can land substance users in jail or prison and can cause a significant financial burden on the individual and families of that individual. (National Institute on Drug Abuse, 2014). The synergy and multitude of problems caused by substance use creates a much more difficult and complex situation (National Institute on Drug Abuse, 2012b).

Family members of substance users are greatly impacted in various ways including exposing a child to drugs in utero and the ramifications that follow, child abuse or neglect, and domestic violence (Center for Substance Abuse Treatment, 2004). The National Council on Alcoholism and Drug Dependence (NCADD) (2014) reports that "more than half of all adults

have a family history of alcoholism or problem drinking, and more than seven million children

live in a household where at least one parent is dependent or has abused alcohol" (p. 1).

Substance use is costly to public health systems and results in considerable increases in

health care costs (National Institute on Drug Abuse, n.d.). Substance use is positively correlated

with poor physical health and chronic medical conditions such as cirrhosis of the liver among

those who abuse alcohol and Human Immunodeficiency Virus (HIV) among intravenous drug

users (Keaney, Gossop, Dimech, Guerrini, Butterworth, Al-Hassani, & Morinan, 2011). Keaney

et al. (2011) found that 76% of clients in residential and outpatient substance use facilities had at

least one health problem, with 51% reporting two or more health problems. Health problems

included gastrointestinal and liver disorders (36%), respiratory problems (30%), cardiovascular

problems (28%), and dental problems (23%) (Keaney et al., 2011). One reason substance use

increases health care costs is due to substance users often utilizing more expensive, acute care

facilities (Clark, O'Connell, & Samnaliev, 2010). A recent report found that more than 216

billion dollars were spent by federal and state governments on substance use related health care

(National Center on Addiction and Substance Abuse at Columbia University, 2009).

Substance use contributes significantly to community safety and criminal activity

(Mumola & Karberg, 2007). Desperate to maintain their addiction, substance users often turn to

criminal activity to obtain funds to purchase drugs (Mumola & Karberg, 2007). "17% of state

prisoners and 18% of federal inmates said they committed their current offense to obtain money

for drugs" (Bureau of Justice Statistics, 2007, p. 1).

The financial cost of substance use at the societal level is immense, encompassing over

$100 billion of crime-related costs associated with drug abuse (Center for Substance Abuse

Treatment, 2005). There are more than 2.3 million Americans incarcerated (National Association

of Drug Court Professionals, 2008) and "more than 80% of individuals behind bars have a serious history of abuse and approximately half of them meet criteria for a clinical diagnosis of dependency" (Campbell-Heider & Baird, 2012, p. 8). Furthermore, alcohol, drugs, and addiction play a role in 80% of felony crimes committed in the United States (Horowitz, Sung, & Foster, 2006).

Given the multitude of concerns accompanying substance use, it is important to find the most effective and efficient combination of treatment services. A history of efforts to establish empirically validated substance use treatment protocols exists. Carroll et al. (2006) states, "Despite recent emphasis on integrating empirically validated treatment into clinical practice, there are little data on whether manual-guided behavioral therapies can be implemented in standard clinical practice and whether incorporation of such techniques is associated with improved outcomes" (p. 301).

Substance use is a chronic problem that is often treatment resistant and requires multiple treatment attempts, with relapse rates between 40 and 60% (McLellan, Lewis, O'Brien, & Kleber, 2000). Denial of a problem and resistance to treatment serves as a significant contributing factor to the difficulty of treating substance use (Center for Substance Abuse Treatment, 2004). Furthermore, barriers to substance use treatment exist, with the most prevalent barriers being access to quality treatment and the expense of treatment (Xu, Rapp, Wang, & Carlson, 2008). Additional barriers to treatment may include inability to participate in a residential facility treatment program due to parental responsibilities or the inability or unwillingness to terminate employment in order to meet treatment obligations, as well as a lack of transportation to outpatient or self-help groups (Rapp, Xu, Carr, Lane, Wang, & Carlson, 2006; Xu, Rapp, Wang, & Carlson, 2008).

Despite the existence of barriers, millions of individuals seek substance use treatment each year and statistics indicate a steady increase of individuals seeking treatment. In 2013, 4.1 million individuals received alcohol or drug treatment, a 15.8% increase from 2002, in which 3.5 million individuals received substance use treatment (SAMHSA, 2014). Furthermore, an increase in individuals seeking treatment is expected due to the Mental Health Parity Act and the Affordable Care Act (Carnevale Associates, 2013).

Many treatment options are available for those seeking assistance. Of the four million individuals who received treatment in 2013, 2.3 million participated in self-help groups (e.g., Alcoholics Anonymous, Palmer Drug and Alcohol Program, and others), 1.8 million received outpatient treatment at a substance use treatment facility, and one million received residential treatment at a residential substance use treatment facility (SAMHSA, 2014). Additionally, 1.2 million individuals received outpatient treatment at a mental health center, 1 million at an inpatient hospital, 770,000 at a private physician's office, 603,000 at an emergency room, and 263,000 in a prison or jail (SAMHSA, 2014).

Counselors often suggest treatment service options to clients based on an assessment of the client and the severity of the client's substance use problem. Due to different treatment services available, it is important to evaluate the influence of various combinations of treatment services. One of the more commonly recommended treatment plans for clients who are actively using drugs or alcohol is to complete residential treatment, followed by outpatient treatment, paired with self-help groups and case management (Miller, 1998). However, research indicates that only 14% of clients report attending outpatient treatment after being discharged from a residential facility (Etheridge, Hubbard, Anderson, Craddock, & Flynn, 1997). Failure to transition into outpatient treatment may be due in part to clients receiving residential treatment at

one facility and outpatient treatment at a different facility, resulting in the loss of rapport that was built with staff of the residential facility (Carter et al., 2008). As a result of this change, clients must start anew with counselors and staff members at the outpatient facility, potentially hindering their progress. Continuation of treatment on an outpatient basis is extremely important in maintaining sobriety (National Institute on Drug Abuse, 2012b). Studies have shown that the majority of clients relapse within three months post-treatment (Hunt, Barnett, & Branch, 1971; Gossop, Stewart, Browne, & Marsden, 2002; Xie, McHugo, Fox, & Drake, 2005).

Statement of the Problem

Substance use continues to have grave consequences on individuals, families, public health, and society as a whole. The National Survey on Drug Use and Health (NSDUH), conducted annually by the Substance Abuse and Mental Health Services Administration (2014), found that in 2013, "an estimated 24.6 million Americans aged 12 or older were current (past month) illicit drug users, meaning they had used an illicit drug during the month prior to the survey interview. This estimate represents 9.4 percent of the population" (p. 1). Even more alarming is that these numbers are up 8.3% since 2002 (National Institute on Drug Abuse, 2014).

There continues to be a large substance use treatment gap with only about 2.5 million people in 2013 receiving treatment out of about 22.7 million who necessitated treatment for drug or alcohol problems (SAMHSA, 2014).

Substance use has a major impact on our society, costing the United States more than 484 billion dollars per year, which is substantially more than other chronic conditions such as diabetes, 131.7 billion annually, and cancer, 171.6 billion annually (National Institute on Drug Abuse, 2014). These figures include the costs associated with crimes and accidents, costs of health care, and wages lost, all placing an enormous burden on society. Americans recognize the

seriousness of drug abuse, ranking it as the number one most serious health problem; putting it above cancer, drunk driving, heart disease, HIV/AIDS, violence, child abuse, smoking, alcohol abuse, and stress (Harvard School of Public Health, 2000). Furthermore, homelessness, crime, poor education, missing work, child abuse, smoking, low birth weight, mental illness, violence, stress, and infectious disease can all be related to substance use (National Institute on Drug Abuse, 2014).

Public health concerns also surround substance use, primarily due to the spreading of infectious disease through intravenous drug use and risky sexual behavior in order to obtain drugs, or while using drugs (Center for Disease Control, 2002). "Drug abuse and addiction have been inextricably linked with HIV/AIDS since the beginning of the epidemic. The link has to do with heightened risk—both of contracting and transmitting HIV and of worsening its consequences" (National Institute of Drug Abuse, 2012a, p. 1). Individuals under the influences of drugs or alcohol are more likely to engage in unsafe, risky sexual behaviors (National Institute of Drug Abuse, 2012a). "Because of the strong link between drug abuse and the spread of HIV, drug abuse treatment can be an effective way to prevent the latter. People in drug abuse treatment, which often includes HIV risk reduction counseling, stop or reduce their drug use and related risk behaviors, including risky injection practices and unsafe sex" (National Institute on Drug Abuse, 2012a, p. 2).

With low treatment success rates and relapse rates between 40 and 60%, substance use continues to be one of the most difficult mental health diagnoses to treat (McLellan, Lewis, O'Brien, & Kleber, 2000). A range of treatment options exist, including 12-step groups such as Alcoholics Anonymous and Narcotics Anonymous, residential substance use treatment, outpatient substance use treatment, and treatment facilities that offer a cure. Furthermore, a

combination of treatments and the addition of adjunctive treatment components are possible, and may be more effective than one method alone. For example, a client may elect outpatient substance use treatment with case management, while also attending 12-step groups.

Due to the availability of multiple treatment modalities and adjunctive treatment components, it is important for counselors to understand the relative influence that different treatment components have on outcomes. By understanding the relative influence of different treatment services, counselors will better be able to determine effective treatment options for their clients. This determination may increase the efficacy and efficiency of substance use treatment. The problem under investigation involves the need for additional research on the relative influence of different substance use treatment services.

Purpose of the Study

This study is designed to provide information about the relative influence of three approaches (case management, outpatient treatment, and residential treatment) to treating substance use. Residential substance use treatment involves clients living at a treatment facility for a period of time (usually around 30 days) while attending group, individual, and family education sessions. Outpatient substance use treatment involves clients attending group, individual, and family education sessions as well, however, the clients do not reside at a facility. Finally, case management is "a collaborative process of assessment, planning, facilitation and advocacy for options and services to meet an individual's health needs through communication and available resources to promote quality cost-effective outcomes" (Case Management Society of America, 2002, p. 5).

A sample of 330 participants who completed a Government Performance Results Act (GPRA) intake survey, received one or more of the treatment services offered, and completed a

GPRA follow-up survey, between five and eight months after their intake date, will be used for this study. For the purposes of this study, residential substance use treatment is defined as substance use treatment that occurs in a licensed residential substance abuse treatment facility and outpatient substance use treatment is defined as substance use treatment that occurs in a licensed outpatient substance abuse treatment facility, in which clients attend group, individual, and family education sessions, but do not reside at the facility. Finally, for the purposes of this study, case management is defined as services conducted by case managers that include needs assessments, goal and treatment planning, linking clients to appropriate services, monitoring the client's treatment services, and advocating for the client when necessary (Swanke & Zeman, 2011).

The specific purpose of this descriptive study is to examine the overall relative influence of this treatment program and the individual relative influence of residential substance use treatment, outpatient substance use treatment, and case management services on reduction of drug and alcohol use among participants in a federal Substance Abuse and Mental Health Service Administration grant. Evaluation of treatment influence will be based on the number of days in which drugs and/or alcohol were used within the last 30 days (dependent variable; SAMHSA, 2010).

Significance of the Study

Access to a population receiving componential treatment for substance use provides an ideal setting to evaluate the overall and individual relative influence of substance use treatment components. A study determining the influence of individual substance use treatment services is important for several reasons. As substance use continues to be a problem, along with new drugs and trends on the rise, it is important for counselors to know the relative influence different

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treatment modalities have on their clients. Previously, only a small percentage of those needing substance use treatment actually sought and received treatment, with a major barrier being the lack or inadequacy of coverage for substance use treatment by insurance companies. Due to new federal laws and regulations regarding insurance coverage for substance use treatment, the number of individuals seeking substance use treatment is expected to rise considerably.

First, a rise in insured individuals seeking substance use treatment is expected due to the Mental Health Parity and Addiction Equity Act of 2008 (MHPAEA), which mandated health insurance companies to provide coverage for mental health and substance use disorders equal to medical care coverage. Secondly, a rise in previously uninsured individuals seeking substance use treatment is expected with the implementation of the Affordable Care Act (ACA) in the United States. The Affordable Care Act commands coverage for substance use treatment for all newly covered individuals and mandates insurance coverage for all citizens, thus decreasing the number of uninsured. Carnevale Associates (2013), a research and policy analysis group, estimate that "62.5 million people will receive more substance abuse coverage through MHAPEA and the ACA, with 32.1 million gaining substance abuse benefits for the first time" (p. 1).

Another reason for determining the relative influence of different treatment services is to reduce the high-risk behaviors associated with drug use, which in turn, will reduce the spread of infectious disease. High-risk behaviors include intravenous drug use and risky sexual behaviors. The Center for Disease Control (2002) identified the need for HIV prevention to be an essential part of substance use treatment, stating, "HIV and other blood-borne infections and injection drug use are intersecting epidemics" (p. 1). About one million individuals in the United States are active intravenous drug users and about one-third of all AIDS cases each year are related to

injection drug use (Center for Disease Control, 2002). Infection with a blood-borne disease impacts public health through increased health care expenditures and an increase in parental transmission to a fetus (Watson, Weng, French, Anderson, Nemeth, Mcnutt, & Smith, 2014).

The MSM population, which includes men who identify as gay or bisexual, men who prostitute themselves to other men, situational homosexuality (i.e., men who identify as heterosexual, but have sex with men during incarceration), and men who identify as heterosexual but have sex with men, has extremely high rates of substance use. A recent survey found that "42 percent of MSM used substances recreationally in the past year" (Santos et al., 2014, p. 234). The MSM population accounts for only 2% of the United States population, but are the most affected by HIV (Center for Disease Control, 2015). The Center for Disease Control (2015) reports, "In 2010, young gay and bisexual men (aged 13-24 years) accounted for 72% of new HIV infections among all persons aged 13 to 24, and 30% of new infections among all gay and bisexual men. At the end of 2011, an estimated 500,022 (57%) persons living with an HIV diagnosis in the United States were gay and bisexual men, or gay and bisexual men who also inject drugs" (p. 1). The majority of HIV infections in the MSM population are due to risky sexual behaviors, more specifically anal sex, which is the riskiest type of sex for contracting or transmitting HIV (Center for Disease Control, 2015).

With the enormous influx of individuals having insurance coverage for substance use treatment, as well as the high cost to our society through increased health care costs, spread of infectious disease, and associated crime issues, it is imperative that effective substance use treatment services be researched and utilized to address the increasing number of individuals seeking substance use treatment. Finally, this study is significant in that the publication of the

results from this study will add to the scholastic literature available for researchers and practitioners.

Research Questions

This study addresses the following research questions:

1. What was the overall relative influence of a multicomponent (case management, outpatient treatment, and residential treatment) treatment program on the reduction of substance use in adults residing in the Texas coastal bend?

2. What was the relative influence of the treatment components (case management only, case management and outpatient, case management and residential, case management, outpatient, and residential) on the reduction of substance use in adults residing in the Texas coastal bend?

Instrumentation

The Center for Substance Abuse Treatment – Government Performance and Results Act (GPRA) Core Client Outcome Measures survey was used for data collection. The GPRA survey includes questions that have been selected from widely used data collection instruments, including the Addiction Severity Index (ASI), the McKinney Demonstration projects, the 2004 National Household Survey on Drug Abuse, the Alcohol and Drug Services Study, the Short Form 36 Health Survey (SF-36), the Risk Assessment Behavior Battery (RABB), and the National Survey on Drug Use and Health (Substance Abuse and Mental Health Services Administration, 2010). Outcome measures include substance use, criminal activity, mental and physical health, family and living conditions, education/employment status and social connectedness (SAMHSA, 2010).

Although the GPRA survey is comprised of many questions from many different sources, this study focused on changes in the self reported frequency of drug use, (*during the past 30 days, how many days have you used*) which is derived from the Addiction Severity Index (SAMHSA, 2010).

The Addictions Severity Index has a strong concurrent reliability of 0.74 to 0.91 and test-retest reliability of 0.92 (McLellan, Luborsky, Cacciola, Griffith, Evans, Barr, & O'Brien, 1985). Furthermore, Peters, Bartoi, and Sherman (2008) found the ASI outperformed other substance use screening instruments and possess good predictive value, sensitivity, and overall accuracy.

Data Collection and Analysis

The data for this study is archival data that was collected as part of a federal Substance Abuse and Mental Health Services Administration grant. The grant provided funding to a non-profit organization to provide participants with outpatient substance use treatment and substance use case management, as well as residential substance use treatment, which was provided through a contracted licensed residential substance abuse treatment facility. In order to recruit participants, the non-profit organization promoted the program to local social service agencies and substance abuse treatment facilities. Throughout the program, participants were mostly obtained through internal and external agency referrals.

After determining eligibility and signing consent to participate, a thorough intake was conducted, which included completion of an intake GPRA survey to determine baseline measures and a substance use screening and assessment to determine the level of care needed for the participant. Responses to the intake GPRA survey were input into the Services Accountability Improvement System (SAIS) online database and the participant was assigned a participant identification number. Based on the information gathered from the intake GPRA survey and the substance use screening and assessment, in combination with the severity of the participant's substance use problem, the participant was referred to one of four treatment groups: (a) case management only; (b) case management and outpatient treatment; (c) case management and residential treatment; (d) case management, outpatient treatment, and residential treatment.

For participants who were referred to the case management, outpatient treatment, and residential treatment group, they were to immediately begin outpatient substance use treatment upon discharge from the residential treatment program.

Attempts to conduct a follow-up GPRA survey between five and eight months after intake were made for each participant. This study examines 330 participants who successfully completed an intake GPRA and follow-up GPRA survey. At the time of the follow-up, the quantities of each individual treatment services were noted (i.e., 20 days in residential treatment, 40 outpatient groups attended, four case management sessions, etc.). Responses to the follow-up GPRA survey were input into the SAIS online database using the participant's identification number. In order to increase participation in the follow-up GPRA survey, a 20 dollar gift card to a grocery store was offered as an incentive.

The information gathered from the participants of this study remains confidential, and only agency employees who work under the specific grant, agency administrators, external evaluators, and authorized SAMHSA employees, have access to the SAIS online database and participant files. All participant files are secured at an off-site professional file storage warehouse. The files will be maintained for the required number of years set forth by SAMHSA, local, state, and federal governing bodies.

The data collected from the GPRA surveys will be entered into the Statistical Package for the Social Sciences (SPSS) computer software program and analyzed utilizing descriptive statistics, chi-square analysis (χ^2), and multivariate analysis of covariance (MANCOVA).

Basic Assumptions

The researcher assumed that the participants who responded to the GPRA surveys answered the questions honestly and accurately, and that the survey questions measured what the researcher intended them to measure.

Delimitations and Limitations

The individuals eligible for participation in this study were limited to those who resided in one of the 12 South Texas counties served by the agency. The selected sample may or may not be generalizable to a larger population of substance users. Additionally, the population may be biased in other ways that are not readily evident.

The participant responses should be interpreted with caution. Participants may not have accurately recalled information about their drug and/or alcohol use, or may have falsely responded due to fear of legal consequences, guilt, shame, or judgment. Additionally, the use of certain substances is known to affect memory, which could prevent accurate recollection of information. Finally, the survey results were based on self-report, which are vulnerable to human error, lack of or inaccurate recall, or overly positive/negative responses.

Definition of Terms

ACA: Affordable Care Act, a federal law providing for a fundamental reform of the United States healthcare and health insurance system, signed by President Barack Obama in 2010; formally called Patient Protection and Affordable Care Act.

Addiction: A chronic, relapsing brain disease that is characterized by compulsive drug seeking and use, despite harmful consequences.

Alcohol: A clear liquid that has a strong smell that is used in some medicines and other products, and that is the substance in liquors (such as beer, wine, or whiskey) with the ability to cause intoxication.

Assessment: An ongoing process through which the counselor collaborates with the client and others to gather and interpret information necessary for developing and revising a treatment plan and evaluating client progress toward achievement of goals identified in the treatment plan, resulting in comprehensive identification of the client's strengths, weaknesses, and problems/needs.

Case Management: A set of logical steps and a process of interaction within a service network which assure that a client receives needed services in a supportive, effective, efficient, and cost-efficient manner.

CSAT: Center for Substance Abuse Treatment, a division of the Substance Abuse and Mental Health Services Administration.

Discharge: Formal, documented termination of services.

Drug: Something, and often an illegal substance, that causes addiction, habituation, or a marked change in consciousness.

Facility: A building or area that is licensed to provide substance use treatment.

GPRA Survey: The Government Performance and Results Act (GPRA) survey was constructed to measure substance use treatment program effectiveness and is a requirement of programs funded through SAMHSA and CSAT. The GPRA survey includes questions that have been selected from widely used data collection instruments.

Group Counseling Session: Therapy in the presence of a therapist in which several patients discuss and share their personal problems.

Illicit Drug: The non-medical use of a variety of drugs that are prohibited by international law.

Individual Counseling Session: Professional guidance of the individual by utilizing psychological methods especially in collecting case history data, using various techniques of the personal interview, and testing interests and aptitudes

Residential Treatment: A residential substance use program that generally adopts a medical model of substance disorders and provides intensive counseling and medication in a relatively short period of time.

Intake: The process of gathering information about a prospective client and giving a prospective client information about treatment and services.

Level of Care: The intensity of care being provided by the counselor or facility.

MHPAEA: The Paul Wellstone and Pete Domenici Mental Health Parity and Addiction Equity Act of 2008 (MHPAEA) is a federal law that generally prevents group health plans and health insurance issuers that provide mental health or substance use disorder benefits from imposing less favorable benefit limitations on those benefits than on medical/surgical benefits.

Outpatient Treatment: A treatment modality that emphasizes counseling rather than medication as a major component of treatment. Clients continue to live in the community and go to clinics on a regular basis for counseling sessions.

Relapse: A recurrence of substance use after a period of improvement.

SAIS: Services Accountability Improvement System was developed as part of the effort mandated by the Government Performance and Results Act of 1993. GPRA is intended to increase program effectiveness and public accountability by promoting a focus on results, service quality, and customer satisfaction.

SAMHSA: The Substance Abuse and Mental Health Services Administration (SAMHSA) is the agency within the United States Department of Health and Human Services that leads public

health efforts to advance the behavioral health of the nation. SAMHSA's mission is to reduce the impact of substance abuse and mental illness on America's communities.

Screening: The process through which a qualified staff, client or participant, and available significant others determine the most appropriate initial course of action, given the individual's needs and characteristics and the available resources within the community. In a treatment program, screening includes determining whether an individual is appropriate and eligible for admission to a particular program.

Self-help Group: The acquiring of information or the solving of one's problems, especially those of a psychological nature, without the direct supervision of professionals or experts, as by joining or forming lay groups that are devoted to one's interests or goals.

Substance Abuse: A maladaptive pattern of substance abuse leading to clinically significant impairment or distress that is manifested by specific symptoms, that do not include tolerance and withdrawal, occurring within a 12-month period.

Substance Abuse Counselor: Counselors that advise people who suffer from alcoholism and/or drug addiction. They provide treatment and support to help the client recover from addiction or modify problem behaviors.

Substance Abuse Treatment Facility: A substance abuse treatment facility may be any facility that offers treatment for persons with chemical dependency.

Substance Dependence: A maladaptive pattern of substance abuse leading to clinically significant impairment or distress that is manifested by specific symptoms, including tolerance and withdrawal, occurring within a 12-month period.

Substance Use: A maladaptive pattern of substance use leading to clinically significant impairment or distress.

Treatment Modality: The therapeutic method in which substance use is treated.

Organization of Remaining Chapters and Summary

Chapter one provided an overview of the impact drugs and alcohol has on individuals, families, communities, and society, and the importance of researching the influence of different substance use treatment services. The need for determining beneficial combinations of treatment services to maximize reduction in drug and/or alcohol use has been emphasized. The statement of the problem, purpose of the study, significance of the study, research questions, instrumentation, data collection and analysis, basic assumptions, delimitations and limitations, and definition of terms have been articulated.

Chapter two is a comprehensive literature review supporting the need for determining beneficial combinations of treatment services to maximize drug and alcohol treatment efficacy. Chapter three describes the research methodology used in this study, with the results of quantitative data analysis presented in chapter four. Finally, chapter five provides the interpretation of research results, a discussion of the results in comparison to the literature review, and recommendations for further research.

CHAPTER II – REVIEW OF THE LITERATURE

There is an abundance of research on substance use treatment. This literature review consists of a brief review of the history of substance use and substance use treatment in the United States, followed by a review of client assessment, treatment placement, and levels of care. Next, categories of substance use treatment modalities are reviewed and defining treatment success is discussed. Finally, an in depth review of case management, outpatient substance use treatment, and residential substance use treatment is provided, including a review of respective efficacy.

History of Substance Use and Substance Use Treatment in the United States

Although beliefs, views, information, and perceptions of drugs and alcohol have transformed over time, drugs and alcohol have been a part of the American culture for centuries (Brown, 1981). During the United States Colonial Period (1600s-1700s), alcohol was viewed as an important part of early American settlers' diets, and was believed to have disease preventative and healing powers, and consumption was not criticized (McHale, 2014). Furthermore, during this same time period, cocaine and morphine were available in their natural form and used for their analgesic properties (Wright, 2011).

The addictive properties of alcohol were first noticed during the early 1800s, leading to the first temperance movement, as the belief was that alcohol dependence could only be cured through abstinence (Murdach, 2009). During this same time period, scientists began to understand the pharmacological properties of cocaine, morphine, and opium, which led to physicians prescribing opium and cocaine for medical illnesses, resulting in pharmaceutical industry growth (Wright, 2011). With the invention of the hypodermic needle in the early 1800s,

intravenous drug use was discovered and allowed for substances to be injected into the body (McHale, 2014).

During the late 1800s, cocaine, opium, and morphine were commonly used in over-the-counter medications and other consumables, including Coca-Cola, which contained cocaine until 1903 (Ainsworth, 2015). In 1868, heroin was praised as a non-addictive treatment for those addicted to morphine and alcohol (McHale, 2014). Noticing an increase in alcohol addiction Dr. Leslie Keeley opened the first addiction treatment institutes in America in 1879, promoting a cure for alcoholism (White, 1998)

The United States government also noticed a rising trend in substance use and began to intervene to address substance use in the early 1900s. In 1920, the 18th Amendment to the United States Constitution and the Volstead Act were passed, prohibiting the manufacturing, selling, and transportation of alcohol in the United States, which led to an increase in illegal alcohol production until 1933 when the 18th Amendment was repealed (McHale, 2014).

Recognizing the increasing number of individuals addicted to alcohol, and suffering from alcohol addiction themselves, Bill Wilson and Dr. Bob Smith establish Alcoholics Anonymous in 1935, with the mission "to stay sober and help other alcoholics achieve sobriety" (White, 1998, p. 1). In 1948, treatment of substance use advanced to residential facilities with the creation of the Minnesota Model, which combined the principles of Alcoholics Anonymous and cognitive-behavioral therapy (Petrie, 2012).

The concept of alcoholism as a disease did not surface until the 1940s (Levine, 1984; Henkel, 1998), and the introduction of psychedelic drugs in the 1960s led to drug use being considered a national epidemic (McHale, 2014). The American Bar Association and the American Medical Association called for community-based treatment programs in 1961, and in

1964, methadone was introduced as a treatment for narcotic addiction (White, 1998). The United States government consistently struggled to control substance use and eventually, in the 1990s, federal agencies addressing alcohol, drugs, and mental health were recognized, including the establishment of the Substance Abuse and Mental Health Services Administration in 1992 (McHale, 2014).

Elements of Substance Use Treatment: Client Assessment, Treatment Placement, and

Levels of Care

Qualified professionals follow sequential steps to determine a client's course of treatment (Center for Substance Abuse Treatment, 2009). First, the professional determines if the client is eligible for substance use treatment services (CSAT, 2009). Eligibility determination is largely based on financial abilities, age, and priority populations (i.e., pregnant females) (CSAT, 2009). Next, the professional screens the client to determine if the client is indeed in need of substance use treatment services, and if decided to be, the professional must determine the most appropriate level of care for the client, including where to refer the client for treatment services (CSAT, 2009). Finally, the professional recommends treatment services to the client, including specific types of services and intensity of treatment services (CSAT, 2009).

Determining the proper level of care is perhaps the most challenging part of determining a client's course of treatment. The Substance Abuse and Mental Health Services Administration – Center for Substance Abuse Treatment (2009) has established Uniform Patient Placement Criteria (UPPC) in attempts to "lead to effective placement of clients in appropriate levels of care" (p. 1). The UPPC was developed to establish "uniform criteria to guide proper patient placement, practice guidelines to promote the establishment of effective individualized treatment

modalities, and outcome data to continually improve both the criteria and the guidelines" (CSAT, 2009, p. 6).

The Substance Abuse and Mental Health Services Administration adopted the American Society of Addiction Medicine's (ASAM) placement criteria for the base of their model. The ASAM's placement criterion is comprised of four levels of care that vary in treatment intensity and length. Level one is traditional outpatient treatment that consists of treatment services totaling less than nine hours per week (CSAT, 2009). Level two involves intensive outpatient (or partial hospitalization), which consists of a minimum of nine hours of treatment services per week in a structured program (CSAT, 2009). Level two allows clients to receive intensive treatment while remaining in their own environment. Level three, medically monitored intensive inpatient/residential, involves "inpatient treatment in a planned regimen of 24-hour observation, monitoring, and treatment; utilizes a multidisciplinary staff for patients whose biomedical, emotional, and/or behavioral problems are severe enough to require inpatient services" (CSAT, 2009, p. 12). Finally, the highest level of care, level four, is medically managed intensive inpatient, which includes 24-hour medical and nursing services and takes place in a hospital setting (CSAT, 2009).

After collecting biopsychosocial information, assessing the client's substance use problems and treatment needs, and formulation a diagnosis, the counselor determines the most appropriate level of care and recommends one or more specific treatment services to the client. Client placement and level of care are usually determined based on the severity of the client's substance use problem, diagnosis, and medical, psychological, and social needs (CSAT, 2009). The levels of care are not to be viewed as separate or disconnected, but rather as a continuum of treatment services that clients move within (Mee-Lee & Shulman, 2003).

Various Treatment Modalities for Substance Use Treatment

Various substance use treatment modalities exist, as do substance use professionals' opinions regarding which modality is superior. A modality, as defined by the Institute of Medicine (1990) is "the specific activities that are used to relieve symptoms or to induce behavior change" (p. 90). The majority of substance use treatment modalities can be divided into one of three categories: biomedical modalities, psychological modalities, and sociocultural modalities (CSAT, 2009).

Biomedical Modalities for Substance Use Treatment

Biomedical modalities focus on physical detoxification of substances and utilize prescription medications, such as methadone, antagonist medications, and other psychopharmacological interventions to reduce cravings (CSAT, 2009). Medications including acamprosate, buprenorphine, disulfiram, methadone, and naltrexone have been extensively researched and are frequently prescribed as pharmacological treatments for certain substance users (McGovern & Carroll, 2003). Although medications can be advantageous by assisting individuals in achieving or maintaining sobriety, one key limitation is poor compliance, especially in individuals who self-administer their medications (Fuller & Gordis, 2004).

One of the most widely known pharmacological treatment for opioid addiction is methadone. Methadone is a "long-acting synthetic opioid agonist medication that can prevent withdrawal symptoms and reduce craving in opioid-addicted individuals" (National Institute on Drug Abuse, 2012b, p. 39). An abundance of research evaluating the effectiveness of methadone as a treatment for opioid addiction exists, with numerous studies finding favorable outcomes. Most notably, methadone has been found to reduce drug use (Qian et al., 2008), high-risk behaviors (Wong, Lee, Lim, & Low, 2003), and HIV infection (Hartel & Schoenbaum, 1998).

Although methadone alone has been identified as effective at reducing substance use, outcomes improve when methadone is paired with behavioral treatment, including individual and/or group therapy (National Institute on Drug Abuse, 2012b). Furthermore, the best outcomes occur when methadone is combined with behavioral therapy and "patients are provided with, or referred to, other needed medical, psychiatric, psychological, and social services" (National Institute on Drug Abuse, 2012b, p. 39).

Naltrexone, an opioid antagonist, acamprosate, a gamma-amniobutyric acid (GABA) analogue, and disulfiram, an aldehyde dehydrogenase inhibitor, are all approved by the United States Food and Drug Administration for the treatment of alcohol dependence (National Institute on Alcohol Abuse and Alcoholism, 2005). Research regarding the effectiveness of these medications has delivered mixed outcomes. One study found naltrexone significantly reduced risk of relapse during the initial three months of abstaining from alcohol by roughly 36% (Srisurapanont, & Jarusuraisin, 2005). Research outcomes favorable to acamprosate were challenged after two sizeable studies failed to confirm previous outcomes (Anton et al., 2006; Mason, Goodman, Chabac, & Lehert, 2006). However, unlike pharmacological treatments for opioid-dependent individuals, studies have failed to find a synergistic effect when alcohol-dependence medications are combined with behavioral therapy (Anton et al., 2006).

Sociocultural Modalities for Substance Use Treatment

Sociocultural modalities include the community reinforcement approach, family therapy, therapeutic communities, various motivational techniques, and culturally specific interventions (CSAT, 2009, p. 8). Sociocultural approaches examine how social and cultural stressors affect an individual and the influence they have on substance use (CSAT, 2004). Sociocultural-oriented theorists believe "environmental influences such as socioeconomic status, employment, level of

acculturation, legal penalties, family norms, and peer expectations can have a significant influence on a person's substance use and abuse" (CSAT, 2004, p. 65). Viewing substance use through a sociocultural perspective, treatment would incorporate evoking positive changes in one's physical and social environment and may include job training, involvement in faith-based activities, or social skills training (CSAT, 2004).

Examples of sociocultural-oriented therapies used in substance use treatment programs include brief strategic family therapy and multi-dimensional family therapy (McGovern & Carroll, 2003). Brief strategic family therapy combines practical and problem-focused interventions and research supports its efficacy, especially among youth with behavioral problems (Robbins & Szapocznik, 2000). Furthermore, research has linked brief strategic family therapy to higher treatment completion rates (Szapocznik & Kurtines, 1989).

Psychological Modalities for Substance Use Treatment

Psychological modalities embrace a multitude of therapeutic approaches (CSAT, 2009), including most commonly, cognitive-behavioral therapy (Ellis, 2004; Singer, 2006; McHugh, Hearon, & Otto, 2010), solution-focused brief therapy (Linton, 2005), motivational enhancement therapy (McGovern & Carroll, 2003), and behavior therapy (Kraft & Kraft, 2005). Less common approaches to substance use treatment include reality therapy (Moore, 2001), aversion therapy (Gossop & Carroll, 2006), and gestalt therapy (Clemmens & Matzko, 2005).

Behavior-based therapies are some of the most universal and prevalent treatment approaches in substance use and aim to "help engage people in drug abuse treatment, provide incentives for them to remain abstinent, modify their attitudes and behaviors related to drug abuse, and increase their life skills to handle stressful circumstances and environmental cues that

may trigger intense craving for drugs and prompt another cycle of compulsive abuse" (National Institute on Drug Abuse, 2012b, p. 50).

Of the behavior-based therapies utilized for substance use, cognitive-behavioral therapy (CBT) is the most prominent (Singer, 2006). "Cognitive-behavioral strategies are based on the theory that in the development of maladaptive behavioral patterns like substance abuse, learning processes play a critical role" (National Institute on Drug Abuse, 2012b, p. 50). At its core, the CBT philosophy views the results of substance ingestion (euphoria, increased confidence, decreased depression or anxiety, etc.) as a strong and persistent reinforcer of the behavior (McHugh, Hearon, & Otto, 2010). Cognitive-behavioral therapy aims to mitigate those reinforcements through contingency management or by enhancing an individuals skills, knowledge, and abilities to facilitate reduction or abstinence from substances (McHugh, Hearon, & Otto, 2010). Individuals engaging in cognitive-behavioral therapy are educated on way to identify and correct maladaptive behaviors using various skills, techniques, and interventions (National Institute on Drug Abuse, 2012b). Cognitive-behavioral therapy is frequently use in both individual and group treatment settings, and may include motivational interventions, contingency management, and relapse prevention (McHugh, Hearon, & Otto, 2010).

Evidence supporting the efficacy of CBT for substance use treatment is well documented. A meta-analytic review of 34 trials composed of 2,340 participants found CBT to be an effective treatment for substance use, with a moderate overall effect size (Dutra, Stathopoulou, Basden, Leyro, Powers, & Otto, 2008). Further analysis revealed that effect size varied based on drug, with cannabis having the largest effect size, followed by cocaine, opioids, and polysubstance dependence (Dutra et al., 2008). Magill and Ray (2009) reinforced previous findings regarding CBT efficacy for substance use in a meta-analysis that examined 53 trials for substance abusing

adults. The study yielded statistically significant results and a small overall effect size, with cannabis having the largest individual effect size (Magill & Ray, 2009). Additional research favorable to CBT discovered individuals retained learned skills and techniques post-discharge (National Institute on Drug Abuse, 2012b). Resulting from the extensive research and positive outcomes of CBT, many substance use treatment and manual-guided therapy programs are developed utilizing or integrating CBT principles, with the Matrix Model being one of the more prevalent programs.

Matrix Model: Development, administration, and efficacy. The Matrix Model is an outpatient treatment program developed by the Matrix Institute on Addictions in the 1980s in response to the demand for cocaine abuse treatment and was constructed based on a CBT approach using empirically supported findings (Rawson et al., 1995). It has since been expanded as a treatment for various drugs and alcohol.

> The goal of the Matrix Model has been to provide a framework within which cocaine abusers can achieve the following: (a) cease drug use, (b) remain in a treatment process for 12 months, (c) learn about issues critical to addiction and relapse, (d) receive direction and support from a trained therapist, (e) receive education for family members affected by the addiction, (f) become familiar with the self-help programs, and (g) receive monitoring by urine testing. (Rawson et al., 1995)

The Matrix Model is a highly structured treatment program consisting of 16 weeks of outpatient treatment that includes group, individual, and family education sessions (Rawson, Obert, McCann, & Ling, 2005). The core of the Matrix Model consists of 12 individual sessions, eight early recovery skills group sessions, 32 relapse prevention group sessions, and 12 family education group sessions (Rawson et al., 1995). Each session targets specific goals and topics

and is accompanied by handouts containing information and questions pertinent to the session topic. Other elements of the program include 12-step participation, social support groups, random alcohol and drug screening, contingency management, motivational interviewing, and education concerning medication-assisted treatment. Therapy sessions are directed by a Matrix Model trained professional whom "functions simultaneously as teacher and coach, fostering a positive, encouraging relationship with the patient and using that relationship to reinforce positive behavior change" (National Institute on Drug Abuse, 2012b, p. 58). The Matrix Model emphasizes the significance of the counselor-client relationship and stresses the importance of authentic interactions between the counselor and the client (National Institute on Drug Abuse, 2012b).

Multiple evaluations of the Matrix Model have demonstrated favorable outcomes related to reduction of substance use (Rawson, Obert, McCann, & Mann 1986; Rawson et al., 1995; Rawson, Obert, McCann, & Ling, 1991). The initial evaluation of the Matrix Model examined treatment outcomes of 83 cocaine abusers, eight months post treatment (Rawson et al., 1986). Study participants self-selected to received no formal treatment (attend Alcoholics Anonymous, Cocaine Anonymous, or Narcotics Anonymous only), 28 days of residential treatment, or outpatient treatment using the Matrix Model (Rawson et al, 1986). After eight months, the participants were contacted and interviewed to gather post-treatment cocaine use. Results indicated participants in the Matrix Model group had significantly less rates of cocaine use at follow-up than participants who received residential treatment or no formal treatment (Rawson et al, 1986). A second evaluation of the Matrix Model supported the preliminary findings, in which 100 cocaine dependent participants were randomly assigned to either six months of treatment using the Matrix Model or six months of treatment from other available community resources.

Follow-up interviews were conducted at three, six, and 12 months and revealed a greater amount of participants in the Matrix Model group reported improvement of employment, family, and depression problems than those in the community resource group (Rawson et al., 1995). As a result of the Matrix Model's multiple positive evaluations, along with recent adaptions to cater to specific subpopulations, it is extensively utilized in treatment facilities in the United States and other countries.

The Efficacy of Substance Use Treatment: Defining Substance Use Treatment Success

A major issue in substance abuse treatment efficacy literature is defining substance use treatment success. Consistent and universally agreed upon definitions of substance use treatment success has eluded researchers (Eversman, 2012). In the United States, most substance use treatment programs adhere to an abstinence-only philosophy, defining treatment success as complete abstinence of substance use, derived from 12-step programs and the disease model of addiction, (Marlatt, Blume, & Parks, 2001; White, Boyle, & Loveland, 2002; Gallon, Gabriel, & Knudsen, 2003; Futterman, Lorente, & Silverman, 2004; Libretto, Weil, Nemes, Linder, & Johansson, 2004). However, many public health substance use treatment models emphasize harm reduction metrics (such as reduction in use), in contrast to abstinence-only approaches (Marlatt & Tapert, 1993).

> Harm reduction is an approach for substance use treatment that involves a set of practical techniques that are openly negotiated with clients around what is most likely to be achieved. The focus is on reducing the negative consequences and risky behaviors of substance use; it neither condones nor condemns any behavior. By incorporating strategies on a continuum from safer drug use, to managed substance use, up to

abstinence, harm reduction practice helps clients affect positive changes in their lives.

(National Health Care for the Homeless Council, 2010, p. 1)

The harm reduction approach defines and evaluates treatment success differently than the abstinence-based approach, and views any reduction in substance use as a success.

Substance use professionals retain differing opinions concerning the superiority of residential or outpatient substance use treatment programs, with research providing varied results. Some professionals regard treatment success as any reduction in alcohol or drug consumption from intake to discharge, while others consider treatment to be successful only if the individual achieves and maintains complete abstinence from drugs and alcohol.

Approaches to Substance Use Treatment

Several approaches to substance use treatment are available. Some of the most widely accepted and prominent treatment approaches include residential treatment, outpatient treatment, pharmacological interventions, inpatient treatment, and case management services. Although individually, each of these treatment approaches have demonstrated efficacy for reducing substance use, a combination of treatment approaches may produce better outcomes than a single approach.

Case Management Services for Substance Use

Pursuing a reduction in residential treatment stays, enhancing cost-efficiency, and improvement in client's quality of life, a movement towards treating mental health and substance use in outpatient settings commenced in the 1960s (Lindhal, 2013). However, this movement led to a rapid decrease in individuals seeking treatment and a decrease in successful treatment outcomes due to lack of service and treatment coordination and other barriers (Lindhal, 2013). A need for a professional to assist clients in accessing services, coordinate services, link clients to

services, and monitor clients throughout those services was evident, consequently case management services were created.

Because case management services exist in various professions, there are multiple definitions of case management, with varying descriptions of the role of a case manager (Huber, 2000). Despite multiple definitions, two definitions outline case management as it relates to the field of social services. The Case Management Society of America (CMSA) defines case management as "a collaborative process of assessment, planning, facilitation and advocacy for options and services to meet an individual's health needs through communication and available resources to promote quality cost-effective outcomes" (CMSA, 2002, p. 5). Furthermore, the National Association of Social Workers (1995) define case management as:

> A method of providing services whereby the [professional] assesses the needs of the
>
> client and the client's family . . . and arranges, coordinates, monitors, evaluates, and
>
> advocates for a package of multiple services to meet the specific client's complex needs.
>
> These standards also emphasize interventions at micro-, mezzo-, and macro-levels, that
>
> is, the case manager should be acting to achieve goals for the individual client, creating
>
> linkages with the resource systems and improving the nature of those systems, as well as
>
> influencing social policies which impact delivery systems. (p. 1)

Case manager functions and roles. Although case managers might appear to hold a broad, all-encompassing position, case managers have specifically defined goals and roles. Alexander, Pollack, Nahra, Wells, and Lemak (2007) state:

> A primary goal of case management is to coordinate services across treatment settings
>
> and to integrate substance abuse services with other types of services offered in the
>
> community, including housing, mental health, medical, and social services. However,

case management is a global construct that consists of several key dimensions, which

include extent of case management coverage, the degree of management of the referral

process, and the location of case management activity (on-site, off-site, or both). (p. 221)

Case managers typically have five main functions: assessment, planning, linkage,

monitoring, and advocacy (Alexander et al., 2007). Case managers differ from counselors in that

case manager's focus on resource acquisition, where as counselors focus on facilitating change

within the client (Alexander et al., 2007).

Eight clearly defined case management principles provide direction for the field of case

management. First, case managers serve as a single point of reference for clients who are

receiving services from multiple agencies (Alexander et al., 2007). Secondly, case management

is driven by the client and the client's needs. "The case manager uses her expertise to identify

options for the client, but the client's right of self-determination is emphasized. Once the client

chooses from the options identified, the case manager's expertise comes into play again in

helping the client access the chosen services" (Center for Substance Abuse Treatment, 1998, p.

13). Third, case managers serve as advocates for their clients, advocating at a variety of settings,

including community agencies, families, the legal system, and even legislative bodies (Center for

Substance Abuse Treatment, 1998). Case managers should also educate non-clinical

professionals about the field and substance use treatment.

Case management is community-based and pragmatic, assisting clients in securing

tangibles such as food, shelter, clothing, transportation, or child care, as well as teaching clients

day-to-day skills to remain abstinent from substance use and a contributing member or society

(Center for Substance Abuse Treatment, 1998). The anticipatory aspect of case management

necessitates case managers to possess the ability to identify future problems and assist the client

in determining options and taking action to manage or eliminate future problems (Center for Substance Abuse Treatment, 1999). Finally, flexibility and cultural sensitivity are essential to case management (Center for Substance Abuse Treatment, 1999).

Various theoretical models of case management. Mueser, Bond, Drake, and Resnick (1998) found that various models of case management could be prescribed to three broad categories: standard case management, rehabilitation-oriented case management, and intensive comprehensive case management. Within these three categories, four models of case management specifically pertaining to substance users exist: the brokerage model, the assertive community treatment model, the clinical model, and the strengths-based model (Vanderplasschen, Rapp, Wolf, & Broekaert, 2004). The brokerage model is a form of standard case management, the strengths-based and clinical case management models are forms of rehabilitation-oriented case management, and the assertive community treatment model is a form of intensive comprehensive case management (Vanderplasschen, Wolf, Rapp, & Broekaert, 2007).

Although all four case management models incorporate the same core functions of assessment, planning, linking, monitoring, and advocacy, the models vary based on certain characteristics, including degree of service provision, client participation, and case manager involvement (Vanderplasschen, Wolf, Rapp, & Broekaert, 2007).

The brokerage model of case management is a short-term approach, usually one or two sessions, that focuses on identifying client needs and linkage to additional or supportive services (Vanderplasschen, Wolf, Rapp, & Broekaert, 2007). The brokerage model emphasizes coordination of services and places less importance on the client-case manager relationship (Vanderplasschen & Wolf, 2005). Furthermore, case managers operating from a brokerage

34

model often maintain larger caseloads of around 35 clients and focus on client stabilization (versus growth) and empowering clients to become more autonomous. (Vanderplasschen & Wolf, 2005). The brokerage model does not work as part of a multidisciplinary team and does not provide services in client homes (Vanderplasschen & Wolf, 2005).

The assertive community treatment (ACT) case management model is a more comprehensive approach, placing importance on the client-case manager relationship and focusing on client growth, while working as part of a multidisciplinary team (Vanderplasschen & Wolf, 2005). Assertive community treatment case managers usually maintain smaller caseloads of around 15 clients and focus on paternalism while providing direct services to the client (Vanderplasschen & Wolf, 2005). These services include direct counseling services, skill building, family consultations, and crisis intervention (Stein & Test, 1980). Due to its intensity and comprehensiveness, the ACT case management model is frequently utilized with dually-diagnosed and homeless clients (Vanderplasschen & Wolf, 2005).

The strengths-based model of case management focuses on client strengths and empowerment and perceives clients as possessing the abilities and resources to effectively manage the challenges they face (Brun & Rapp, 2001). Strengths-based case management generally maintains caseloads of around 15 clients, emphasizes the importance of the client-case manager relationship, is not part of a multidisciplinary team, and promotes client growth (Vanderplasschen & Wolf, 2005).

Clinical case management differs from other case management models in that the case manager serves as a therapist and role-model, resulting in placing extreme importance on the client-case manager relationship (Vanderplasschen & Wolf, 2005). Due to the intensity of the clinical case management model, caseloads usually consists of around 10 clients and emphasis is

placed on service coordination and provisions, which might include individual and family psychotherapy or skill building (Vanderplasschen & Wolf, 2005).

Efficacy of case management approaches to substance use treatment. Case management has been vastly researched, with most research finding favorable outcomes. Case management effectiveness has been associated with over 450 outcomes (Rapp, Van Den Noortgatc, Broekaert, & Vanderplasschen, 2014). Specifically, research supports the notion that case management reduces drug-using behavior and high-risk sexual behavior (Martin & Scarpitti, 1993; Rhodes & Gross, 1997). Other studies have found case management to increase quality of life (Drake, McHugo, Clark, Teague, Xie, Miles, & Ackerson, 1998; Karow, Reimer, Schafer, Krausz, Haasen, & Verthein, 2010) and parenting skills (Dakof et al., 2010; Suchman, DeCoste, Castiglioni, McMahon, Rounsaville, & Mayes, 2010). Case management has also been shown to improve living situation (Calsyn, Yonker, Lemming, Morse, & Klinkenberg, 2005) and reduce psychiatric symptoms (Drake et al., 1998). Other benefits of case management may include enhancing social stability (Jerrell & Ridgely, 1995) as well as improve occupational functioning (Cox, Walker, Freng, Short, Meijer, & Gilchrist, 1998; Siegal, Fisher, Rapp, & Kelliher, 1996).

Research has also found case management to positively impact substance use treatment. Clients provided with case management services have improved linkage to treatment rates (Mejta, Bokos, Mickenberg, Maslar, & Senay, 1997). Furthermore, clients are more likely to remain in treatment if provided with case management services (Scott, Sherman, Foss, Godley, & Hristova, 2002). Additionally, Siegal, Rapp, Li, Saha, and Kirk (1997) found clients to have increased treatment participation and engagement, as well as increased use of aftercare services when receiving case management services.

Several meta-analyses have examined the effect of case management services on substance use treatment outcomes. One study aimed to "conduct a systematic review of all RCTs [randomized clinical trials] on the use of case management for helping drug abusers in or out of treatment. Outcome criteria included successful linkage with other services, illicit drug use outcomes, and a range of related outcomes" (Hesse, Vanderplasschen, Rapp, Broekaert, & Fridell, 2007, p. 1). The researchers retrieved studies for their meta-analysis using Cochrane Controlled Trials Register, MEDLINE, EMBASE, LILACS, PsycINFO, Biological Abstracts, reference searching, personal communication, conference abstracts, and book chapters on case management. To strengthen the meta-analysis, Hesse, Vanderplasschen, Rapp, Broekaert, and Fridell (2007) had two independent groups of reviewers extract the data for review and only included "randomized controlled studies that compared a specific model of case management with either treatment as usual or another treatment model" (p. 1) and studies that "included only patients with at least one alcohol or drug related problem" (p. 1). The researchers had two independent groups of reviewers extract the data for review. The results from 15 studies, containing 6694 participants, were extracted in which 14 studies were conducted in the United States and one study was conducted in Europe.

Ten studies consisting of 3132 participants were used to compare the effects of case management on linkage to community and treatment services. The analysis found case management to be effective in linking clients to community and treatment services when compared to standard-of-care treatment or other possible treatment options, including psychoeducation or brief intervention (Hesse et al., 2007).

Seven studies consisting of 2391 clients did not find a reduction in illicit drug or alcohol use when compared to standard-of-care treatment. However, a single, large study did find case

management to be more effective in reducing drug use among heroin users, when compared to psycho-education and drug counseling (Hesse et al., 2007).

A more recent study conducted a meta-analysis to improve the previously mentioned analysis of case management. Rapp, Van Den Noortgatc, Broekaert, and Vanderplasschen (2014) analyzed 21 randomized clinical trials, comparing the efficacy of case management to standards-of-care conditions and active interventions. Adding to the previous analysis, the researchers added seven clinical trials and increased the number of targeted outcomes to 455. Rapp et al. (2014) stated:

> Further, we addressed the issue of whether case management has differential effects on two types of treatment outcomes, treatment tasks, and personal functioning. Moderators in this study included four characteristics of case management - type of outcome, practice model, location of case management on the treatment continuum, and intervention quality. Two study features - duration of follow-up period and methodological quality - were also included as moderators. The three-level meta-analysis used in this study allowed us to investigate the consistency of case management's effect across outcomes and look for the effects of moderators. (p. 607)

Research articles were identified through database searches ($n = 125$) and other sources ($n = 10$). Of the 135 articles screened, 43 were excluded for various reasons. The remaining 92 articles were assessed for eligibility, and 54 were excluded for various reasons including incompletion of the study, lack of a controlled trial, the use of combined interventions, not all participants being substance users, or lack of providing case management services. Next, of the 38 remaining articles, seven were excluded for not containing statistics that allowed for computation of an effect size and standard errors.

The results of the analysis indicated that compared to standard of care, case management was efficacious across all targeted outcomes, although the overall effect was weak. Other results found "a significant difference between case management's effect on treatment task outcomes such as linking with and staying in treatment and improving individuals' functioning of persons with substance abuse problems in areas such as substance use and HIV risk behaviors" (Rapp et al., 2014, p. 605).

Research overwhelming supports the inclusion of case management services for substance use clients. The positive impact of case management services across various domains demonstrates the importance of incorporating case management services in substance use treatment.

Outpatient Substance Use Treatment Services

A recent increase in outpatient substance use treatment programs has been fueled by a steady incline of individuals seeking substance use treatment and rising concerns that conventional residential treatment is unaffordable and unnecessary to attain abstinence (Campbell, Gabrielli, Laster, & Liskow, 1997). Outpatient substance use treatment programs are similar to residential substance use treatment programs in numerous ways, however, the most distinguishing difference between the two is that outpatient does not require overnight stays, allowing clients the freedom to meet other obligations such as work, family, or education responsibilities (Gifford, 2011).

Outpatient treatment programs can differ significantly in the structure, organization, materials used, therapeutic approach, length of program, eligibility requirements, and completion criteria. However, most outpatient treatment programs, at a minimum, consist of an intake/admission, individualized treatment planning, group and individual counseling sessions,

and discharge planning (Center for Substance Abuse Treatment, 2006). Other services that may be offered in outpatient programs include psychoeducation components, pharmacotherapy and medication management, alcohol and drug use monitoring through urine, blood, hair, or saliva samples, case management, vocational training, and family involvement or family counseling sessions (CSAT, 2006).

Factors associated with improved outpatient treatment outcomes. Increasing numbers of individuals seeking substance use treatment necessitates identification and application of factors affecting outpatient treatment efficacy (CSAT, 2006). Outpatient treatment must be available, accessible, and accommodating of a broad range of clients (CSAT, 2006). Upon first contact, program staff members should be hospitable and the admissions process should be efficient and free from unnecessary barriers, as admission delays can significantly increase early withdrawal from treatment (Festinger, Lamb, Marlowe, & Kirby, 2002).

During the initial assessment, it is common for counselors to use the transtheoretical model to assess the client's current stage of change. Identifying clients' motivation for change is a priority as is utilization of approaches shown to enhance motivation, such as contingency management (Petry, 2000) and motivational interviewing (Miller & Rollnick, 2002; Prochaska & DiClemente, 1984). Additionally, fostering rapport and trust between the client and counselor should be emphasized as therapeutic alliance has repeatedly been identified as one of the most important factors in client retention and treatment success (Martin, Garske, & Davis, 2000; CSAT, 2006). Client retention is essential to improved outcomes and treatment success and research indicates an increased risk of relapse in clients who prematurely terminate treatment (CSAT, 2006). Additionally, research indicates improved outcomes for clients who complete

treatment, regardless of treatment duration (Gottheil, Weinstein, Sterling, Lundy, & Serota, 1998).

Outpatient treatment outcomes have been show to improve when treatment programs thoroughly assess and address individual treatment needs (Hser, Polinsky, Maglione, & Anglin, 1999; McCaul, Svikis, & Moore, 2001; McLellan et al., 1999). The National Institute on Drug Abuse (2012b) states, "matching treatment settings, interventions, and services to each individual's particular problems and needs is critical to his or her ultimate success in returning to productive functioning in the family, workplace, and society" (p. 3). Substance use is a complex, chronic illness and the range of treatment services, including pharmacological therapies, should be viewed as a continuum of care that clients move within to match their current condition (CSAT, 2006). Gradually decreasing treatment intensity is important and clients should be frequently evaluated to determine treatment progress and readiness to transition into less intensive treatment (CSAT, 2006). Rapid or premature changes in treatment intensity can harm client progress (CSAT, 2006). Furthermore, it is essential for treatment staff to assist clients in integrating self-help groups, such as Alcoholics Anonymous, and support groups into treatment (CSAT, 2006). Treatment programs that assist clients in gaining access to and involvement in 12-step programs have demonstrated more favorable outcomes (Moos, Finney, Ouimette, & Suchinsky, 1999; Humphreys, Moos, & Cohen, 1997). Furthermore, Moos et al. (1999) found that clients who participate in 12-step programs after being discharged from intensive outpatient treatment have significantly improved outcomes verses participants that do not.

Education and engagement are crucial to successful outpatient treatment outcomes (CSAT, 2006). Clients, their family members, their significant others, and any other individuals identified as a support for the client should be educated on the complexities of substance use

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disorders, the process of recovery, and relapse prevention (CSAT, 2006). Integration of a family therapy component into substance use treatment has been linked to substantial benefits, including "positive treatment outcomes, increased likelihood of the client's ongoing recovery, increased help for the family's recovery, and the reduction of the impact of substance use on different generations in the family" (CSAT, 2004, p. xxi).

Finally, the use of evidence-based approaches is vast in outpatient treatment (CSAT, 2006). Evidence-based approaches are established methods that have endured extensive testing, analysis, and evaluation, and have repeatedly demonstrated efficacy. Examples of evidenced-based approaches include cognitive-behavioral therapy (Carroll, 1998), motivational enhancement therapy (Miller & Rollnick, 2002), case management (McLellan, Hagan, Levine, Gould, Meyers, Bencivengo, & Durell, 1998, McLellan et al., 1999), 12-step facilitation (Nowinski, Baker, & Carroll, 1992), and contingency management incentives (Petry, 2000).

Efficacy of outpatient treatment for substance use. The efficacy of outpatient treatment for substance use is well documented. One such study evaluated treatment outcomes of 78 cocaine-dependent participants who received intensive outpatient treatment (Campbell et al., 1997). Data was collected using the Psychiatric Diagnostic Interview, Addiction Severity Index (ASI), Beck Depression Inventory, Beck Anxiety Inventory, Halikas-Crosby Drug Impairment Rating Scale for Cocaine, and NEO Personality Index. Participants completed the ASI at intake and six-months post-treatment. A repeated measures multivariate analysis of the ASI composite scores revealed a statistically significant overall improvement among the participants (Campbell et al., 1997). Further analysis indicated a significant reduction in scores on the drug use, legal status, family/social relationships, and psychiatric scales of the ASI. Alcohol use and employment status did not demonstrate statistical significance.

McLellan, Hagan, Meyers, Randall, and Durell (1997) evaluated outcome differences between traditional outpatient treatment and intensive outpatient treatment, as defined by the American Society of Addiction Medicine. The evaluation consisted of 16 outpatient programs, including 10 traditional programs and six intensive programs. Participants were interviewed at the beginning of treatment and seven months post-admission (McLellan et al., 1997). The ASI was used to gather data and determine problem severity across seven domains, typically affected by substance use. An ASI composite score was computed to determine an overall severity score.

Approximately 79% of participants across both programs successfully completed their follow-up ASI. Outcomes examined included reduction of alcohol and drug use, improved personal health, improved social function, and reduction in public safety threats (McLellan et al., 1997).

Residential Substance Use Treatment Services

Residential substance use treatment involves the delivery of treatment services at a facility in which individuals reside during the treatment program. Length of stay for residential programs vary, with some program lasting 12 months, however, most residential programs are shorter in duration and typically focus on preparing the individual to return to community-based settings while providing detoxification and intensive initial treatment services (SAMHSA, 2015). The increased intensity of residential treatment services frequently attracts individuals with more severe psychiatric and substance use symptoms (Staiger, Kyrios, Williams, Kambouropoulos, Howard, & Gruenert, 2014).

Residential and Outpatient Substance Use Treatment Outcomes

Edwards and Guthrie (1966) conducted one of the earliest studies comparing the effectiveness of outpatient and residential treatment services on reduction of alcohol use and

improved social adjustment. Participants were randomly assigned to outpatient or residential

treatment and assessed monthly for one year. Participants in the outpatient treatment group

received, on average, eight sessions and those in the residential treatment group received an

average of nine weeks of treatment. The results failed to find statistically significant differences

between the two groups. However, follow-up results did indicate that outcomes favored the

outpatient treatment group and that participants in the residential group had more hospitalizations

during the follow-up period.

In another study, Hoffman and Miller (1992) evaluated treatment outcomes of 8,087

participants who received residential treatment from 38 residential programs and 1,663

participants who received outpatient treatment from 19 outpatient programs. Four treatment

outcomes were evaluated, including a reduction in post treatment hospitalizations, improvement

in job functioning, reduction in legal problems, and a reduction in motor vehicle accidents.

Although many treatment facilities use a combination of residential and outpatient treatment

services, Hoffman and Miller's (1992) study examined clients who exclusively received

residential or outpatient treatment.

The cases examined in Hoffman and Miller's (1992) study were diverse, with varying

gender, age, ethnicity, marital status, education level, and work status. Demographic

comparisons revealed that participants in the outpatient treatment group were more likely to be

employed full-time and in their 20s, with very few being under 20 or over 50. Participants in the

residential treatment group had a higher number of minorities and a lower overall education

level. Clinical characteristics between the two groups differed, with cocaine, marijuana, and

stimulant dependence being higher in the residential group. One substantial difference was that

nearly three times as many participants diagnosed with prescription drug or opiate dependence

were in the residential treatment group. Furthermore, "While almost half the inpatients are dependent on illicit drugs, only slightly over one-third of the outpatients are dependent on these drugs" (Hoffman & Miller, 1992, p. 405). Additionally, results indicated participants in the residential treatment group to be dependent on a higher number of drugs and were more likely to have consumed drugs immediately preceding admission.

An analysis of medical care utilization one year before and one year after treatment found significant decreases in medical, psychiatric, and detoxification hospitalizations, as well as medical and psychiatric emergency room visits, for both residential and outpatient treatment groups. However, "the inpatient utilization rates are consistently higher than the outpatients' both before and after treatment" (Hoffman & Miller, 1992, p. 407). Vocational issues also improved for both treatment groups, with problems with missing work, tardiness, making mistakes, completing work, boss/supervisor conflict, on-the-job injury, and attendance rates all showing improvement between one year before and after treatment. Dramatic declines in motor vehicle accidents, moving traffic violations, and criminal arrest were also found for both treatment groups.

Although declines in medical care utilization, vocational problems, motor vehicle accidents, moving traffic violations, and criminal arrests were discovered for both residential and outpatient treatment groups, no statistically significant differences among the treatment groups were found.

Recognizing that outcome comparisons of outpatient and residential treatment programs could be significantly influenced by the treatment services provided, Alterman and McLellan, (1993) analyzed treatment services provided among residential treatment and outpatient treatment for 80 men who abused cocaine and 96 men who abused alcohol. The 176 total

participants analyzed in this study were reduced from a larger sample size, eliminating cases in which participants did not complete the treatment program. Of the 80 cocaine-abusing participants, 31 received outpatient treatment and 49 received residential treatment. Fifty-seven of the alcohol abusers received outpatient treatment and 39 received residential treatment. Thirty percent of the alcohol abuse participants and 82% of cocaine abuse participants were randomly assigned to treatment groups. A substance abuse or dependence diagnosis was required among participants, based on Diagnostic and Statistical Manual-III-R (DSM-III-R) criteria, which was determined via a psychiatric evaluation and administration of the Diagnostic Interview Schedule (DIS). Additional criteria to participate in the study included being 59 years of age or younger, no previous history of a psychotic disorder or dementia, and no emergent medical problems.

Regarding the treatment programs, both endorsed an abstinence philosophy, required participation in self-help groups, and "were basically conventional in orientation and provided relatively similar treatment services" (Alterman & McLellan, 1993, p. 271). Treatment duration was between 28 days and one month for both programs and included treatment for medical, psychological, employment, legal, family/social problems, in addition to treatment for substance use. Additionally, recreational therapy, education regarding the effects of substance use, psychotropic medications, and urine and breath monitoring were part of both treatment programs. Substance use treatment was primarily in the form of group sessions, however, individual sessions were available. Additionally, both programs accentuated continued treatment services post-discharge. Both treatment programs delivered treatment on the weekdays, with treatment consisting of 27 hours. The Addiction Severity Index (ASI) was used to collect sociodemographic data and problem severity levels in seven areas of functioning. Additionally, the Treatment Services Review (TSR) instrument, which was developed based on the Addiction

Severity Index (ASI), was used to collect data on the quantity of medical, employment, alcohol, drug, legal, family/social, and psychiatric treatments provided.

Baseline characteristics for the alcohol-abusing participants revealed outpatient participants were significantly older and suffered more medical issues in the past 30 days than residential participants. Furthermore, an analysis comparing outpatient versus residential treatment for the alcohol-abusing participants across the seven treatment areas found alcohol, medical, drug, and psychiatric treatments were most frequently provided, with few employment, family/social, and legal services being provided. Residential treatment participants received significantly more medical and employment services. One unexpected finding revealed outpatient participants "received significantly more alcohol-related services and more drug related treatment services than inpatient subjects" (Alterman & McLellan, 1993, p. 273).

Regarding cocaine abusing participants, significant differences of sociodemographic or problem level were not found. Comparable to the alcoholic group, drug, alcohol, and medical treatments were the most frequently provided services. Limited employment, family/social, and psychiatric services were afforded, with legal services seldom provided.

An overall analysis of the two programs for cocaine abusers was significant. Cocaine-abusing participants in the residential treatment group received significantly more medical, employment, alcohol related, and psychiatric services, but less drug related services, than cocaine abusers in the outpatient treatment group. A multivariate analysis of variance was conducted to examine treatment services among alcohol abusers and cocaine abusers in the outpatient program and found that, as expected, alcoholic participants received significantly more alcohol-related services and psychological/emotional services, however, significant differences in medical, legal, or family/social services were not found. The same analysis was

conducted for those in the residential group and found the cocaine abusers received significantly more drug services, however, no statistically significant differences were found regarding quantity of alcohol-related services, medical, employment, legal, family/social, and psychiatric services received, giving the perception that the outpatient program provided more diversification of treatment services among the two groups.

A more recent and more in depth study compared outpatient treatment success to residential treatment success (Guydish, Werdegar, Sorensen, Clark, & Acampora, 1998). In this study, clients were randomly assigned to either outpatient or residential substance use treatment and were interviewed two weeks and six months after admission. To increase accuracy, strenuous criteria for study participation were strictly. Exclusion criteria included clients who were court mandated into residential treatment ($n = 693$), clients who were homeless ($n = 495$), and clients who could not be randomly assigned to either treatment group due to clinical judgment ($n = 222$).

About 73% of admissions were excluded from the study due to exclusion criteria, and others were excluded due to refusing interviews ($n = 5$) or assignment reversal ($n = 21$), resulting in a sample size of 508. Of the 508 participants, 253 were assigned to outpatient treatment and 255 were assigned to residential treatment.

Acknowledging high, early dropout rates in substance use treatment (between 40-50%), and in the interest of validity, the researchers only included participants who completed at least two weeks of treatment. Comparable to previous research, a 49% attrition rate occurred in this study, leaving a sample size of 261. Analysis of the attrition revealed that the clients assigned to outpatient treatment had a higher drop out rate (55%) versus those assigned to residential treatment (42%), indicating residential treatment may have higher early-retention rates.

In order to analyze various aspects of treatment success, the researchers utilized multiple assessment instruments, including the Addiction Severity Index (ASI), Beck Depression Inventory (BDI), Symptom Checklist-90-R (SCL-90-R), and a social support measuring instrument adapted from prior research, which included an assessment of self-esteem, emotional support, and social interactions. Client responses were coded and scored.

Eighty-three percent ($n = 217$) of the 261 clients who completed the baseline interview were re-interviewed after six months, using the same assessments. The follow-up rate was slightly higher for the outpatient treatment clients (89%) compared to the residential treatment clients (78%). A multivariate of analysis (MANOVA) was conducted to compare overall outcomes within each group. An analysis of covariance (ANCOVA) was conducted to compare mean outcomes between the two treatment programs in order to control for mean values at baseline.

Overall, multivariate tests between baseline and six month scores for outpatient treatment were statistically significant, indicating overall outpatient treatment program success. Further examination of the within-group analysis revealed statistically significant decreases in employment, legal, alcohol, drug, and depression related problems. No statistically significant differences were found for medical, social, psychological, psychiatric symptoms, or social support scores.

The same analysis for residential treatment was also statistically significant, indicating overall success of the residential treatment group. Specifically, significant decreases in medical, legal, alcohol, drug, social, psychiatric symptoms, depression, and social support problems were found, as well as a significant decrease in employment problems. Examination of these results indicates residential treatment had improvement in more categories than outpatient treatment.

An analysis of covariance (ANCOVA) was conducted to compare differences between the outpatient group and the residential group. At follow-up, two between-group outcome differences were found, both favoring the residential treatment group. The first difference found the residential group had lower social problem severity and the second difference found the residential group to have fewer psychiatric symptoms.

Aside from these two differences were discovered, the groups were similar on the remaining eight domains, including drug and alcohol problems. The researchers noted, "Overall, the level of improvement among day treatment clients was not significantly different from that of residential clients" (Guydish, Werdegar, Sorensen, Clark, & Acampora, 1998, p. 280).

Another study conducted by Mojtabai and Zivin (2003) compared the effectiveness and cost-effectiveness of four different substance use treatment services, including inpatient, residential, outpatient detox/methadone, and outpatient. It should be noted that Mojtabai and Zivin used the term inpatient treatment to denote services provided in a psychiatric or general hospital and residential treatment to denote services that were provided in a freestanding substance abuse treatment facility.

Participants were interviewed five years post-treatment to determine treatment outcomes. Mojtabai and Zivin (2003) operationally defined treatment success using two non-mutually exclusive measures: complete abstinence of substance use since discharge and any reduction in substance use since discharge.

Since this study was an observational study, clients were not randomly selected for different treatment services and were allowed to choose their treatment services, based on preference or clinician referral. As a result of the self-selection, selection bias is of concern, however, to minimize this effect, the researchers employed a method of propensity score

stratification. "A propensity score is the probability that a client will seek treatment in one type of program rather than another and is derived from a regression model (often logistic) in which variables associated with selection into a particular program are entered as independent variables. When more than two treatments are compared, a separate propensity score is calculated for each pair of treatments" (Mojtabai & Zivin, 2003, p. 240).

The results comparing residential treatment to outpatient treatment were minimal. No statistically significant differences were discovered between the two groups with regard to reduction in substance use. Only one statistically significant difference was noted for abstinence outcomes between the two groups in which "Residential modality clients with a low propensity for residential treatment compared to outpatient drug free treatment (stratum one) had a lower rate of abstinence" (Mojtabi & Zivin, 2003, p. 243). After comparing all four of the treatment modalities, the researchers found "only minor differences between various modalities of treatment with regard to effectiveness. However, modalities varied considerably with regard to cost-effectiveness" (Mojtabai & Zivin, 2003, p. 233).

Summary

This chapter reviewed the history of substance use treatment efforts and the existing literature related to this study. Literature comparing the effectiveness of outpatient against residential treatment has varied results, necessitating further research. Research exploring the effect of case management on substance use treatment outcomes indicates benefits of incorporating case management into treatment. This comprehensive literature review supports the need for determining beneficial combinations of treatment services to maximize drug and alcohol treatment efficacy. Chapter three reviews the research methodology used in this study, with the results of quantitative data analysis presented in chapter four. Finally, chapter five

provides the interpretation of research results, a discussion of the results in comparison to the

literature review, and recommendations for further research.

CHAPTER III – METHODOLOGY

This study uses archival data from a non-profit agency that was granted a five-year SAMHSA grant to provide substance use treatment services. This chapter reviews the research questions, population and sample, the instrument used to collect the data, the data collection process, and the methods and process of analyzing the data. Finally, a summary of the chapter is provided.

Research Questions

This study addresses two research questions:

1. What was the overall relative influence of a multicomponent (case management, outpatient treatment, and residential treatment) treatment program on the reduction of substance use in adults residing in the Texas costal bend?

2. What was the relative influence of the treatment components (case management only, case management and outpatient, case management and residential, case management, outpatient, and residential) on the reduction of substance use in adults residing in the Texas coastal bend?

Method

Screening and outcome data were obtained from 330 participants in a SAMHSA program grant aimed at addressing gaps in substance use services for individuals high-risk for contracting an infectious disease due to behavioral and lifestyle choices associated with substance use. The targeted high-risk populations included intravenous drug users (IDUs), individuals recently released from incarceration, and men who have sex with men (MSM).

Population and Sample

Individuals were eligible for services if they were 18 years of age or older, resided in one of the 12 county catchment region and had used drugs or alcohol within 30 days prior to intake

screening. Three treatment service options were available for the participants: residential substance use treatment, outpatient substance use treatment and case management.

Participants in this treatment program could either be self-referred or be referred by another agency or community partner. Participants were informed about data collection and monitoring (GPRA survey) and notified that the data collected would be used for placement and referral purposes within the program, and be used for research and grant evaluation purposes. Confidentiality rights were discussed with each participant at the beginning of the program. Participants were notified that their identity or any identifying information would not be used in any research.

Data collection began enrollment in January of 2009 and concluded in March of 2014. The program met 91% of its enrollment goal with a total of 590 individuals completing an intake GPRA out of 650 planned. By the end of the funding period, 81% ($n = 475$) of participants had completed a follow-up GPRA survey. Of the 475 participants who completed an intake GPRA and follow-up GPRA, 145 cases were removed due to missing data, leaving 330 cases to be used for this study.

Instrumentation

Government Performance and Results Act.

Data was collected using the Government Performance and Results Act (GPRA) Client Outcome Measures Survey, more commonly referred to as the GPRA survey. The GPRA survey was developed by the Substance Abuse and Mental Health Administration (SAMHSA) and the Center for Substance Abuse Treatment (CSAT), a subdivision of SAMHSA, as part of Public Law 103-62 (Darby & Kinnevy, 2010). The GPRA survey was constructed to measure the effectiveness of substance use treatment programs. The GPRA survey is a requirement of

programs funded through SAMHSA and CSAT. The GPRA survey represents an amalgam of empirically validated indicators of substance use outcome measures and includes questions from the Addiction Severity Index (ASI), the McKinney Demonstration projects, the 2004 National Household Survey on Drug Abuse, the Alcohol and Drug Services Study, the Short Form-36 Health Survey (SF-36), the Risk Assessment Behavior Battery (RABB), and the National Survey on Drug Use and Health. Although multiple sources were used to create the GPRA survey, it is primarily based on the Addictions Severity Index (Darby & Kinnevy, 2010). The Addictions Severity Index has a strong concurrent reliability of 0.74 to 0.91 and test-retest reliability of 0.92 (McLellan, Luborsky, Cacciola, Griffith, Evans, Barr, & O'Brien, 1985). Furthermore, Peters, Bartoi, and Sherman (2008) found that the ASI outperformed other substance use screening instruments and possess a good predictive value, sensitivity, and overall accuracy. The GPRA survey collects data across various domains, including basic demographic information and co-occurring disorders. Outcome measures include substance use/abstinence, stability in housing, employment and education status, crime and criminal justice status, health/behavioral/social consequences, and social connectedness (SAMHSA, 2010). Although the GPRA survey is comprised of many questions from many different sources, for the purpose of this study, emphasis will be placed on the question, *during the past 30 days, how many days have you used any of the following*, a question derived from the Addiction Severity Index (SAMHSA, 2010).

The GPRA survey is administered at intake, six-months as a follow-up, and at discharge. For the purpose of this study, only the intake and follow-up GPRA surveys were used to determine treatment influence. The GPRA survey takes roughly one hour to complete, is structured, and includes instructions and guidance for the interviewer. The intake GPRA survey and the follow-up GPRA survey are identical. In order to assist the interviewer, the GPRA survey contains intent/key points, which describes the intent of the question. It also contains

additional probes, which offer suggestions for probes that may help promote the client's memory during the interview. Coding topics clarify to the interviewer how to count or record participant responses and are primarily used with questions that may produce vague responses. Cross-check items are questions in which the participants' responses should correspond. Cross-check items are used to determine if a contraindication occurs during the interview, alerts the interviewer to items that should be related, and answers that should be verified. Finally, the GPRA survey contains skip patterns that indicate which items should be skipped and under what circumstances, as there are certain questions that are irrelevant based on answers to pervious questions.

In order to achieve the most reliable and valid data, there are specific instructions for administering the GPRA survey (both intake and follow-up). GPRA survey user certification requires participation in a 3-day training protocol. The GPRA survey should only be administered by someone who has received GPRA survey training, must be completed in one day, and must be administered face-to-face.

Face-to-face interviews offer several advantages, including the ability to use visual, oral, and nonverbal communication, a decrease in item nonresponse, the interviewer's ability to help the participant with difficult questions, the interviewer's ability to clarify questions and probe for more information, as well as allowing for administration of the survey, regardless of the participant's reading and writing abilities (Dillman & Christian, 2005; Saris & Gallhofer, 2007). Furthermore, Allan (1991) states that face-to-face interviewing "offers the flexibility to react to the respondent's situation, probe for more detail, seek more reflective replies and ask questions which are complex or personally intrusive" (p. 228). Disadvantages of face-to-face surveys include the participant responding with socially acceptable answers due to interviewer presence and high financial cost (Dillman & Christian, 2005; Saris & Gallhofer, 2007).

The intake GPRA survey must be completed within four days of the participant entering the treatment program. The program entry date is determined by the date in which the participant began receiving CSAT funded services. All follow-up GPRA surveys are to be administered within one month before and two months after the six-month anniversary of the intake GPRA interview date. Participants are not permitted to fill out the GPRA survey on their own. Participant responses are to be recorded directly on the GPRA survey and should be entered into the GPRA online database within seven business days of administration. When administering the GPRA survey, questions must be asked exactly as written. The participant is able to ask for clarification only after the question has been read exactly as it reads on the instrument. All responses are to be recorded exactly as the participant responds and are not to be interpreted or persuaded by the administrator.

Data Collection

All data used in this study was collected by a non-profit organization that received a five-year SAMHSA grant to provide substance use treatment and case management to residents in 12 surrounding counties. Permission to use the data for this study was granted in writing by the Chief Executive Officer of the non-profit organization.

Upon a participant's initial presentation to the agency, a substance use case manager would conduct an eligibility assessment to determine eligibility for entrance into the program. Eligibility criteria included being 18 years of age or older, a resident of one of the 12 counties served, and drug or alcohol use within the previous 30 days. If deemed to be eligible, the participant would sign an informed consent document and complete program intake paperwork, including the intake GPRA survey. Responses to the intake GPRA survey were input into the Services Accountability Improvement System (SAIS) online database. Only approved grantee

members who were assigned a username and password could access SAIS. Each participant was

assigned a participant identification number, which was used to enter data into the SAIS database

and prevented any identifying information from being entered into SAIS. A paper file was kept

by the agency and locked in a secure room within the agency in compliance with all local, state,

and federal laws. No names or other identifying information were used during this study.

Based on the data gathered from the intake process, the substance use case manager

would determine if the participant should receive residential or outpatient substance use

treatment. All participants were offered case management services. Each participant was notified

at the time of intake of a case manager's recommendation for placement in into one of four

treatment groups: (a) case management only; (b) case management and outpatient treatment; (c)

case management and residential treatment; (d) case management, residential, and outpatient

treatment. Participants could choose to accept or decline the substance use case manager's

recommendation.

Residential Recommendation

If recommended for residential treatment, the case manager would contact the licensed

residential substance abuse treatment facility, which was contracted with the non-profit

organization to provide residential treatment services. The residential treatment facility was

located about 10 miles from the non-profit agency. The case manager would reserve a bed and

set up an intake appointment. The intake appointment would then be provided to the participant.

Typically, participants referred to residential treatment included a recommendation of 28 days,

based on the Minnesota Model (Doweiko, 2011). Residential treatment provides a more intensive

and more carefully monitored treatment structure, as well as limits opportunity for family,

friends, and community interaction, allowing for full focus on themselves and their treatment

(CSAT, 2006). During their stay at the residential treatment facility, clients were provided with group educational sessions, group counseling sessions, individual counseling sessions, family counseling, and 12-step AA/NA meetings.

Outpatient Placement Recommendation

If recommended for outpatient treatment, the participant would begin outpatient treatment immediately. Outpatient treatment was conducted on-site at the non-profit organization by licensed chemical dependency counselors or licensed chemical dependency counselor interns. The non-profit organization was licensed by the Texas Department of State Health Services as a licensed substance abuse treatment facility (SATF) and utilized the Matrix Model for their outpatient substance use treatment program.

> Treatment is delivered in a 16-week intensive outpatient program primarily in structured group sessions targeting the skills needed in early recovery and for relapse prevention. A primary therapist conducts both the individual and group sessions for a particular patient and is responsible for coordinating the whole treatment experience. There is also a 12-week family and patient education group series and induction into an ongoing weekly social support group for continuing care. Weekly urine testing is another program component and participants are encouraged to attend 12-step meetings as an important supplement to intensive treatment and a continuing source of positive emotional and social support. (Rawson & McCann, 2006, p. 4)

Case Management Services for Participants

Case management services were offered to all participants who entered the program, regardless of treatment placement. Participants who were placed in residential treatment were

able to receive case management services throughout their treatment. The case manager would travel to and meet with the participant in a private room at the residential facility.

Case management included the five core functions of assessment, planning, linkage, monitoring, and advocacy. The case managers would assess their client's needs and barriers, develop a plan for treatment, link the clients to other necessary services, and monitor their progress throughout treatment. Examples of case management include linking clients to homeless shelters, local food banks, healthcare services, financial-aid services, and other appropriate community agencies and resources.

Data Analysis

Research questions were explored through a variety of statistical techniques designed to assess the overall relative influence of treatment modality (case management, outpatient and residential) on reduction of 30-day frequency of drug use.

The independent variables in this study are overall treatment success and four treatment groups: (a) case management only (b) case management and outpatient treatment (c) case management and residential treatment; (d) case management, outpatient treatment, and residential treatment. The dependent variable is the change is the number of days of substance use in the past 30 days.

A power analysis was conducted to determine appropriate sample size. For a moderate effect size (0.25), with an alpha level of 0.05, power of 0.80, and four groups, the calculated total sample size is 179. This study contained a sample size of 330, exceeding the power analysis's calculation.

To explore overall improvement (reduction in substance use), a 4 (group) x 2 (pre/post treatment) multivariate analysis of covariance (MANCOVA) was conducted with 4 groups (case

management only, case management and outpatient, case management and residential, case management and outpatient and residential) as between factor and intake substance use (number of days used in the last 30 days: follow-up substance use level) as a within-subjects repeated measure. A multivariate analysis of covariance was conducted because the data contains two dependent variables (intake and follow-up), a covariate could control for number of days used at intake, and due to the data containing more than one treatment group. A Tamhane post hoc analysis was conducted to determine specific differences. A Tahmhane post hoc test was utilized because equal variances cannot be assumed.

To explore the relative influence of the different treatment groups, a dichotomous variable was created by subtracting the number of days of substance use at intake from the number of days of substance use at follow-up. The dichotomous variable was created to indicate ether the individual reduced or did not reduce the number of days of substance use from intake to follow-up. After creating this dichotomous variable to further explore the relative influence of the treatment groups, a chi-square analysis was conducted.

This chapter reviewed the study's population, sample, and demographics, as well as reviewed the instrumentation used to collect the data. The data collection process was outlined in detail and specifics on how the data will be analyzed were presented. The next chapter will outline the results of the quantitative data analysis. Finally, chapter five will provide the interpretation of research results, a discussion of the results in comparison to the literature review, and recommendations for further research.

CHAPTER IV – RESULTS

Introduction

This study examined the overall relative influence of the treatment program, in addition to analyzing the relative influence of four different treatment groups (case management only, case management and outpatient treatment, case management and residential, and case management, outpatient treatment, and residential treatment). A multivariate analysis of covariance (MANCOVA) was conducted to examine overall success of the treatment program and a chi-square analysis was used to examine treatment outcome differences between treatment groups. Descriptive statistics were used to illustrate demographic information and frequency distributions.

Descriptive Statistics

Intake GPRA survey data were used to analyze demographic information of the participants ($N = 330$). Eight different domains were analyzed for this study: (a) demographics; (b) substances abused and route of administration; (c) severity of substance use (d) living condition; (e) education and employment; (f) crime/criminal justice status; (g) mental and physical health problems; (h) social connectedness; and (i) discharge status.

Participant Demographics

Of the 330 participants, 73.3% ($n = 242$) reported their gender as male and 26.6% ($n = 88$) reported their gender as female. Age groups are illustrated in Table 1 and included 11.2% ($n = 37$) reported they were between the ages of 18 and 24, 95% ($n = 28.8$) reported being between the age of 25 and 34, 24.2% ($n = 80$) reported being between the age of 35 and 44, 29.4% ($n = 97$) reported being between the age of 45 and 54, and 0.6% ($n = 2$) reported being 65 years of age or older.

The sample of participants had cultural and ethnic diversity, with 72% (*n* = 239) reported

identifying as Caucasian, 8% (*n* = 27) African American, and 1% (*n* = 3) American Indian.

Regarding ethnicity, 42% (*n* = 137) reported identifying as Hispanic or Latino. Out of the 42%

identifying as Hispanic or Latino, 40% (*n* = 132) identify as Mexican, 1% (*n* = 3) identify as

Central American, 0.3% (*n* = 1) identify as Cuban, and 0.3% (*n* = 1) identify as South American.

Table 1

Participant Age Frequencies by Group

Age Group	Frequency	Percentage
18-24	37	11.2%
25-34	95	28.8%
35-44	80	24.2%
45-54	97	29.4%
55-64	19	5.8%
65+	2	0.6%
Totals	330	100.0%

Profile of Participant Self-Reported Substance Use and Route of Administration

Substances used varied among the participants. When asked what substances had been

used in the past 30 days, 75% (*n* = 249) of participants reported alcohol, 41% (*n* = 135) reported

crack or cocaine, 36% (*n* = 118) reported marijuana or hash, 22% (*n* = 72) reported heroin, 14%

(*n* = 45) reported benzodiazepines, and 13% (*n* = 43) reported methamphetamines. Other

substances reported include Morphine (2%; *n* = 7), Diluadid (0.06%; *n* = 2). Demerol (0.03%; *n*

= 1), Percocet (0.09%; *n* = 3), Darvon (0.09%; *n* = 3), Codeine (4%; *n* = 12), opiate-based

Tylenol (4%; *n* = 14), Oxycodone (6%; *n* = 20), non-prescribed Methadone (2%; *n* = 8),

hallucinogens (2%; *n* = 7), Ketamine (0.03%; *n* = 1), other tranquilizers (0.09%; *n* = 3), inhalants

(0.03%; *n* = 1), and other illegal drugs (2%; *n* = 5). The only drug categories with no use

reported were barbiturates and non-prescribed Gamma Hydroxybutyric (GHB). Across all drug

categories, 25% ($n = 82$) of participants reported injecting drugs. A breakdown of specific

substances used and route of administration is presented in Table 2.

Table 2

Substances Used & Route of Administration

Substance	Percent	Oral	Nasal	Smoking	Non-IV Injection	IV
Alcohol	75.0%	-	-	-	-	-
Crack/Cocaine	41.0%	0.3%	11.8%	23.6%	-	5.2%
Marijuana/Hash	36.0%	-	-	35.8%	-	-
Heroin	21.8%	-	1.8%	0.3%	0.3%	19.4%
Benzodiazepines	14.0%	13.3%	-	-	-	-
Methamphetamines	13.0%	1.2%	0.9%	6.7%	-	4.2%
Oxycodone	6.0%	6.1%	-	-	-	-
Codeine	4.0%	3.3%	-	-	-	0.3%
Opiate-based Tylenol	4.0%	4.2%	-	-	-	-
Morphine	2.0%	1.5%	-	0.3%	0.3%	-
Non-prescribed Methadone	2.0%	2.4%	-	-	-	-
Hallucinogens	2.0%	1.8%	-	0.3%	-	-
Percocet	0.9%	0.9%	-	-	-	-
Darvon	0.9%	0.9%	-	-	-	-
Other tranquilizers	0.9%	0.9%	-	-	-	-
Diluaded	0.6%	0.3%	-	-	-	0.3%
Demerol	0.3%	0.3%	-	-	-	-
Ketamine	0.3%	0.3%	-	-	-	-
Inhalants	0.3%	0.3%	-	-	-	-
Totals	225.0%	38.0%	14.5%	67.0%	0.6%	29.4%

Note. Percent totals exceed 100% as a result of participant reports of using multiple substances.

Profile of Participant Treatment Group Placement and Self-Reported Substance Use Severity

Treatment group placement was determined by the substance use professional and was

based on information gathered at program intake. Four treatment group placements were

possible: (a) case management only; (b) case management and outpatient treatment; (c) case

management and residential; (d) case management, outpatient treatment, and residential

treatment. The number of participants in each treatment group are presented in Table 3.

Table 3

Number of Participants in Treatment Groups

Treatment Group	
Case management only	79
Case management and outpatient	50
Case management and residential	144
Case management and residential and outpatient	57
Total	330

A four level categorical score of participant's self-reported severity of substance use was computed by dividing self-reported number of days of reported substance use at intake into quarters (see Table 4), resulting in 0 - 7.4 days being categorized as mild severity, 7.5 - 14.9 days being categorized as moderate severity, 15 - 21.9 days as severe, and 22 - 30 days as extreme. Frequencies of substance use severity included 24.5% ($n = 81$) mild, 19.1% ($n = 63$) moderate, 31.2% ($n = 101$) severe, and 25.2% ($n = 83$) extreme.

To further analyze substance use severity, a crosstabulation analysis of substance use severity by post-treatment outcome by treatment group was conducted, with positive outcome being defined as any reduction in substance use from intake to follow-up and non-significant reduction outcomes being defined as no reduction or an increase in substance use from intake to follow-up. The results of this analysis are provided in Table 4.

Table 4
Crosstabulation of Severity, Outcome, and Treatment Group

	Outcome	
Treatment Group	Negative	Positive
Case management only		
Mild	11	15
Moderate	2	13
Severe	3	16
Extreme	1	18
Case management and outpatient		
Mild	7	16

Moderate	0	7
Severe	0	17
Extreme	0	3
Case management and residential		
Mild	8	15
Moderate	2	24
Severe	2	43
Extreme	2	48
Case management and residential and outpatient		
Mild	1	8
Moderate	1	14
Severe	1	21
Extreme	1	10
Totals	42	288

Profile of Participant Living Conditions

Regarding housing in the past 30 days, the majority (69%; $n = 228$) of participants indicated they were housed, while 20% ($n = 65$) reported living on the streets, 6% ($n = 21$) reported living in a shelter, and 5% ($n = 15$) reported living in an institution. For those participants reporting they were housed, 33.9% ($n = 112$) reported owning or renting an apartment, room, or house, 33% ($n = 109$) reported living at someone else's apartment, room, or house, 0.6% ($n = 2$) reported living at a halfway house, 0.3% ($n = 1$) reported living at a residential treatment center, and 1.2% ($n = 4$) reported other living arrangements. Regarding children, 48.5% ($n = 160$) of participants reported having children.

An cross tab analysis of living condition by treatment group found of the 79 participants who received case management only, 74.7% ($n = 59$) were housed, 16.5% ($n = 13$) lived on the streets or outdoors, 5.1% ($n = 4$) lived in an institution, 2.5% ($n = 2$) lived in a shelter, and 1.3% ($n = 1$) refused to provide living arrangement information. Of the 50 participants in the case management and outpatient treatment group, 82% ($n = 41$) were housed, 8% ($n = 4$) lived in an

institution, 6% ($n = 3$) lived on the street or outdoors, and 4% ($n = 2$) lived in a shelter. The

majority of 144 participants in the case management and residential group were housed (61.8%,

$n = 89$), with 25% ($n = 36$) living on the street or outdoors, 9.7% ($n = 14$) living in a shelter, and

3.5% ($n = 5$) living in an institution. Finally, of the 57 participants who received case

management, outpatient treatment, and residential treatment, 68.4% ($n = 39$) were housed, 22.8%

($n = 13$) lived on the street or outdoors, 5.3% ($n = 3$) lived in a shelter, and 3.5% ($n = 2$) lived in

an institution.

Profile of Participant Education and Employment

Years of education, shown in Table 5, varied among participants, ranging from 3 years to

18 years of education, with a mean of 12.05 years. Employment status also varied with 11% ($n =$

35) of participants reporting they were employed full-time, 8% ($n = 26$) reporting they were

employed part-time. For the 81% ($n = 266$) of participants that were not employed, 32% ($n =$

107) reported they were looking for work, 19% ($n = 64$) reported they were disabled, and 29% (n

$= 95$) reported they were not looking for work. Regarding enrollment in school or a job training

program, 97.3% ($n = 321$) reported not being enrolled, while 2.1% ($n = 7$) reported being

enrolled full-time, and 0.6% ($n = 2$) reported being enrolled part-time.

Table 5

Frequencies of Participant Education Level

Education Years	Frequency	Percent
3	1	0.3%
6	3	0.9%
7	4	1.2%
8	8	2.4%
9	18	5.5%
10	25	7.6%
11	18	5.5%
12	160	48.5%
13	38	11.5%

14	28	8.5%
15	6	1.8%
16	10	3.0%
17	2	0.6%
18	9	2.7%
Totals	330	100.0%

Profile of Participant Crime and Criminal Justice Status

Criminal justice status was analyzed and 28.2% ($n = 93$) of the participants reported being on either probation or parole. Additionally, 75.8% ($n = 250$) of the participants reported they had committed a crime within the last 30 days. Thirteen percent ($n = 43$) reported being arrested in the last 30 days, with 8% ($n = 27$) reporting being arrested in the last 30 days for drug-related offenses, and 11.5% ($n = 38$) reported they were awaiting trial.

Profile of Participant Mental and Physical Health Problems

Overall health status resulted in 2.4% ($n = 8$) of participants rating their health status as excellent, 10.3% ($n = 34$) rated their health as very good, 36.7% ($n = 32$) rated their health as good, 35.5%, ($n = 117$) rated their health status as fair, and 15.2% ($n = 38$) rated their health as poor. Mental health is analyzed in general terms of depression, anxiety, and suicide attempts. Table 6 illustrates the frequencies of each.

Table 6

Participant Mental Health Symptoms

Symptom	Yes	No
Depression	233	97
Anxiety	221	109
Suicide Attempt	12	318

Social Connectedness

With regard to social connectedness, the majority of participants (67.3%; $n = 222$)

reported having interactions with family and/or friends that were supportive of their recovery in the past 30 days. When having trouble, about half of the participants reported turning to a family member (49.4%; $n = 163$), while others turn to friends (17.6%; $n = 58$), clergy members (1.5%; $n = 5$), and other individuals (6.4%; $n = 21$). However, a quarter of the participants (25.2%; $n = 83$) reported they do not turn to anyone when having trouble.

Discharge Status

An analysis of discharge status resulted in 82.7% ($n = 273$) of participants being successfully discharged and 17.3% ($n = 57$) of participants being involuntarily discharged. Of the 57 participants discharged who did not complete treatment, 42% ($n = 24$) were involuntarily discharged due to non-participation, 26% ($n = 15$) were involuntarily discharged due to violation of rules, 15% ($n = 9$) left on their own against staff advice without satisfactory progress, 7% ($n = 4$) were incarcerated due to an offense committed while in treatment and had not made satisfactory progress. Other reasons for involuntary discharge included participants leaving own their own against staff advice with progress, referral to another program or other services with unsatisfactory progress, incarceration due to an offense committed while in treatment with satisfactory progress, incarceration due to an old warrant or charged from before entering treatment with unsatisfactory progress, and death. Table 7 illustrates the frequency data for discharge reasons among participants.

A cross tab analysis between discharge reason and substance use severity found that of participants with mild severity, 90.1% ($n = 73$) were successfully discharged, 4.9% ($n = 4$) were involuntarily discharged due to nonparticipation, 3.7% ($n = 3$) were discharged (with unsatisfactory progress) resulting from incarceration due to an offense committed while in treatment, and 1.2% ($n = 1$) were involuntarily discharged due to violation of program rules.

Roughly 84% ($n = 53$) of participants with moderate severity were successfully discharged, with 11.1% ($n = 7$) involuntarily discharged due to nonparticipation, 3.2% ($n = 2$) involuntarily discharged for violating program rules, and 1.6% ($n = 1$) were involuntarily discharged (with unsatisfactory progress) resulting from incarceration due to an old warrant or charge from before entering treatment. A decrease in successful discharges was evident from moderate to severe categories, with only 78.6% ($n = 81$) of participants in the severe category being successfully discharged. Participants with severe substance use also had a greater variety of reasons for involuntary discharge, including 6.8% ($n = 7$) involuntarily discharged due to nonparticipation, 5.8% ($n = 6$) involuntarily discharged due to violation of program rules, 4.9% ($n = 5$) terminated treatment on their own, against staff advice, without satisfactory progress, 1% ($n = 1$) terminated treatment on their own, against staff advice, with satisfactory progress, 1% ($n = 1$) were referred to another program or other services with unsatisfactory progress, 1% ($n = 1$) were incarcerated due to an offense committed while in treatment, with unsatisfactory progress, and lastly, 1% ($n = 1$) were involuntarily discharged due to death. Finally, 79.5% ($n = 66$) of participants with extreme substance use were successfully discharged, with 7.2% ($n = 6$) involuntarily discharged due to nonparticipation, 7.2% ($n = 6$) involuntarily discharged due to violation of program rules, 4.8% ($n = 4$) terminated treatment on their own, against staff advice, without satisfactory progress, and 1.2% ($n = 1$) were incarcerated due to on offense committed while in treatment, without satisfactory progress.

The analysis also revealed much higher rates of participants departing treatment on their own against staff advice without satisfactory progress for participants with severe ($n = 5$) and extreme ($n = 4$) severity compared to participants with mild ($n = 0$) and moderate ($n = 0$) severity. The most common reason for involuntary discharge across all severity categories

resulted from non-participation.

Further exploring reasons for discharge, a cross tab analysis between discharge reason and treatment group. The analysis revealed participants in the case management only group had the lowest percentage of successful discharges (67.1%; $n = 53$) and participants in the case management, outpatient, and residential group had the highest percentage of successful discharges (91.2%; $n = 52$). Participants in the case management and outpatient group and the case management and residential group had similar successful discharge rates at 84% ($n = 42$) and 87.5% ($n = 126$) respectively. The most prominent reason for involuntary discharge across all four treatment groups resulted from nonparticipation.

Table 7

Frequencies of Discharge Reasons

Discharge Reason	Frequency	Percent
Successful discharge	273	82.7%
Left on own against staff advice with satisfactory progress	1	0.3%
Left on own against staff advice without satisfactory progress	9	2.7%
Involuntarily discharged due to nonparticipation	24	7.3%
Involuntary discharge due to violation of rules	15	4.5%
Referred to another program or other services with unsatisfactory progress	1	0.3%
Incarcerated due to offense committed while in treatment with satisfactory progress	1	0.3%
Incarcerated due to offense committed while in treatment with unsatisfactory progress	4	1.2%
Incarcerated due to old warrant or charged from before entering treatment with unsatisfactory progress	1	0.3%
Death	1	0.3%
Totals	330	100%

Statistical Analysis

Research Question One

Research question one questioned the overall relative influence of this treatment program on the reduction of substance use. Overall, the treatment program was effective with 87.2% ($n = 288$) of the participants reducing substance use from intake ($M = 14.6$; $SD = 9.38$) to follow-up ($M = 2.05$; $SD = 5.52$). Results of the repeated measures MANCOVA found a significant main effect of the treatment, $F(1, 326) = 396.4$, p < .001, $\eta_p^2 = 0.54$. The large effect size represents the ratio of variance accounted for by an effect and that effect plus its associated error variance, meaning the effect for group differences accounted for 54% of the group differences. To further explore overall improvement (reduction in substance use), a 4 (group) x 2 (pre/post treatment program) mixed factor multivariate analysis of covariance was conducted with four groups (case management only, case management and outpatient, case management and residential, case management and outpatient and residential) as between factors and intake substance use (number of days used in the last 30 days: follow-up substance use level) as a within-subjects repeated measure.

Certain assumptions must be met for the MANCOVA to be used appropriately, including independent random sampling, level and measurement of the variables, absence of multicollinearity, normality, homogeneity of variance, and relationship between covariate(s) and dependent variables (Green & Salkind, 2011). Because this analysis contains two levels of repeated measures, there is no need to conduct the Mauchly's Test of Sphericity, as the assumption of Mauchly's sphericity will be met under this situation. Using Shapiro Wilks test for normality, the normality assumption was not met, as all results were significant ($p < .05$). Intake days of substance use were non-normally distributed, with skewness of 0.187 ($SE = 0.134$) and kurtosis of -0.932 ($SE = 0.268$). However, MANCOVA is robust to non-normality. Box's Test of Equality of Covariance (Box's $M = 62.165$) was also significant ($p < .001$). An analysis indicated

a significant positive correlation between the covariate and the dependent variable (Pearson's $r =$ 0.147, $p = 0.007$). The homogeneity of regression assumption was met, as there was no statistically significant interaction between the groups and the covariate, $F(3, 322) = 1.738$, $p = 0.159$.

Results of this analysis found a significant main effect and large effect size of the treatment, $F(1, 326) = 396.4$, $p < .001$, $\eta_p^2 = 0.54$. The average number of days of substance use was reduced from 14.6 days at intake to 2.05 days at follow-up. A significant interaction was also found, $F(3, 326) = 8.72$, $p < .001$, $\eta_p^2 = 0.074$. This interaction indicates that treatment components varied in their influence on reduction of substance use. Post hoc analysis results will be presented below in research question two results.

Research Question Two

Research question two explored the relative influence of the treatment components (case management and outpatient, case management and residential, case management, outpatient, and residential) on the reduction of substance use. To explore group differences, post hoc analyses were conducted given the statistically significant interaction of the previously mentioned MANCOVA. Specifically, Tamhane tests were conducted on all possible pairwise contrasts (Table 8). The following pairs of groups had statistically significant differences: case management only ($M = -9.58$; $SD = 1.1$) and case management and outpatient ($M = -8.66$; $SD = 1.09$) ($p = 0.01$), case management and outpatient ($M = -8.66$; $SD = 1.09$) and case management and residential ($M = -15.24$; $SD = 0.88$) ($p < 0.01$), and case management, outpatient, and residential ($M = -13.29$; $SD = 1.2$) and case management and outpatient ($M = -8.66$; $SD = 1.09$) ($p = 0.007$).

These results indicate that among the four treatment groups, after controlling for substance us at intake, participants in the case management and residential treatment group had the greatest reduction in substance use ($M = 9.59$), followed by the case management, outpatient, and residential treatment group ($M = 8.24$), and the case management only group ($M = 8.12$). Participants in the case management and outpatient treatment group had the least among of reduction in substance use ($M = 5.11$).

Table 8

Tamhane Post Hoc Test Results

Pair	Mean Differences	p
CM - CM & OP	3.01	0.013
CM - CM & RES	-1.47	0.438
CM - CM & RES & OP	-0.125	1.000
CM & OP - CM	-3.01	0.013
CM & OP - CM & RES	-4.48	0.000
CM & OP - CM & RES & OP	-3.13	0.007
CM & RES - CM	1.47	0.438
CM & RES - CM & OP	4.48	0.000
CM & RES - CM & RES & OP	1.35	0.507
CM & RES & OP - CM	0.125	1.000
CM & RES & OP - CM & OP	3.13	0.007
CM & RES & OP - CM & RES	-135	0.507

Note. CM = case management, OP = outpatient, and RES = residential

To further explore the influence of the different treatment groups, a dichotomous variable was created. The dichotomous variable indicates ether the participant reduced their substance use from intake to follow-up, or the participant did not reduce their substance use from intake to follow-up. A chi-square test for association was conducted to further explore the influence of the treatment groups. Model assumptions for a chi-square test of association were checked and met, permitting appropriate use of the chi-square test.

Results of the chi-square test for association involving treatment groups were statistically significant and had a moderate effect size, $\chi^2 (3) = 8.414$, $p = .038$, Cramer's $V = 0.16$. These results indicate that treatment outcomes tend to be associated with treatment components. Significant chi-square statistics reveal 78.5% ($n = 49$) of participants in the case management only group had positive outcomes (any reduction in substance use), 86% ($n = 37$) of participants in the case management and outpatient group had positive outcomes, 90.3% ($n = 117$) of participants in the case management and residential treatment group had positive outcomes, and 93% ($n = 49$) of participants in the case management, outpatient, and residential group had positive outcomes.

Participants who received only case management had a 74% reduction in average days of substance use in the past 30 days from intake ($M = 12.91$; $SD = 9.36$) to follow-up ($M = 3.32$; $SD = 6.82$). Participants in the case management and outpatient group had the highest percent change of all treatment groups at 92%, and substantially reduced substance use from intake ($M = 9.44$; $SD = 7.94$) to follow-up ($M = 0.78$; $SD = 2.27$). Participants who received case management and residential treatment had the greatest mean reduction in substance use days from intake ($M = 17.21$; $SD = 9.46$) to follow-up ($M = 1.97$; $SD = 5.37$), reducing substance use by 89%. Finally, participants who received all three treatment components (case management, outpatient treatment, and residential treatment) also showed an 89% reduction in substance use from intake ($M = 14.89$; $SD = 9.38$) to follow-up ($M = 1.59$; $SD = 5.67$).

Table 9

Mean Intake vs. Mean Follow-up Days of Substance Use

Treatment Group	Intake Mean	Follow-up Mean
CM	12.91	3.32
CM & OP	9.44	0.78

CM & RES & OP	17.21	1.97
CM & OP - CM	14.89	1.59

Summary

Results of these analyses indicate there was a statistically significant improvement for those who entered this treatment program. Overall, 87.2% ($n = 288$) of the participants receiving SAMHSA supported substance use treatment services self-reported a decrease in the use of substances when compared to levels reported at intake, six months earlier. Furthermore, statistically significant differences between treatment groups exist, specifically between case management only and case management and outpatient treatment, case management and outpatient treatment and case management and residential treatment, and case management and outpatient treatment and case management, outpatient treatment, and residential treatment.

CHAPTER V – DISCUSSION

The structure of this chapter is divided into five sections. First, a brief summary of the results will be presented, followed by a review and interpretation of treatment findings. Next, the results and methods of this study will be compared to existing literature surrounding this subject matter. Finally, implications, limitations, and ideas for future research are explored.

Summary of Findings

The Substance Abuse and Mental Health Services Administration (SAMHSA, 2013) estimates that in 2012, 22.2 million (8.5 % of the population) persons aged 12 or older met criteria for substance dependence or abuse in the past year. Due to high rates of substance use, it is imperative for counselors and other treatment providers to understand what combination of treatment services have the best outcomes. This study examined the overall influence a componential treatment program and the relative influence that case management, outpatient treatment, and residential treatment had on the reduction in number of days of substance use. Archival data from a non-profit organization was used for this study. Data were collected from participants using the GPRA survey at intake and follow-up. A chi-square and repeated measures multivariate analysis of covariance were used to analyze the data in SPSS.

Results of this study indicate that participants in this treatment program significantly reduced the number of days of substance use from entrance to the program to when a follow-up was conducted. Furthermore, participants in certain treatment groups had better outcomes compared to other treatment groups. Specifically, after controlling for intake substance use, statistically significant differences were found between: (a) case management only and case management and outpatient treatment; (b) case management and outpatient treatment and case

management and residential treatment; (c) case management and outpatient treatment and case management, outpatient treatment, and residential treatment.

Results indicated that participants that received case management and residential treatment had the highest mean reduction rate, reducing the number of days used from intake to follow-up by an average of 15.24 days. Participants that received case management and residential treatment had significantly better outcomes than those who received case management only ($p = .001$). Participants that received case management and residential treatment also had significantly better outcomes than those who received case management and outpatient ($p < .001$). The only other significant result was between participants who received case management and outpatient and participants that received case management, outpatient treatment, and residential treatment, with those receiving all three services having better outcomes than those who only received case management and outpatient ($p = .032$).

Interpretation of Findings

Despite counselor assignment of treatment group was used in the study, rather than random assignment, no significant differences between treatment group and age group, ethnicity, education, and employment exist. However, a statistically significant difference between treatment group and gender was discovered, χ^2 (3) = 8.643, $p = .034$, Cramer's $V = 0.16$. Despite potential demographic differences, counselor assignment of treatment group was utilized due to ethical and clinical reasons.

The results of this study found overall, individuals who participated in this treatment program significantly reduced the number of days of substance use ($p < 0.001$), rendering the treatment program to be effective overall. Participants in all treatment groups achieved significant reductions in substance use based on GPRA survey responses at intake and follow-up.

The reduction in substance use demonstrates that case management, outpatient, and residential treatment are effective for substance use. Finding a positive overall relative influence is not surprising, as the treatment program was well structured, utilized evidence-based interventions, had licensed professionals, and was comprehensive. Additionally, multiple studies support treatment efficacy of case management, outpatient treatment, and residential treatment. However, the degree in which overall substance use was decreased was significant and surprising. The mean overall days of substance use at intake was 14.6 and the mean overall of substance use at follow-up was 2.05, resulting in an 86% reduction in substance use.

In exploring cases with non-significant reductions, (participants who did not reduce substance use from intake to follow-up) an analysis revealed participants in the case management only group had the highest percentage of outcomes with non-significant reductions across all treatment groups at 40.5%. This could be due to participants not receiving actual substance use treatment and only receiving case management services. Additionally, severity of substance use could have potentially reduced positive outcomes in the case management only group, as 22.9% of participants with extreme severity and 18.4% of participants with severe substance use were in this group, potentially creating for more treatment resistant cases. The case management only group contained a higher number of extreme substance users than the case management and outpatient group and the case management, outpatient, and residential group, again, possibly contributing to the greater number of non-significant reduction outcomes. However, despite accounting for the greatest percentage of non-significant reduction outcomes, 78.5% of participants in the case management only group had positive outcomes, and accounted for 21.5% of positive outcomes across all treatment groups, indicating the efficacy of case management for substance use treatment.

Despite having the largest percentage of non-significant reduction cases, participants in the case management only group exceeded expected treatment outcomes when compared to existing literature. Despite the three other treatment groups having better outcomes than the case management only group, it should be noted that in all other treatment groups, case management was included, Therefore, it could be interpreted as case management accounting for 78.5% of the success in each of the treatment groups. These results indicate that case management is a crucial and essential component in substance use treatment.

The case management and outpatient treatment group consisted of the least number of participants ($n = 50$) across all groups and was the only treatment group identified to have statistically significant differences with all other treatment groups on the MANCOVA post hoc tests, indicating worse outcomes in this group than the other treatment groups. Additionally, the post hoc tests also identified this treatment group as having the worst mean outcome. Exploration into this outcome revealed that out of the 249 participants who reported abstinence at follow-up, this treatment group had the least percentage of participants who achieved abstinence (16.9%; $n = 42$) when compared to case management only (21.3%; $n = 53$), case management and residential (43.4%; $n = 108$), and case management, outpatient, and residential (18.5%; $n = 47$). Furthermore, only 6% ($n = 3$) of participants in the case management and outpatient group reported between 20 and 30 days of reduction in substance use at follow-up compared to 17.7% ($n = 14$) in the case management only group, 34% ($n = 49$) in the case management and residential group, and 19.3% ($n = 11$) in the case management, residential, and outpatient treatment group, indicating participants in the case management and outpatient group did not have as much of a reduction in substance use as the other treatment groups.

These results are not surprising, as participants who were assigned to outpatient treatment were much more likely to have poor attendance. This notion is supported by a finding that 40% ($n = 20$) of participants in the case management and outpatient treatment group only attended 10 outpatient sessions or less. Furthermore, participants who received case management, outpatient, and residential treatment appeared to have greater outpatient attendance rates, as evidenced by only 12.3% ($n = 7$) attending 10 or less outpatient sessions (compared to 40% in the case management and outpatient only group).

Participants in the case management and residential treatment group, statistically, had the best outcomes, accounting for the highest percentage of participants with positive outcomes (reduced substance use) (45.1%; $n = 130$). Additionally, participants in this treatment group had the highest percentage of abstinence reported at follow-up (43.4%; $n = 108$), despite having the highest percentage of extreme severity participants (60.2%; $n = 50$), severe severity participants (43.7%; $n = 45$), and moderate severity participants (23.8%; $n = 28$). Although the significance of these results is not surprising, the magnitude is.

Finally, participants who received case management, outpatient, and residential treatment also demonstrated a positive relative impact. Despite after controlling for days of substance use reported at intake, this treatment group was determined to have less of a relative impact than the case management and residential treatment group, 93.0% ($n = 53$) of participants in this group demonstrated a positive outcome (reduction in substance use), the greatest percentage of positive outcomes of any treatment group in this study.

Discussion and Comparison to Existing Literature

The results of this study bear convergent and divergent findings with existing literature. This study found significant improvement overall and across all four treatment groups, including

case management, outpatient treatment, and residential treatment. This current study's finding of residential treatment having a positive influence on the reduction of substance use is consistent with previous research (Alterman & McLellan, 1993; Schneider, Mittelmeier, & Gaddish, 1996; Longabaugh et al, 1983), as is this current study's finding of outpatient treatment having a positive influence on substance use treatment (Campbell et al., 1997; McLellan et al., 1997). Additionally, Rapp et al (2014) found case management to be effective in substance use treatment, as did this study.

In one of the earliest studies comparing outpatient versus residential treatment for substance use, Edwards and Guthrie (1966) found no significant differences between the two treatment groups for alcohol use, but did find trends favoring the outpatient treatment group, igniting a debate and provoking further research. In 1986, Miller and Hester reviewed findings from 26 controlled studies in attempts to determine the superior treatment method. Miller and Hester's (1986) believed there to be "no overall advantage for residential over nonresidential settings, for longer over shorter inpatient programs, or for more intensive over less intensive interventions in treating alcohol abuse" (p. 794). Miller and Hester's (1986) analysis resulted in finding that intensive residential models should be avoided when alternatives are available and that evidenced based approaches are more important than treatment setting. These findings differ from the results produced in this study, however, Edward and Guthrie's (1966) study and Miller and Hester's (1986) analysis were conducted exclusively for alcohol use. This current study merged alcohol and illicit drug use, resulting in an all-inclusive substance use label.

Another study comparing outpatient and residential treatment settings found no significant differences between the two settings with regards to measures of drinking, employment, and interpersonal functioning (Longabaugh et al., 1983). The study by Longabaugh

et al. (1983) was similar to this current study, as outpatient and residential treatment was found to have a positive influence on substance use reduction and outcomes were analyzed at intake and at a six month follow-up period, however, divergent findings include Longabaugh et al. (1983) finding no significant differences between residential and outpatient treatment groups and exclusively focused on alcohol.

Controversy exists among substance use professionals regarding which treatment services are superior. Some professionals believe residential treatment stands as the optimal approach to reduce substance use, while others believe a reduction in substance use is best achieved on an outpatient basis. Some professionals view case management and other wrap-around services as an important component to substance use treatment, while others do not. Furthermore, clients themselves are also divided in treatment approach philosophies, with some clients believing their condition will only improve through residential treatment and other clients deeming outpatient or self-help groups (such as Alcoholics Anonymous or Narcotics Anonymous) as the superior approach.

Research findings have mixed results as to whether outpatient or residential treatment modalities have better outcomes. Although this has been a topic of research and discussion since the 1960s, it is an issue that should be continually evaluated as both outpatient and residential treatment programs evolve and transformation. Determining the relative influence of combinations of treatment services is essential to treating those with substance use problems, as it provides benefits not only to the substance user but also to society as a whole. Substance use treatment can benefit individuals and society by reducing interpersonal conflicts, increasing workplace productivity, and reducing drug-related accidents, such as overdoses and death

(National Institute on Drug Abuse, 2012). It is important to invest in substance use treatment research and treatment, as the National Institute on Drug Abuse (2012) found that "According to several conservative estimates, every dollar invested in addiction treatment programs yields a return of between $4 and $7 in reduced drug-related crime, criminal justice costs, and theft. When savings related to healthcare are included, total savings can exceed costs by a ratio of 12 to 1" (p. 1).

Differing measures and definitions of treatment success creates difficulty when comparing the existing literature. For example, some previous studies evaluate treatment success indirectly, by measuring decreases in legal problems, hospitalizations, and motor vehicle accidents. Other studies indirectly measure treatment success through improvement in medical, vocational, legal, family, self-esteem, emotional support, social interactions, and psychiatric functioning. This study differs in that treatment success was evaluated directly by measuring the number of days participants used substances. Although number of days of substance use is not the only measure of treatment success, it is important for research to focus on this definition of treatment success as other outcomes, such as those listed above, usually improve as a result of reduction in substance use.

Due to differences in definitions of treatment success, different instruments have been used in previous studies. Data collection instruments are typically selected based on the study's definition of treatment success. For example, one study that measured treatment success based on medical status, employment and support, legal status, family/social status, psychiatric status, depression, psychiatric symptoms, and social support, used four different instruments (Addiction Severity Index, Beck Depression Inventory, Symptom Check List-90-R, and a social support measuring instrument) to collect data. For this study, only one data collection instrument, the

GPRA survey, was used, however, the instrument was designed by selecting different parts of various instruments.

Regarding research design, this study differs from previous studies in that participants in this study were not randomly assigned to treatment groups. Previous studies also had more stringent criteria to be included in the study, while this study was not as selective. While independent variables were similar in this study to those in other studies, the dependent variable differed, as stated previously.

The results of this study expand on previous research through the addition of case management treatment services. Previous research comparing outpatient treatment to residential treatment has mixed results. This study assists in clarifying differences by finding that when case management is added to treatment, residential treatment is superior to outpatient treatment.

Implications of Findings

This study did yield significant results, indicating that overall, the treatment program was successful in reducing substance use. Furthermore, results of this study indicate that different treatment services combinations have different outcomes, with those participants who received residential and case management treatment services having more favorable outcomes than the remaining three treatment service groups (case management only, case management and outpatient treatment, and case management, outpatient treatment, and residential treatment).

This study is relevant due to the reported overall effectiveness of the treatment program and the findings of the influence of combining treatment services to increase outcomes. Although these findings have implications for theory, research, and practice, the results mostly impact the practice of substance use counseling. The findings of this study could lead to a change in the treatment services offered by substance abuse treatment facilities or substance use professionals,

leading to an increase in favorable outcomes for clients. In the essence of effective and efficient substance use treatment, knowing the relative influence of different treatment services could prove to be paramount. Based on the results of this study, substance abuse treatment facilities that do not currently incorporate case management services into their treatment program may want to consider implementing these services to increase outcomes. Furthermore, substance use professionals who usually do not refer to residential treatment programs may want to consider developing a professional relationship and begin referring to local residential treatment facilities. Finally, these results may influence health insurance coverage for outpatient treatment, residential treatment, and case management services.

Limitations of Study

As with most research, limitations to this study may apply. One limitation is that the data analyzed was from a single non-profit organization in South Texas, potentially limiting generalizability to other geographic areas. Another limitation is the lack of variance among race, 72% ($n = 239$) of the participants reporting their race as Caucasian, and only 8% ($n = 27$) reporting their race as African-American and 1% ($n = 3$) reporting their race as American-Indian. This lack of variance among race may result in the findings not being generalizable to other races. The lack of variance in culture was expected because according to the U. S. Census Bureau (2013) 91.4% of residents within the county the agency is located, reported their race as white.

Regarding data collection, since the data collected was based on self-report, participants may not have accurately recalled information or may have yielded socially desirable responses. Additionally, the use of certain substances is known to affect memory, which could prevent accurate recollection of information. Furthermore, although the GPRA survey is based on

reliable ad valid instruments, the GPRA survey itself has not ben tested for reliability and validity.

Regarding data analysis, results from the chi-square tests of association and multivariate analysis of covariance show associations between the independent variable and the dependent variable however, this does not imply causation. An additional limitation is that statistical significance does not imply practical significance (Foster, Barkus, & Yavorsky, 2006).

Future Directions of Research

This current study provides a template for further research, and although the results of this research adds to the existing literature, additional research could further enhance knowledge of substance use treatment. The basic premise of this current study was to explore the overall and relative influence of different treatment components on reduction in substance use. Although much of the existing literature has found substance use treatment settings to not be a factor in substance use outcomes, little research exists on what specific factors do have an influence on substance use outcomes, and research exploring these factors would prove beneficial to the field of substance use treatment. Furthermore, recent reforms in United States healthcare will open previously closed doors for substance users to acquire treatment and with third-party payers (i.e., insurance companies, employee assistance programs, etc.) attempting to limit spending, research on efficient substance use treatment is a necessity.

One potential future research study could resemble this study, with expansion into different populations and different geographical areas. Generalizability is difficult when a study sample is obtained from only 12 counties in one state. Additional geographic areas and subpopulations would benefit the field and assist in advancing research in the area of substance use treatment. Additionally, expansion of a study similar to this could examine outcomes other

than substance use reduction. Although a measure of reduction in substance use is one of the most direct means of evaluating substance use treatment efficacy, it is not the only measure of treatment success. McLellan et al. (1997) states, "even those patients who show abstinence from substance use following treatment, but continue to have unresolved employment, family, and/or psychiatric problems, are at significant risk for early relapse" (p. 81).

Additional variations of this study could analyze the different influence of various treatment components on specific substances, such as methamphetamines, prescription drugs, or heroin. Furthermore, with the recent discovery and development of synthetic drugs, a study similar to this one, with a specific focus on synthetic drugs, would be monumental to the substance use treatment field.

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APPENDIX A

Center for Substance Abuse Treatment Government Performance and Results Act Client

Outcome Measures for Discretionary Programs

CSAT GPRA Client Outcome
Measures for Discretionary Programs
(Revised 06/01/2012)

A.   RECORD MANAGEMENT

Client ID |____|____|____|____|____|____|____|____|____|____|____|____|____|____|____|

Client Type:

- ○ Treatment client
- ○ Client in recovery

Contract/Grant ID |____|____|____|____|____|____|____|____|____|____|____|

Interview Type *[CIRCLE ONLY ONE TYPE.]*

Intake *[GO TO INTERVIEW DATE.]*

6-month follow-up → → → Did you conduct a follow-up interview?   ○ Yes   ○ No
[IF NO, GO DIRECTLY TO SECTION I.]

3-month follow-up *[ADOLESCENT PORTFOLIO ONLY]* →
Did you conduct a follow-up interview?   ○ Yes   ○ No
[IF NO, GO DIRECTLY TO SECTION I.]

Discharge → → → Did you conduct a discharge interview?   ○ Yes   ○ No
[IF NO, GO DIRECTLY TO SECTION J.]

Interview Date |____|____| / |____|____| / |____|____|____|____|
                       Month   Day   Year

[FOLLOW-UP AND DISCHARGE INTERVIEWS: SKIP TO SECTION B.]

1.   Was the client screened by your program for co-occurring mental health and substance use disorders?

- ○ YES
- ○ NO   *[SKIP 1a.]*

> **1a.   *[IF YES]* Did the client screen positive for co-occurring mental health and substance use disorders?**
>
> - ○ YES
> - ○ NO

[SBIRT CONTINUE. ALL OTHERS GO TO SECTION A "PLANNED SERVICES."]

2. **How did the client screen for your SBIRT?**

    ○ NEGATIVE
    ○ POSITIVE

    2a. **What was his/her screening score?**   AUDIT   = |____|____|

    CAGE   = |____|____|

    DAST   = |____|____|

    DAST-10   = |____|____|

    NIAAA Guide   = |____|____|

    ASSIST/Alcohol Subscore   = |____|____|

    Other (Specify)   = |____|____|

    _____

    _____

    _____

3. **Was he/she willing to continue his/her participation in the SBIRT program?**

    ○ YES
    ○ NO

A. RECORD MANAGEMENT - PLANNED SERVICES *[REPORTED BY PROGRAM STAFF ABOUT CLIENT ONLY AT INTAKE/BASELINE.]*

Identify the services you plan to provide to the client during the client's course of treatment/recovery. *[CIRCLE "Y" FOR YES OR "N" FOR NO FOR EACH ONE.]*

Modality	**Yes**	**No**
[SELECT AT LEAST ONE MODALITY.]		
1. Case Management	Y	N
2. Day Treatment	Y	N
3. Inpatient/Hospital (Other Than Detox)	Y	N
4. Outpatient	Y	N
5. Outreach	Y	N
6. Intensive Outpatient	Y	N
7. Methadone	Y	N
8. Residential/Rehabilitation	Y	N
9. Detoxification (Select Only One)		
A. Hospital Inpatient	Y	N
B. Free Standing Residential	Y	N
C. Ambulatory Detoxification	Y	N
10. After Care	Y	N
11. Recovery Support	Y	N
12. Other (Specify) _____	Y	N

Treatment Services	**Yes**	**No**
[SELECT AT LEAST ONE SERVICE.]		
[SBIRT GRANTS: YOU MUST CIRCLE "Y" FOR AT LEAST ONE OF THE TREATMENT SERVICES NUMBERED 1 THROUGH 4.]		
1. Screening	Y	N
2. Brief Intervention	Y	N
3. Brief Treatment	Y	N
4. Referral to Treatment	Y	N
5. Assessment	Y	N
6. Treatment/Recovery Planning	Y	N
7. Individual Counseling	Y	N
8. Group Counseling	Y	N
9. Family/Marriage Counseling	Y	N
10. Co-Occurring Treatment/ Recovery Services	Y	N
11. Pharmacological Interventions	Y	N
12. HIV/AIDS Counseling	Y	N
13. Other Clinical Services (Specify)_____	Y	N

Case Management Services	**Yes**	**No**
1. Family Services (Including Marriage Education, Parenting, Child Development Services)	Y	N
2. Child Care	Y	N
3. Employment Service		
A. Pre-Employment	Y	N
B. Employment Coaching	Y	N
4. Individual Services Coordination	Y	N
5. Transportation	Y	N
6. HIV/AIDS Service	Y	N
7. Supportive Transitional Drug-Free Housing Services	Y	N
8. Other Case Management Services (Specify)_____	Y	N

Medical Services	**Yes**	**No**
1. Medical Care	Y	N
2. Alcohol/Drug Testing	Y	N
3. HIV/AIDS Medical Support & Testing	Y	N
4. Other Medical Services (Specify)_____	Y	N

After Care Services	**Yes**	**No**
1. Continuing Care	Y	N
2. Relapse Prevention	Y	N
3. Recovery Coaching	Y	N
4. Self-Help and Support Groups	Y	N
5. Spiritual Support	Y	N
6. Other After Care Services (Specify)_____	Y	N

Education Services	**Yes**	**No**
1. Substance Abuse Education	Y	N
2. HIV/AIDS Education	Y	N
3. Other Education Services (Specify)_____	Y	N

Peer-to-Peer Recovery Support Services	**Yes**	**No**
1. Peer Coaching or Mentoring	Y	N
2. Housing Support	Y	N
3. Alcohol- and Drug-Free Social Activities	Y	N
4. Information and Referral	Y	N
5. Other Peer-to-Peer Recovery Support Services (Specify)_____	Y	N

A. RECORD MANAGEMENT - DEMOGRAPHICS *[ASKED ONLY AT INTAKE/BASELINE.]*

1. **What is your gender?**

   ○ MALE FEMALE
   ○ TRANSGENDER
   ○ OTHER (SPECIFY) _____
   ○ REFUSED

2. **Are you Hispanic or Latino?**

   ○ YES NO
   ○ REFUSED
   ○

   [IF YES] **What ethnic group do you consider yourself? Please answer yes or no for each of the following. You may say yes to more than one.**

	Yes	No	Refused
Central American	Y	N	REFUSED
Cuban	Y	N	REFUSED
Dominican	Y	N	REFUSED
Mexican	Y	N	REFUSED
Puerto Rican	Y	N	REFUSED
South American	Y	N	REFUSED
Other	Y	N	REFUSED *[IF YES, SPECIFY BELOW.]*
	(Specify)		_____

3. **What is your race? Please answer yes or no for each of the following. You may say yes to more than one.**

	Yes	No	Refused
Black or African American	Y	N	REFUSED
Asian	Y	N	REFUSED
Native Hawaiian or other Pacific Islander	Y	N	REFUSED
Alaska Native	Y	N	REFUSED
White	Y	N	REFUSED
American Indian	Y	N	REFUSED

4. **What is your date of birth?***
   |____|____| / |____|____| /   *[*THE SYSTEM WILL ONLY SAVE MONTH AND YEAR.*
     Month   Day   *TO MAINTAIN CONFIDENTIALITY, DAY IS NOT SAVED.]*

   |____|____|____|____|
       Year

   ○ REFUSED

MILITARY FAMILY AND DEPLOYMENT

5. **Have you ever served in the Armed Forces, in the Reserves, or in the National Guard?** *[IF SERVED]* **What area, the Armed Forces, Reserves, or National Guard did you serve?**

- ○ NO
- ○ YES, IN THE ARMED FORCES
- ○ YES, IN THE RESERVES
- ○ YES, IN THE NATIONAL GUARD
- ○ REFUSED
- ○ DON'T KNOW

[IF NO, REFUSED, OR DON'T KNOW, SKIP TO QUESTION A6.]

5a. **Are you currently on active duty in the Armed Forces, in the Reserves, or in the National Guard?** *[IF ACTIVE]* **What area, the Armed Forces, Reserves, or National Guard?**

- ○ NO, SEPARATED OR RETIRED FROM THE ARMED FORCES, RESERVES, OR NATIONAL GUARD
- ○ YES, IN THE ARMED FORCES
- ○ YES, IN THE RESERVES
- ○ YES, IN THE NATIONAL GUARD
- ○ REFUSED
- ○ DON'T KNOW

5b. **Have you ever been deployed to a combat zone?** *[CHECK ALL THAT APPLY.]*

- ○ NEVER DEPLOYED
- ○ IRAQ OR AFGHANISTAN (E.G., OEF/OIF/OND)
- ○ PERSIAN GULF (OPERATION DESERT SHIELD/DESERT STORM)
- ○ VIETNAM/SOUTHEAST ASIA
- ○ KOREA
- ○ WWII
- ○ DEPLOYED TO A COMBAT ZONE NOT LISTED ABOVE (E.G., BOSNIA/SOMALIA)
- ○ REFUSED
- ○ DON'T KNOW

[SBIRT GRANTEES: FOR CLIENTS WHO SCREENED NEGATIVE, SKIP ITEMS A6, A6a THROUGH A6d.]

6. **Is anyone in your family or someone close to you on active duty in the Armed Forces, in the Reserves, or in the National Guard or separated or retired from the Armed Forces, Reserves, or National Guard?**

- ○ NO
- ○ YES, ONLY ONE
- ○ YES, MORE THAN ONE
- ○ REFUSED
- ○ DON'T KNOW

[IF NO, REFUSED, OR DON'T KNOW, SKIP TO SECTION B.]

[IF YES, ANSWER FOR UP TO 6 PEOPLE] **What is the relationship of that person (Service Member) to you?** *[WRITE RELATIONSHIP IN COLUMN HEADING]* 1 = Mother 2 = Father 3 = Brother 4 = Sister 5 = Spouse 6 = Partner 7 = Child 8 = Other (Specify)_____						
Has the Service Member experienced any of the following? *[CHECK ANSWER IN APPROPRIATE COLUMN FOR ALL THAT APPLY]*	_____ (Relationship) 1.	_____ (Relationship) 2.	_____ (Relationship) 3.	_____ (Relationship) 4.	_____ (Relationship) 5.	_____ (Relationship) 6.
6a. Deployed in support of combat operations (e.g., Iraq or Afghanistan)?	○ YES ○ NO ○ REFUSED ○ DON'T KNOW	○ YES ○ NO ○ REFUSED ○ DON'T KNOW	○ YES ○ NO ○ REFUSED ○ DON'T KNOW	○ YES ○ NO ○ REFUSED ○ DON'T KNOW	○ YES ○ NO ○ REFUSED ○ DON'T KNOW	○ YES ○ NO ○ REFUSED ○ DON'T KNOW
6b. Was physically injured during combat operations?	○ YES ○ NO ○ REFUSED ○ DON'T KNOW	○ YES ○ NO ○ REFUSED ○ DON'T KNOW	○ YES ○ NO ○ REFUSED ○ DON'T KNOW	○ YES ○ NO ○ REFUSED ○ DON'T KNOW	○ YES ○ NO ○ REFUSED ○ DON'T KNOW	○ YES ○ NO ○ REFUSED ○ DON'T KNOW
6c. Developed combat stress symptoms/ difficulties adjusting following deployment, including PTSD, depression, or suicidal thoughts?	○ YES ○ NO ○ REFUSED ○ DON'T KNOW	○ YES ○ NO ○ REFUSED ○ DON'T KNOW	○ YES ○ NO ○ REFUSED ○ DON'T KNOW	○ YES ○ NO ○ REFUSED ○ DON'T KNOW	○ YES ○ NO ○ REFUSED ○ DON'T KNOW	○ YES ○ NO ○ REFUSED ○ DON'T KNOW
6d. Died or was killed?	○ YES ○ NO ○ REFUSED ○ DON'T KNOW	○ YES ○ NO ○ REFUSED ○ DON'T KNOW	○ YES ○ NO ○ REFUSED ○ DON'T KNOW	○ YES ○ NO ○ REFUSED ○ DON'T KNOW	○ YES ○ NO ○ REFUSED ○ DON'T KNOW	○ YES ○ NO ○ REFUSED ○ DON'T KNOW

B. DRUG AND ALCOHOL USE

		Number of Days	REFUSED

1. **During the past 30 days, how many days have you used the following:**
   a. Any alcohol *[IF ZERO, SKIP TO ITEM B1c.]* |___|___| ○ ○
   b1. Alcohol to intoxication (5+ drinks in one sitting) |___|___| ○ ○
   b2. Alcohol to intoxication (4 or fewer drinks in one sitting and felt high) |___|___| ○ ○
   c. Illegal drugs *[IF B1a OR B1c = 0, RF, DK, THEN SKIP TO ITEM B2.]* |___|___| ○ ◎
   d. Both alcohol and drugs (on the same day) |___|___| ○

Route of Administration Types:
1. Oral   2. Nasal   3. Smoking   4. Non-IV injection   5. IV
*NOTE THE USUAL ROUTE. FOR MORE THAN ONE ROUTE, CHOOSE THE MOST SEVERE. THE ROUTES ARE LISTED FROM LEAST SEVERE (1) TO MOST SEVERE (5).

2. **During the past 30 days, how many days have you used any of the following:** *[IF THE VALUE IN ANY ITEM B2a THROUGH B2i > 0, THEN THE VALUE IN B1c MUST BE > 0.]*

		Number of Days	RF	DK	Route*	RF	DK
a.	Cocaine/Crack	|___|___|	○	○	|___|	○	○
b.	Marijuana/Hashish (Pot, Joints, Blunts, Chronic, Weed, Mary Jane)	|___|___|	○	○	|___|	○	○
c.	Opiates:						
	1. Heroin (Smack, H, Junk, Skag)	|___|___|	○	○	|___|	○	○
	2. Morphine	|___|___|	○	○	|___|	○	○
	3. Dilaudid	|___|___|	○	○	|___|	○	○
	4. Demerol	|___|___|	○	○	|___|	○	○
	5. Percocet	|___|___|	○	○	|___|	○	○
	6. Darvon	|___|___|	○	○	|___|	○	○
	7. Codeine	|___|___|	○	○	|___|	○	○
	8. Tylenol 2, 3, 4	|___|___|	○	○	|___|	○	○
	9. OxyContin/Oxycodone	|___|___|	○	○	|___|		
d.	Non-prescription methadone	|___|___|			|___|	○	○
e.	Hallucinogens/psychedelics, PCP (Angel Dust, Ozone, Wack, Rocket Fuel), MDMA (Ecstasy, XTC, X, Adam), LSD (Acid, Boomers, Yellow Sunshine), Mushrooms, or Mescaline	|___|___|	○	○	|___|	○	○
f.	Methamphetamine or other amphetamines (Meth, Uppers, Speed, Ice, Chalk, Crystal, Glass, Fire, Crank)	|___|___|	○	○	|___|	○	○
			○	○		○	○

B.   DRUG AND ALCOHOL USE (continued)

Route of Administration Types:
1. Oral   2. Nasal   3. Smoking   4. Non-IV injection   5. IV
*NOTE THE USUAL ROUTE. FOR MORE THAN ONE ROUTE,
CHOOSE THE MOST SEVERE. THE ROUTES ARE LISTED FROM
LEAST SEVERE (1) TO MOST SEVERE (5).

2. **During the past 30 days, how many days have you used any of the following:** *[IF THE VALUE IN ANY ITEM B2a THROUGH B2i > 0, THEN THE VALUE IN B1c MUST BE > 0.]*

			Number of Days	RF DK		Route*	RF DK
g.	1.	Benzodiazepines: Diazepam (Valium); Alprazolam (Xanax); Triazolam (Halcion); and Estasolam (Prosom and Rohypnol—also known as roofies, roche, and cope)	|___|___|	○ ○		|___|	○ ○
	2.	Barbiturates: Mephobarbital (Mebacut) and pentobarbital sodium (Nembutal)	|___|___|	○ ○		|___|	○ ○
	3.	Non-prescription GHB (known as Grievous Bodily Harm, Liquid Ecstasy, and Georgia Home Boy)	|___|___|	○ ○		|___|	○ ○
	4.	Ketamine (known as Special K or Vitamin K)	|___|___|	○ ○		|___|	○ ○
	5.	Other tranquilizers, downers, sedatives, or hypnotics	|___|___|	○ ○		|___|	○ ○
h.		Inhalants (poppers, snappers, rush, whippets)	|___|___|	○ ○		|___|	○ ○
i.		Other illegal drugs (Specify) _____	|___|___|	○ ○		|___|	○ ○

3. **In the past 30 days, have you injected drugs?** *[IF ANY ROUTE OF ADMINISTRATION IN B2a THROUGH B2i = 4 or 5, THEN B3 MUST = YES.]*

   ○ YES NO
   ○ REFUSED
   ○ DON'T KNOW

   [IF NO, REFUSED, OR DON'T KNOW, SKIP TO SECTION C.]

4. **In the past 30 days, how often did you use a syringe/needle, cooker, cotton, or water that someone else used?**

   ○ Always
   ○ More than half the time
   ○ Half the time
   ○ Less than half the time
   ○ Never
   ○ REFUSED
   ○ DON'T KNOW

C. FAMILY AND LIVING CONDITIONS

1. **In the past 30 days, where have you been living most of the time?** *[DO NOT READ RESPONSE OPTIONS TO CLIENT.]*

   ○ SHELTER (SAFE HAVENS, TRANSITIONAL LIVING CENTER [TLC], LOW-DEMAND FACILITIES, RECEPTION CENTERS, OTHER TEMPORARY DAY OR EVENING FACILITY)
   ○ STREET/OUTDOORS (SIDEWALK, DOORWAY, PARK, PUBLIC OR ABANDONED BUILDING)
   ○ INSTITUTION (HOSPITAL, NURSING HOME, JAIL/PRISON)
   ○ HOUSED: *[IF HOUSED, CHECK APPROPRIATE SUBCATEGORY:]*
     ○ OWN/RENT APARTMENT, ROOM, OR HOUSE
     ○ SOMEONE ELSE'S APARTMENT, ROOM, OR HOUSE
     ○ DORMITORY/COLLEGE RESIDENCE
     ○ HALFWAY HOUSE
     ○ RESIDENTIAL TREATMENT
     ○ OTHER HOUSED (SPECIFY) _____
   ○ REFUSED
   ○ DON'T KNOW

2. **During the past 30 days, how stressful have things been for you because of your use of alcohol or other drugs?** *[IF B1a OR B1c > 0, THEN C2 CANNOT = "NOT APPLICABLE."]*

   ○ Not at all
   ○ Somewhat
   ○ Considerably
   ○ Extremely
   ○ NOT APPLICABLE *[USE ONLY IF B1A AND B1C = 0.]*
   ○ REFUSED
   ○ DON'T KNOW

3. **During the past 30 days, has your use of alcohol or other drugs caused you to reduce or give up important activities?** *[IF B1a OR B1c > 0, THEN C3 CANNOT = "NOT APPLICABLE."]*

   ○ Not at all
   ○ Somewhat
   ○ Considerably
   ○ Extremely
   ○ NOT APPLICABLE *[USE ONLY IF B1A AND B1C = 0.]*
   ○ REFUSED
   ○ DON'T KNOW

C. FAMILY AND LIVING CONDITIONS (continued)

4. **During the past 30 days, has your use of alcohol or other drugs caused you to have emotional problems?** *[IF B1a OR B1c > 0, THEN C4 CANNOT = "NOT APPLICABLE."]*

   ○ Not at all
   ○ Somewhat
   ○ Considerably
   ○ Extremely
   ○ NOT APPLICABLE *[USE ONLY IF B1a AND B1c = 0.]*
   ○ REFUSED
   ○ DON'T KNOW

5. *[IF NOT MALE]* **Are you currently pregnant?**

   ○ YES NO
   ○ REFUSED
   ○ DON'T KNOW

6. **Do you have children?**

   ○ YES NO
   ○ REFUSED
   ○ DON'T KNOW

   [IF NO, REFUSED, OR DON'T KNOW, SKIP TO SECTION D.]

   a. **How many children do you have?** *[IF C6 = YES, THEN THE VALUE IN C6a MUST BE > 0.]*

      |____|____| ○ REFUSED ○ DON'T KNOW

   b. **Are any of your children living with someone else due to a child protection court order?**

      ○ YES NO
      ○ REFUSED
      ○ DON'T KNOW

   [IF NO, REFUSED, OR DON'T KNOW, SKIP TO ITEM C6D.]

   c. *[IF YES]* **How many of your children are living with someone else due to a child protection court order?** *[THE VALUE IN C6c CANNOT EXCEED THE VALUE IN C6a.]*

      |____|____| ○ REFUSED ○ DON'T KNOW

   d. **For how many of your children have you lost parental rights?** *[THE CLIENT'S PARENTAL RIGHTS WERE TERMINATED.] [THE VALUE IN ITEM C6d CANNOT EXCEED THE VALUE IN C6a.]*

      |____|____| ○ REFUSED ○ DON'T KNOW

D. EDUCATION, EMPLOYMENT, AND INCOME

1. Are you currently enrolled in school or a job training program? *[IF ENROLLED]* Is that full time or part time? *[IF CLIENT IS INCARCERATED, CODE D1 AS "NOT ENROLLED."]*

- ○ NOT ENROLLED
- ○ ENROLLED, FULL TIME
- ○ ENROLLED, PART TIME
- ○ OTHER (SPECIFY) _____
- ○ REFUSED
- ○ DON'T KNOW

2. What is the highest level of education you have finished, whether or not you received a degree?

- ○ NEVER ATTENDED
- ○ 1ST GRADE
- ○ 2ND GRADE
- ○ 3RD GRADE
- ○ 4TH GRADE
- ○ 5TH GRADE
- ○ 6TH GRADE
- ○ 7TH GRADE
- ○ 8TH GRADE
- ○ 9TH GRADE
- ○ 10TH GRADE
- ○ 11TH GRADE
- ○ 12TH GRADE/HIGH SCHOOL DIPLOMA/EQUIVALENT
- ○ COLLEGE OR UNIVERSITY/1ST YEAR COMPLETED
- ○ COLLEGE OR UNIVERSITY/2ND YEAR COMPLETED/ASSOCIATES DEGREE (AA, AS)
- ○ COLLEGE OR UNIVERSITY/3RD YEAR COMPLETED
- ○ BACHELOR'S DEGREE (BA, BS) OR HIGHER
- ○ VOC/TECH PROGRAM AFTER HIGH SCHOOL BUT NO VOC/TECH DIPLOMA
- ○ VOC/TECH DIPLOMA AFTER HIGH SCHOOL
- ○ REFUSED
- ○ DON'T KNOW

3. Are you currently employed? *[CLARIFY BY FOCUSING ON STATUS DURING MOST OF THE PREVIOUS WEEK, DETERMINING WHETHER CLIENT WORKED AT ALL OR HAD A REGULAR JOB BUT WAS OFF WORK.] [IF CLIENT IS "ENROLLED, FULL TIME" IN D1 AND INDICATES "EMPLOYED, FULL TIME" IN D3, ASK FOR CLARIFICATION. IF CLIENT IS INCARCERATED AND HAS NO WORK OUTSIDE OF JAIL, CODE D3 AS "UNEMPLOYED, NOT LOOKING FOR WORK."]*

- ○ EMPLOYED, FULL TIME (35+ HOURS PER WEEK, OR WOULD HAVE BEEN)
- ○ EMPLOYED, PART TIME
- ○ UNEMPLOYED, LOOKING FOR WORK
- ○ UNEMPLOYED, DISABLED
- ○ UNEMPLOYED, VOLUNTEER WORK
- ○ UNEMPLOYED, RETIRED
- ○ UNEMPLOYED, NOT LOOKING FOR WORK
- ○ OTHER (SPECIFY) _____
- ○ REFUSED
- ○ DON'T KNOW

D.   EDUCATION, EMPLOYMENT, AND INCOME (continued)

4.   Approximately, how much money did YOU receive (pre-tax individual income) in the past 30 days from…
[IF D3 DOES NOT = "EMPLOYED" AND THE VALUE IN D4a IS GREATER THAN ZERO, PROBE. IF D3 = "UNEMPLOYED, LOOKING FOR WORK" AND THE VALUE IN D4b = 0, PROBE. IF D3 = "UNEMPLOYED, RETIRED" AND THE VALUE IN D4c = 0, PROBE. IF D3 = "UNEMPLOYED, DISABLED" AND THE VALUE IN D4d = 0, PROBE.]

			RF	DK
a.	Wages	$ |__|__|__| , |__|__|__|	○	○
b.	Public assistance	$ |__|__|__| , |__|__|__|	○	○
c.	Retirement	$ |__|__|__| , |__|__|__|	○	○
d.	Disability	$ |__|__|__| , |__|__|__|	○	○
e.	Non-legal income	$ |__|__|__| , |__|__|__|	○	○
f.	Family and/or friends	$ |__|__|__| , |__|__|__|	○	○
g.	Other (Specify)	$ |__|__|__| , |__|__|__|	○	○

_____

E.   CRIME AND CRIMINAL JUSTICE STATUS

1.   In the past 30 days, how many times have you been arrested?

|____|____| TIMES   ○ REFUSED ○ DON'T KNOW

[IF NO ARRESTS, SKIP TO ITEM E3.]

2.   In the past 30 days, how many times have you been arrested for drug-related offenses? *[THE VALUE IN E2 CANNOT BE GREATER THAN THE VALUE IN E1.]*

|____|____| TIMES   ○ REFUSED ○ DON'T KNOW

3.   In the past 30 days, how many nights have you spent in jail/prison? *[IF THE VALUE IN E3 IS GREATER THAN 15, THEN C1 MUST = INSTITUTION (JAIL/PRISON). IF C1 = INSTITUTION (JAIL/PRISON), THEN THE VALUE IN E3 MUST BE GREATER THAN OR EQUAL TO 15.]*

|____|____| NIGHTS   ○ REFUSED ○ DON'T KNOW

4.   In the past 30 days, how many times have you committed a crime? *[CHECK NUMBER OF DAYS USED ILLEGAL DRUGS IN ITEM B1c ON PAGE 7. ANSWER HERE IN E4 SHOULD BE EQUAL TO OR GREATER THAN NUMBER IN B1c BECAUSE USING ILLEGAL DRUGS IS A CRIME.]*

|____|____|____| TIMES   ○ REFUSED ○ DON'T KNOW

5.   Are you currently awaiting charges, trial, or sentencing?

○ YES NO
○ REFUSED
○ DON'T KNOW

6.   Are you currently on parole or probation?

○ YES NO
○ REFUSED
○ DON'T KNOW

F.   MENTAL AND PHYSICAL HEALTH PROBLEMS AND TREATMENT/RECOVERY

1.   How would you rate your overall health right now?

- ○ Excellent
- ○ Very good
- ○ Good
- ○ Fair Poor
- ○ REFUSED
- ○ DON'T KNOW

2.   During the past 30 days, did you receive:

a.   Inpatient Treatment for:

		YES	*[IF YES]* Altogether for how many nights			
i.	Physical complaint	○	_____ nights	○	○	
ii.	Mental or emotional difficulties	○	_____ nights	○	○	○
iii.	Alcohol or substance abuse	○	_____ nights	○	○	○
						○

b.   Outpatient Treatment for:

		YES	*[IF YES]* Altogether for how many times			
i.	Physical complaint	○	_____ times	○	○	○
ii.	Mental or emotional difficulties	○	_____ times	○	○	○
iii.	Alcohol or substance abuse	○	_____ times	○	○	○

c.   Emergency Room Treatment for:

		YES	*[IF YES]* Altogether for how many times			
i.	Physical complaint	○	_____ times	○		
ii.	Mental or emotional difficulties	○	_____ times		○	○
iii.	Alcohol or substance abuse	○	_____ times	○	○	○
				○	○	○

F.   MENTAL AND PHYSICAL HEALTH PROBLEMS AND TREATMENT/RECOVERY (continued)

3.   During the past 30 days, did you engage in sexual activity?

○ Yes
○ No → *[SKIP TO F4.]*
○ NOT PERMITTED TO ASK → *[SKIP TO F4.]*
○ REFUSED → *[SKIP TO F4.]*
○ DON'T KNOW → *[SKIP TO F4.]*

[IF YES] **Altogether, how many:**

	Contacts	**RF**	**DK**
a. Sexual contacts (vaginal, oral, or anal) did you have?	|____|____|____|	○	○
b. Unprotected sexual contacts did you have? *[THE VALUE IN F3b SHOULD NOT BE GREATER THAN THE VALUE IN F3a.] [IF ZERO, SKIP TO F4.]*	|____|____|____|	○	○
c. Unprotected sexual contacts were with an individual who is or was: *[NONE OF THE VALUES IN F3c1 THROUGH F3c3 CAN BE GREATER THAN THE VALUE IN F3b.]*			
1. HIV positive or has AIDS	|____|____|____|	○	○
2. An injection drug user	|____|____|____|	○	○
3. High on some substance	|____|____|____|	○	○

4.   Have you ever been tested for HIV?

○ Yes ....*[GO TO F4a.]*
○ No ....*[SKIP TO F5.]*
○ REFUSED ....*[SKIP TO F5.]*
○ DON'T KNOW ......*[SKIP TO F5.]*

4a.   Do you know the results of your HIV testing?

○ Yes
○ No

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F.   MENTAL AND PHYSICAL HEALTH PROBLEMS AND TREATMENT/RECOVERY (continued)

5.   In the past 30 days, not due to your use of alcohol or drugs, how many days have you:

		Days	**RF**	**DK**
a.	Experienced serious depression	|___|___|	○	○
b.	Experienced serious anxiety or tension	|___|___|	○	○
c.	Experienced hallucinations	|___|___|	○	○
d.	Experienced trouble understanding, concentrating, or remembering	|___|___|	○	○
e.	Experienced trouble controlling violent behavior	|___|___|	○	○
f.	Attempted suicide	|___|___|	○	○
g.	Been prescribed medication for psychological/emotional problem	|___|___|	○	○

[IF CLIENT REPORTS ZERO DAYS, RF, OR DK TO __ALL__ ITEMS IN QUESTION 5, SKIP TO ITEM F7.]

6.   How much have you been bothered by these psychological or emotional problems in the past 30 days?

- ○ Not at all
- ○ Slightly
- ○ Moderately
- ○ Considerably
- ○ Extremely
- ○ REFUSED
- ○ DON'T KNOW

VIOLENCE AND TRAUMA

7.   Have you ever experienced violence or trauma in any setting (including community or school violence; domestic violence; physical, psychological, or sexual maltreatment/assault within or outside of the family; natural disaster; terrorism; neglect; or traumatic grief?)

- ○ YES
- ○ NO *[SKIP TO ITEM F8.]*
- ○ REFUSED
- ○ DON'T KNOW

[IF NO, REFUSED, OR DON'T KNOW, SKIP TO ITEM F8.]

F.   **MENTAL AND PHYSICAL HEALTH PROBLEMS AND TREATMENT/RECOVERY (continued)**

Did any of these experiences feel so frightening, horrible, or upsetting that, in the past and/or the present, you:

7a.   **Have had nightmares about it or thought about it when you did not want to?**

○   YES NO
○   REFUSED
○   DON'T KNOW

7b.   **Tried hard not to think about it or went out of your way to avoid situations that remind you of it?**

○   YES NO
○   REFUSED
○   DON'T KNOW

7c.   **Were constantly on guard, watchful, or easily startled?**

○   YES NO
○   REFUSED
○   DON'T KNOW

7d.   **Felt numb and detached from others, activities, or your surroundings?**

○   YES NO
○   REFUSED
○   DON'T KNOW

8.   **In the past 30 days, how often have you been hit, kicked, slapped, or otherwise physically hurt?**

○   Never
○   A few times
○   More than a few times
○   REFUSED
○   DON'T KNOW

G. SOCIAL CONNECTEDNESS

1. **In the past 30 days, did you attend any voluntary self-help groups for recovery that were not affiliated with a religious or faith-based organization? In other words, did you participate in a non-professional, peer-operated organization that is devoted to helping individuals who have addiction-related problems such as: Alcoholics Anonymous, Narcotics Anonymous, Oxford House, Secular Organization for Sobriety, or Women for Sobriety, etc.?**

    ○ YES   *[IF YES]* SPECIFY HOW MANY TIMES |____|____| ○ REFUSED   ○ DON'T KNOW
    ○ NO
    ○ REFUSED
    ○ DON'T KNOW

2. **In the past 30 days, did you attend any religious/faith-affiliated recovery self-help groups?**

    ○ YES   *[IF YES]* SPECIFY HOW MANY TIMES |____|____| ○ REFUSED   ○ DON'T KNOW
    ○ NO
    ○ REFUSED
    ○ DON'T KNOW

3. **In the past 30 days, did you attend meetings of organizations that support recovery other than the organizations described above?**

    ○ YES   *[IF YES]* SPECIFY HOW MANY TIMES |____|____| ○ REFUSED   ○ DON'T KNOW
    ○ NO
    ○ REFUSED
    ○ DON'T KNOW

4. **In the past 30 days, did you have interaction with family and/or friends that are supportive of your recovery?**

    ○ YES NO
    ○ REFUSED
    ○ DON'T KNOW

5. **To whom do you turn when you are having trouble?** *[SELECT ONLY ONE.]*

    ○ NO ONE
    ○ CLERGY MEMBER
    ○ FAMILY MEMBER
    ○ FRIENDS
    ○ REFUSED
    ○ DON'T KNOW
    ○ OTHER (SPECIFY) _____

I. FOLLOW-UP STATUS

[REPORTED BY PROGRAM STAFF ABOUT CLIENT ONLY AT FOLLOW-UP.]

1. **What is the follow-up status of the client?** *[THIS IS A REQUIRED FIELD: NA, REFUSED, DON'T KNOW, AND MISSING WILL NOT BE ACCEPTED.]*

   ○ 01 = Deceased at time of due date
   ○ 11 = Completed interview within specified window
   ○ 12 = Completed interview outside specified window
   ○ 21 = Located, but refused, unspecified
   ○ 22 = Located, but unable to gain institutional access
   ○ 23 = Located, but otherwise unable to gain access
   ○ 24 = Located, but withdrawn from project
   ○ 31 = Unable to locate, moved
   ○ 32 = Unable to locate, other (Specify) _____

2. **Is the client still receiving services from your program?**

   ○ Yes
   ○ No

   [IF THIS IS A FOLLOW-UP INTERVIEW, STOP NOW; THE INTERVIEW IS COMPLETE.]

J. DISCHARGE STATUS

[REPORTED BY PROGRAM STAFF ABOUT CLIENT ONLY AT DISCHARGE.]

1. **On what date was the client discharged?**

|____|____| / |____|____| / |____|____|____|____|
 MONTH   DAY   YEAR

2. **What is the client's discharge status?**

   ○ 01 = Completion/Graduate
   ○ 02 = Termination

   If the client was terminated, what was the reason for termination? *[SELECT ONE RESPONSE.]*

   ○ 01 = Left on own against staff advice with satisfactory progress
   ○ 02 = Left on own against staff advice without satisfactory progress
   ○ 03 = Involuntarily discharged due to nonparticipation
   ○ 04 = Involuntarily discharged due to violation of rules
   ○ 05 = Referred to another program or other services with satisfactory progress
   ○ 06 = Referred to another program or other services with unsatisfactory progress
   ○ 07 = Incarcerated due to offense committed while in treatment/recovery with satisfactory progress
   ○ 08 = Incarcerated due to offense committed while in treatment/recovery with unsatisfactory progress
   ○ 09 = Incarcerated due to old warrant or charged from before entering treatment/recovery with satisfactory progress
   ○ 10 = Incarcerated due to old warrant or charged from before entering treatment/recovery with unsatisfactory progress
   ○ 11 = Transferred to another facility for health reasons
   ○ 12 = Death
   ○ 13 = Other (Specify) _____

3. **Did the program test this client for HIV?**

   ○ Yes   *[SKIP TO SECTION K.]*
   ○ No   *[GO TO J4.]*

4. *[IF NO]* **Did the program refer this client for testing?**

   ○ Yes
   ○ No

K. SERVICES RECEIVED
   [REPORTED BY PROGRAM STAFF ABOUT CLIENT ONLY AT DISCHARGE.]

Identify the number of DAYS of services provided to the client during the client's course of treatment/recovery. *[ENTER ZERO IF NO SERVICES PROVIDED. YOU SHOULD HAVE AT LEAST ONE DAY FOR MODALITY.]*

Modality	Days
1. Case Management	|__|__|__|
2. Day Treatment	|__|__|__|
3. Inpatient/Hospital (Other Than Detox)	|__|__|__|
4. Outpatient	|__|__|__|
5. Outreach	|__|__|__|
6. Intensive Outpatient	|__|__|__|
7. Methadone	|__|__|__|
8. Residential/Rehabilitation	|__|__|__|
9. Detoxification (Select Only One):	
A. Hospital Inpatient	|__|__|__|
B. Free Standing Residential	|__|__|__|
C. Ambulatory Detoxification	|__|__|__|
10. After Care	|__|__|__|
11. Recovery Support	|__|__|__|
12. Other (Specify)_____	|__|__|__|

Identify the number of SESSIONS provided to the client during the client's course of treatment/ recovery. *[ENTER ZERO IF NO SERVICES PROVIDED.]*

Treatment Services	Sessions

[SBIRT GRANTS: YOU MUST HAVE AT LEAST ONE SESSION FOR ONE OF THE TREATMENT SERVICES NUMBERED 1 THROUGH 4.]

1. Screening	|__|__|__|
2. Brief Intervention	|__|__|__|
3. Brief Treatment	|__|__|__|
4. Referral to Treatment	|__|__|__|
5. Assessment	|__|__|__|
6. Treatment/Recovery Planning	|__|__|__|
7. Individual Counseling	|__|__|__|
8. Group Counseling	|__|__|__|
9. Family/Marriage Counseling	|__|__|__|
10. Co-Occurring Treatment/Recovery Services	|__|__|__|
11. Pharmacological Interventions	|__|__|__|
12. HIV/AIDS Counseling	|__|__|__|
13. Other Clinical Services (Specify)_____	|__|__|__|

Case Management Services	Sessions
1. Family Services (Including Marriage Education, Parenting, Child Development Services)	|__|__|__|
2. Child Care	|__|__|__|
3. Employment Service	
A. Pre-Employment	|__|__|__|
B. Employment Coaching	|__|__|__|
4. Individual Services Coordination	|__|__|__|
5. Transportation	|__|__|__|
6. HIV/AIDS Service	|__|__|__|
7. Supportive Transitional Drug-Free Housing Services	|__|__|__|
8. Other Case Management Services (Specify)_____	|__|__|__|

Medical Services	Sessions
1. Medical Care	|__|__|__|
2. Alcohol/Drug Testing	|__|__|__|
3. HIV/ AIDS Medical Support & Testing	|__|__|__|
4. Other Medical Services (Specify)_____	|__|__|__|

After Care Services	Sessions
1. Continuing Care	|__|__|__|
2. Relapse Prevention	|__|__|__|
3. Recovery Coaching	|__|__|__|
4. Self-Help and Support Groups	|__|__|__|
5. Spiritual Support	|__|__|__|
6. Other After Care Services (Specify)_____	|__|__|__|

Education Services	Sessions
1. Substance Abuse Education	|__|__|__|
2. HIV/AIDS Education	|__|__|__|
3. Other Education Services (Specify)_____	|__|__|__|

Peer-to-Peer Recovery Support Services	Sessions
1. Peer Coaching or Mentoring	|__|__|__|
2. Housing Support	|__|__|__|
3. Alcohol- and Drug-Free Social Activities	|__|__|__|
4. Information and Referral	|__|__|__|
5. Other Peer-to-Peer Recovery Support Services (Specify)_____	|__|__|__|