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Peer Recovery Support Effects on Substance Abuse in Rural Outpatient Community Behavioral Health

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Walden University

College of Allied Health

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Melissa Bruce

has been found to be complete and satisfactory in all respects,
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the review committee have been made.

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Walden University
2024

Abstract

Peer Recovery Support Effects on Substance Abuse in Rural Outpatient Community Behavioral Health

by

Melissa Bruce

MS, Walden University, 2018

BS, Southern New Hampshire University, 2015

Dissertation Submitted in Partial Fulfillment

of the Requirements for the Degree of

Doctor of Philosophy

Psychology

Walden University

February 2024

Abstract

Substance use and abuse continue to increase, and the adverse physical, emotional, and mental effects impact the individual user, their family and friends, and the community. Peer recovery support (PRS) has potential for contributing to the reduction of substance use and promoting long-term sustained recovery when added to outpatient treatment as usual (TAU). Peer specialists (PSs) provide encouragement, support, relapse prevention, referrals, education, and advocacy for those in recovery from mental health and substance use in several settings. Less is known about the influence of PRS in addition to TAU on substance use. The purpose of this quantitative study was to examine whether engagement in more PRS contacts created more success in achieving abstinence from substances (operationalized as fraction of negative urinalysis tests [UAs]). The social learning (cognitive) theory was used as a theoretical framework. Secondary data were obtained from a rural community behavioral health agency that included adults receiving outpatient TAU (and potentially PRS) for an identified substance use disorder (SUD), who are involved in the criminal justice system, and who provide UAs as part of their treatment at least once a month. Data were analyzed using multiple regression. Results showed no statistically significant relationships between treatment condition and fractional positive UAs while controlling for time in treatment. Implications for positive social change include understanding the nuanced issues related to PRS as part of treatment; such understanding can ultimately result in more successful treatment outcomes and lower public costs of addiction.

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Dedication

It is with deep respect that I express gratitude and appreciation for the support of my family, especially my husband, Scott, who dedicated years to this endeavor alongside me. His continued faith in my pursuit of greater knowledge was unwavering. Without this commitment, and his encouragement, none of this would have been possible!

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To the most meaningful supports I have received throughout this journey, I give thanks to my esteemed colleague and fellow graduate Jessica Krall; this journey would not have been so enjoyable without you, nor would I have been able to endure the process with quite as much grace as what you offered. We grew together, struggled together, and grew again, all the while learning more than we could have imagined.

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Chapter 1: Introduction to the Study

Introduction

The data gathered from this study provide rural community behavioral health agencies with information on the effectiveness of adding peer recovery support (PRS) to treatment as usual (TAU) for clients in treatment for a substance use disorder (SUD). It is difficult to know whether this additional treatment has a positive impact in reducing substance use or whether TAU is sufficient to gain recovery.

As of 2021, there were 46.3 million people who met DSM-5 criteria for a SUD, and 94% of them did not receive treatment (Substance Abuse and Mental Health Services Administration [SAMHSA], 2023c). Although approximately $35 billion has been allocated to drug control by the Federal government, there is still a significant national crisis with illicit substances (SAMHSA, 2023c). Sedative drugs like benzodiazepines are prescribed to over 5% of the U.S. adult population to help induce sleep and to reduce anxiety; however, 5.3 million people reported misusing these medications in the previous year (Maust et al., 2019). Stimulant drugs may be prescribed for the treatment of ADHD or narcolepsy (SAHMSA, 2023c) or used illicitly, such as when methamphetamine or cocaine is purchased from the streets. Of the 60 million adult individuals prescribed a stimulant medication, 5 million have misused them at least once, often for cognitive enhancement (Compton et al., 2018). Hallucinogen use has increased over the past decade, and in 2021, 8% of young adults reported use of LSD, mescaline, peyote, psilocybin, or PCP, up from 5% in 2016, and 3% in 2011 (National Institute on Drug Abuse [NIDA], 2022). Second only to marijuana, opioids have the highest number of

users for both youth and adults (National Center for Drug Abuse Statistics [NCDAS], 2023). Drug overdose rates were 200% higher in 2016 than in 1999 for all substances, and opioids accounted for 70% of all drug overdose deaths (Atkins & Durrance, 2019). Opioid abuse has led to more overdose deaths in the last year than any other drug (CDC, 2022). Opioids reduce the sensation of pain by using chemicals that interact with the receptors in the brain and can cause death by slowing the breathing down at high doses (APA, 2022b). The highly addictive nature of opioids comes from their ability to activate the reward centers of the brain by releasing endorphins that increase feelings of pleasure. An opioid crisis was determined after an increase in pain medications being prescribed led to its misuse as well as the misuse of non-prescription opioids (U.S. Department of Health and Human Services, n.d.). Support continues to be needed to educate, advocate, motivate, encourage, and refer individuals to engage in recovery to reduce the risks associated with illicit substance use.

Peer specialists (PS) are those who are in their own recovery and support others' recovery using interventions. These supports have been used in many environments to reduce substance abuse and the associated risks (Liebling et al., 2021). These individuals have experienced the significant impacts of substance use that led to them seeking resources to gain and maintain their own recovery and now desire to support others. PS may be considered the "one-stop shop" for community resources, as they have identified and used the most beneficial processes for their own recovery and can provide insight about expectations of these community resources to others. PSs engage in several roles to help substance users reach their own unique recovery goals based on research about the

benefits of treatment for substance use. These roles include advocating for others, sharing resources, building skills, leading recovery groups, goal setting, and building relationships (SAMHSA, 2022b). Through these roles, PSs help others through mutual empowerment to remain focused on the recovery process in the local community.

This chapter provides information about the background of the study, an overview of the harms of substance abuse and the contributions of PRS in substance recovery treatments. The problem statement and purpose of the study are discussed, and the research questions are presented. Key relevant terms are identified along with limitations of this study after a discussion of the nature of the study, conceptual framework, and the significance of the study.

Background

PSs have been a beneficial intervention in supporting clients' physical, mental, and emotional health in various environments. Pereira et al. (2021) reported that peer support is seen in both clinical and non-clinical applications such as education, psychiatric care, and workplaces. Self-help is a model that has been used for decades in an informal manner and is now being implemented in a formal, clinical way through shared experiences and building skills. PSs gain more formal knowledge of addiction and recovery, in addition to their practical knowledge, which can be used in alignment with other treatments to support successful recovery. This process occurs in various settings from the lived experiences of a PS as interventions that pair well with other modalities of treatment. This mutual support provides encouragement to PSs to maintain their own recovery through developing social support and gaining length of time sober (Dugdale et

al., 2016) while establishing rapport with others to encourage engagement in their recovery. Scannell (2021) explored the benefits to PSs as they provide support to others, identifying that this relationship helped PSs maintain their personal recovery by providing connections with professionals and those in recovery, providing a sense of service and accomplishment, and giving back. PRS has shown many benefits to the recovery community, and continued recognition of these benefits is necessary to further develop these programs in different settings.

In rural community behavioral health, where peer support is only recently being implemented as a modality of outpatient treatment for substance recovery, it is not known what the relationship is between the support received and substance use. Further, it is not known what level of engagement with peer support is most beneficial to reduce substance use. The goal of this study is to identify whether the addition of PRS predicts a change in substance use in rural community behavioral health outpatient treatment compared to outpatient TAU.

Problem Statement

Substance abuse has been increasing at a pace that appears to require a larger pool of support than what is currently provided. The goal of treatment is to reduce the likelihood of continued substance use, effectively reducing negative personal and community outcomes. While community behavioral health agencies can provide a wide array of services, specifically for substance use, one beneficial service is PRS, although implementation has been challenging due to a need for clarifying their roles (Bassak et al., 2016; Daniels et al., 2017). PSs are individuals who support others in their recovery

through sharing their lived experience of substance abuse and establishing a relationship that aims to enhance client resiliency (Klee et al., 2019). They desire to improve their life through engagement with others in professional services (Gormley et al., 2021; Kang & Kang, 2022) and community engagement (Klee et al., 2019). While PRSs serve several functions, it is not known what impact each of these functions has on substance abuse and recovery. Scannell (2021) reported that PSs can help to remove the barriers that sometimes linger between providers and those in recovery that can lead to mistrust.

Purpose of the Study

The purpose of this quantitative study was to examine the relationship between outpatient treatment and substance use. Specifically, the goal was to determine whether those who engage in peer services are more successful in achieving abstinence in substance use in general and opioid use specifically.

Research Question and Hypothesis

RQ1: Is there a relationship between PRS and substance abstinence?

H_01_1: PRS contact, as measured by a dichotomous variable capturing 0 and 1+ contacts, and controlling for time in treatment, is not associated with substance usage, as measured by urinalysis (UA) test result, a continuous variable capturing the fraction of total UA tests that were positive, in a multiple regression analysis.

H_11_1: The number of PRS contacts, as measured by a dichotomous variable capturing 0 and 1+ contacts, is associated with substance usage, as measured by UA test result, a continuous variable capturing number of positive results, in a multiple regression analysis.

$H_0 1_2$: The number of PRS contacts, a continuous variable capturing the exact number contacts, and controlling for time in treatment, is not associated with substance use as measured by UA test result, a continuous variable capturing the fraction of total UA tests that were positive, in a multiple regression analysis.

$H_1 1_2$: The number of PRS contacts, as measured by a variable capturing the exact number of contacts, is associated with substance use, as measured by UA test result, a continuous variable capturing number of positive results, in a multiple regression analysis.

RQ2: Is there a relationship between the number of PRS contacts and opioid substance abstinence? Specifically, are those who have at least one peer contact less likely to report a positive UA than those who have had no peer contacts?

$H_0 2$: PRS, as measured by a dichotomous variable capturing 0 and 1+ contacts, while controlling for time in treatment, is not associated with opioid substance use as measured by UA test result, a continuous variable capturing the fraction of total UA tests that were positive, in a multiple regression analysis.

$H_1 2$: The number of PRS contacts, as measured by a variable capturing 0 and 1+ contacts, is associated with opioid substance usage, as measured by UA test result, a continuous variable capturing number of positive results, in a multiple regression analysis.

Theoretical Framework

Social learning (cognitive) theory includes observation and imitation of family; influence of social norms; and peer modeling, all of which influence expectations about

substance use. This theory is “a multifaceted causal structure in which self-efficacy beliefs operate together with goals, outcome expectations, and perceived environmental impediments and facilitators in the regulation of human motivation, behavior, and well-being” (Bandura, 2004, p. 143). This concept aligns with the programming that PSs follow when administering support for individuals with SUDs in their various roles as coaches, advocates, motivators, and supporters. Modeling is noticeable through observation and imitation of substance specific behaviors, where these behaviors are reinforced socially and positive consequences are expected, leading to substance use and misuse (Moos, 2007). Peer recovery involves recovery modeling; the model relies on gaining education to advance their knowledge of peer mentoring, that instills hope and induces a desire in others to do the same (Harris et al., 2022). This theory proposes that substance use is a function of positive norms and expectations about substances and includes the core beliefs one has about one’s own motivational abilities (Bandura, 2004). The core belief in one’s efficacy to exercise control influences motivation and the basic processes of change (Bandura, 2004). In Chapter 2, I further discuss the details of the social cognitive theory.

Nature of the Study

This is a quantitative study that is appropriate for answering the research questions. Quantitative methods were used to examine the relationships between variables in objective data (Creswell, 2018). Secondary data were used to understand the relationship between outpatient treatment, the addition of PRS, and substance use among community behavioral health individuals. Regression analysis is useful to predict

membership in a particular group, using the independent variable to predict the value of the dependent variable (Warner, 2013). The goal is to assess whether the number of PRS contacts have an influence on abstinence from substance use. Statistical analysis was completed using IBM SPSS Statistics (Version 28).

Raw data were requested from the rural community behavioral health agency to address the research questions. Data include substance diagnoses, UA results, and peer contacts (services received) for all clients not receiving medication assisted treatment (MAT) and who had received a minimum of 3 months of outpatient substance use treatment with and without peer support contacts. I screened data to eliminate any clients who may have been receiving MAT treatment. The data points that were used include the number of contacts with individual peer recovery services and positive or negative UA results.

Definitions

Opioid use disorder (OUD): OUD is a problematic pattern of opioid use leading to clinically significant impairment or distress including tolerance and withdrawal symptoms (DSM-5, 2013).

Outpatient substance use treatment as usual (TAU): TAU involves direct services for individuals with SUDs or co-occurring disorders that facilitate relapse management and coping strategies (McCarty et al., 2014). These services generally include empirically supported treatments that include medication management, motivational interviewing, cognitive-behavioral therapy, contingency management, and community reinforcement;

however, in community behavioral health, they include following standard counseling procedures based on agency guidelines (Mignon, 2015; Santa Ana et al., 2008).

Peer specialists (PSs): PSs are experientially qualified individuals who utilize their successful recovery from mental health or SUD to help others succeed in their recovery (Cos et al., 2020; Eddie et al., 2019; SAHMSA, 2023) by increasing access to services, especially important in underserved communities (Anvari et al., 2023). PSs may also be referred to as certified recovery specialists, peer support specialists, or recovery coaches (Cos et al., 2020).

Peer Recovery Supports (PRSs): PRSs are services provided by a peer recovery specialist to individuals with less experience in recovery through encouraging, motivating, and supporting them (USDHHS, 2009) to engage in the recovery process (SAHMSA, 2023), that promotes connection and inspires hope (SAHMSA, 2017).

Recovery: Recovery is a process of change to improve health and wellness, live self-directed lives, and strive to reach their full potential (National Institute on Drug Abuse [NIDA], 2023; SAHMSA, 2023). Recovery occurs when positive changes and values become part of regaining overall health (NIDA, 2023).

Assumptions

One assumption is that using secondary data and quantitative analysis to understand the impact of PRS for those with substance use would provide unbiased information. Another assumption is that the data reflects the population serviced at a rural community behavioral health agency. I identified inclusion criteria that would include those not receiving MAT, only those who provide UA, those having received TAU for

the entire length of the study timeframe, and those who received PRS. An additional assumption is that treatments provided through the community behavioral health agency were empirically supported. The results may not be generalizable due to specific criteria for inclusion, including location of treatments (rural community behavioral health), type of treatment (outpatient), age of client (adult only), type of substance used, types of TAU and PRS received, and the requirements for probation or parole clients (to ensure UAs are provided).

Scope and Delimitations

This study was limited to clients who were receiving TAU for SUD at a rural community behavioral health agency and receiving peer support. These individuals attend a specific location that provides empirically supported substance abuse treatment modalities including motivational interviewing and cognitive-behavioral therapy services. Substance use group therapy may have been a part of the required TAU for some individuals. PSs are individuals employed by the agency to provide substance use treatment and recovery support to clients enrolled and engaged in the outpatient program. Some of this support may have occurred in the office on site or inside the community. Participants were limited to adult individuals aged 18 and older with a SUD diagnosis and who have been engaged in outpatient TAU for the duration of the study timeframe and who have used PRS for a portion of the study timeframe. A rural community behavioral health agency was chosen due to the extent of SUDs seen in this population. The rural community behavioral health agency offered a variety of data based on the goal of the current study.

I considered stress and coping theory for this study, as it posits that distressing life circumstances, such as family, work, finances, and friends, can be alienating and lead to substance abuse. While it is shown that many individuals who abuse substances also have co-occurring mental health issues, this study is not able to identify the stressors that impact the participants. However, this theory assumes the substance user is impulsive and lacks self-confidence and coping skills (Moos, 2007) and does not address the social aspect of gaining these skills and improving self-confidence. Social cognitive theory focuses on the beliefs and expectations an individual has about their substance use and their confidence to change their behavior through mimicking environmental sources (Bandura, 2004). This study is focusing on the introduction of PRS to support personal changes in substance users that leads to clean UAs and successful recovery, making social cognitive theory the most appropriate theory for this study.

Data in Excel format was received through a request from the business intelligence office and was de-identified regarding specified client information. With secondary data, information could be obtained about a wide variety of specific variables; however, these data were chosen specifically for the identified population and diagnosis.

Limitations

Due to the results being so specific to rural community behavioral health, and the underutilization of PRSs in community behavioral health, they are not easily generalizable to other environments. It is difficult to know whether it is the addition of PRS that is creating changes in client substance use or whether there are other potential confounding variables not examined. Researchers may want to include additional

variables that can be used to determine other factors of change. A qualitative study could be useful to understand what led the participants to use substances and to identify themes that PRSs enable in substance users. Results of such studies could support consideration of a different (or new) theoretical orientation to understand the roles of PRSs. Additional populations may need to be evaluated to generalize the findings of the present study regarding the impact of PRS. The data were obtained from only one rural community behavioral health agency, and a focus on outpatient, one-on-one, individual peer support contacts only may limit the generalizability of the results.

Significance

The use of PRS has increased in recent years; however, aftercare substance use services have been the most used to date (McKay, 2021). Aftercare services include fewer intensive supports provided after a more intense treatment (inpatient treatment) and are considered step-down care, as it can be used to confirm achievement of goals in initial treatment, to gain abstinence, and relapse prevention (Mckay, 2021). While peer counselors fill many roles, their benefits in rural community outpatient behavioral health substance use treatment have not been evaluated efficiently. Understanding whether outpatient services will be improved with the addition of PRS can lend itself to fighting the stigma related to substance use and enhance a commitment to abstinence. This study contributes to the literature evaluating the impact of PRSs in addition to empirically supported treatments for SUDs, specifically opioid use, which is currently lacking significant research.

Results of this study may support the inclusion of PSs in rural community behavioral health outpatient treatment for those with a SUD that could result in improving quality of life and chances for sustained recovery. Results can also be used to inform agencies about whether it will be beneficial to consider hiring additional PRSs in outpatient treatment to engage individuals in substance use recovery with peer contacts, including identifying the most beneficial level of support. The most appropriate training can then be directed to current staff about PRSs and encourage collaborative consultation between professionals. This study could be the catalyst for providing direction for future research in identifying the most beneficial roles for peer recovery specialists, contributing to the literature about effective training programs and continuing education for gaining and maintaining peer certification.

Summary

This chapter introduced this quantitative study whose goal is to understand the impact of PRSs in a rural community behavioral health agency with individuals with a SUD, based on an increase or decrease of their use. It also clarifies information about the use of PRSs in substance use treatment and how PS roles contribute to substance use treatment. Research indicates that PSs provide supportive care to others seeking recovery from substances with beneficial results (Davidson et al., 1999; Lapidos et al., 2018; Martin et al., 2021; SAHMSA, 2022; Wagner, 2020). This chapter also discussed the need for additional treatment options for SUDs and the potential for the various roles a PS plays to have a positive impact in outpatient treatment. Findings from this study may

provide relevant expectations of PRS for rural outpatient behavioral health treatment for SUDs and the importance of integrating treatment over time.

Chapter 2 provides a detailed review of the academic and professional literature that describes the known impacts of PRSs on SUDs. Information about the theoretical framework for the study is provided, and the gaps in the literature are presented that provide the rationale for the study.

Chapter 2: Literature Review

Introduction

This study focuses on the impact of PRS compared to TAU on those experiencing substance abuse for those enrolled in a rural community behavioral health outpatient agency offering co-occurring mental health and substance use services. Substances have an impact on daily functioning, including the ability to connect with others, meet basic needs, gain and maintain employment, and physical health issues. The prevalence of substance use and abuse is overwhelming; 50% of people aged 12 and over have illicitly used drugs in their lifetime, and 25.4% of illegal drug users have a drug use disorder (National Center for Drug Abuse Statistics, 2023). Opioid use has become a crisis across the United States, and lack of support and ability to engage in supportive structured treatment plays a crucial role in contributing to the stress that leads to substance use. Outpatient substance abuse treatment may encourage a reduction in substance use, if provided in a supportive and collaborative manner. This supportive treatment can come from TAU; however, more effective benefits may come from the addition of PRS.

PRS has been employed in a variety of settings, most often in emergency hospital departments, due to hospitals being an initial contact point for the recognition of SUDs. This provides an opportunity to implement PRSs to link patients to treatment (Gertner et al., 2021). Gertner et al. (2021) reported that in the emergency department, post-overdose interventions are critical, and patients benefit from PS consultations that provide education and referrals. PRS in an outpatient setting has been used; however, an integrated and literature-based PRS curriculum or evidence-based program is only now

being established (National Council for Mental Wellbeing, 2020). PRS in outpatient settings has been used; however, while an integrated and literature-based PRS curriculum has not been established, SAHMSA recently released the National Model Standards for peer support certification in addition to their core competencies for peer workers in behavioral health services, establishing PRS as an evidence-based practice (SAHMSA, 2023). TAU typically uses evidence-based treatment modalities to deliver psychotherapy in a one-on-one outpatient environment to clients. Peer support is provided to clients in addition to TAU as desired through client request or recommended from the primary clinician working with the client.

This study is essential to the substance use field because it adds to the ongoing conversation about how to best support individuals in a unique cognitive and emotional position and how to treat them effectively in a world where substance abuse has become a global pandemic. This study explores the experience of substance abuse as a mental and physical ailment in the context of receiving treatment designed to encourage healthy long-term recovery.

Literature Search Strategy

I gathered the information from several electronic database articles including ProQuest, EBSCO, Science Direct, PubMed, Psycinfo, Sage journals, and ERIC. I also conducted searches through Google Scholar and through the internet from professional websites such as NIH, SAHMSA, NIDA, and NAADAC. Search terms included *peer recovery, peer support, peer specialist, community mental health, community behavioral health, substance use, substance abuse, opioid use disorder or opioid abuse or opioid*

addiction or opioid dependence, alcohol misuse, social control theory or social cognitive theory, and *cognitive learning theory*. Research was identified from a range of books, journals, professional publications, state agency publications, and empirical research articles spanning from 1977 through 2023.

Theoretical Foundation

The purpose of this study was to identify the influence of PRS on individual's substance use in community behavioral health outpatient treatment. The experience of recovery is personal; however, recovery incorporates aspects of social engagement and cognitive processing and self-efficacy beliefs that encourage motivation to change behaviors. Social learning theory (Bandura, 1971) was later renamed social cognitive theory (Bandura, 1986) to describe his theory more accurately. This theory provides a foundation for how substance abusers can benefit from PRS that helps users move towards personal recovery.

Bandura (2004) described his theory including observation and imitation of family and social norms and models and the formation of expectations about substance use. Bandura reported that the theory is "a multifaceted causal structure in which self-efficacy beliefs operate together with goals, outcome expectations, and perceived environmental impediments and facilitators in the regulation of human motivation, behavior, and well-being" (Bandura, 2004, p. 143). Behavior is most strongly influenced by the people with whom we have the most contact, and we use this influence to navigate our worlds. Behavior changes based on how social norms, or implicit or explicit rules, are followed, based on established group values, and rewards positively impact how we

follow these social rules (Cotterill et al., 2020). PRS utilize techniques such as motivational interviewing to administer support for individuals with SUDs to help them identify and decide to change how they perceive and follow social norms. One's behavior changes based on receiving guidance from those with whom there is a sense of trust, connectedness, and relatedness (Kwasnicka et al., 2016). Bandura (2007) modified his theory by labeling it social cognitive to include emphasis on how people structure their lives through regulating their behaviors and creating social systems. Rural Health Information Hub (2023) described social cognitive theory as having seven key components that contribute to behavior change, including self-efficacy, behavioral capability, expectations, expectancies, self-control, observational learning, and reinforcements.

Modeling effects begin with observation and imitation of substance-specific behaviors, continue with social reinforcement for and expectations of positive consequences from substance use, and culminate in substance use and misuse. Cos et al. (2020) shared that PSs may serve as positive role models who encourage others to mimic adaptive recovery-related behaviors that foster positive perceptions of their treatment overall. Social cognitive theory proposes that substance use is a function of positive norms and expectations about substances and includes the core beliefs one has about one's own motivational abilities. Bandura (2007) expressed that the social aspect of his theory relates to the social origins of human thought and action, while the cognitive aspect stems from how cognitive processes influence cognition, emotion, and action. Bandura (2004) expressed that the core belief in one's efficacy to exercise control

influences motivation and the basic processes of change. Bandura (2007) emphasized personal ability to develop through adapting in his social cognitive theory (p. 64). He described the effects of self-efficacy leading to management of personal functioning and environmental demands (Benight & Bandura, 2004).

PRS provide support in increasing self-efficacy (Burke et al., 2018) and hope, leading to personal and clinical recovery outcomes (Smit et al., 2022). Klee et al. (2019) shared that through utilizing Albert Bandura's social cognitive theory, patients react positively to modeling that increases confidence in personal abilities. PSs work with individuals to increase the skills they already have and help them learn and utilize additional skills that can help individuals reach their recovery goals. PSs help to establish short- and long-term goals based on desired behavior changes, and they evaluate collaboratively with the client the value of the changes made. They also work with individuals to strengthen the changes they have made by providing reinforcements through incentives. These core tasks are interrelated, and PS roles include each of these supports to ignite personal and lasting change.

Literature Review

In this section, I address the literature that presents the prevalence and impact of overall substance abuse and how opioids in particular are a substance that is difficult from which to withdraw. Next, studies indicating the relevance, importance, and outcomes of substance abuse treatment and PRSs will be examined. This section will conclude with a description of rural community outpatient behavioral health where treatment is provided in this study.

Substance Use

The variable of interest in this study was PRS in addition to TAU and its influence on substance use. In particular, the UAs can identify several analytes that indicate that a particular substance was used. The substances being studied included synthetic and non-synthetic opioids, amphetamines and methamphetamines, benzodiazepines, hypnotics, stimulants, and hallucinogens, and the analytes detected in the UAs include those specific to these substances. Alcohol and marijuana were not identified or considered in this study, although they are still reviewed due to their nature of co-occurrence with other substances. While all substances are being studied, opioids will be discussed separately in this review due to the severity and prevalence of OUD.

Illicit Substances

There are a variety of substances that can be used by individuals that are illicit or prescribed that result in different effects, and can lead to substantial social, relational, and psychological problems. Each substance can influence a change in the user that can be perceived as positive; however, for some it can lead to addiction.

Stimulant drugs such as amphetamine and methamphetamine impair cognition, set shifting, attention, memory, inhibition, and impulse control (Tabibi et al., 2021). Some stimulant drugs such as caffeine, methylphenidate, modafinil, and lisdexamfetamine have been used to increase cognitive performance and improve alertness. This tends to be the overall reason for abuse, as 77% of users report their motivation for using a stimulant is to improve performance (NIDA, 2018). While improved cognitive performance may appear to occur, adverse effects can impact weight, appetite, tachycardia, restlessness,

irritability, pain, impulsivity, nervousness, seizures, hallucinations, and addiction (Carrillo-Mora et al., 2022). NIDA (2018) reported that those who use stimulants as an academic aid perform less well than those who do not use stimulants, and they generally have higher rates of other substance use.

Sedative drugs, such as benzodiazepines (lorazepam, alprazolam, clonazepam, and diazepam) and hypnotics (barbiturates, glutethimide, methaqualone, and zolpidem), are generally prescribed for sleep issues and anxiety, which often occur co-morbidly (Khurshid, 2018). These substances are recommended to be used only in the short-term for acute situations where the benefit is greater than the risk, as cognitive impairment is one adverse effect (Neville et al., 2022). Goldman-Mellor et al. (2020) described the high risks of death that individuals with nonfatal sedative/hypnotic overdose experience unintentionally. Goldman-Mellor et al. share that unintentional overdose deaths occurred 25 times more frequently with sedative/hypnotic drugs than in the general population. Overdose deaths often occur from mixing drugs, such as benzodiazepines with alcohol, opioids, or barbiturates (Goldman-Mellor et al., 2020). Typical effects of benzodiazepines include reduced stress, euphoria, calmness, confusion, impaired thinking and memory loss, headache, sleepiness, slurred speech, blurred vision, nausea, and diarrhea (Alcohol and Drug Foundation, 2023).

Hallucinogenic drugs, often called psychedelics, are Schedule I drugs and are used to “alter a person’s mood, thoughts, and perceptions of reality” (NIDA, 2023c, n.p.). The Centre for Addiction and Mental Health (CAMH) (2009) describe hallucinogens as indolealkylamines (including LSD), phenylethylamines (including mescaline, MDA, and

MDMA), arylcycloalkylamines (including PCP and ketamine), anticholinergics (including deadly nightshade and jimsonweed), and the diterpene from the plant Salvia. Some hallucinogens are used in their natural form, while others are created in a lab. Typical reasons for hallucinogen use include alternative experiences or because it is new and fun (NIDA, 2023c). NIDA reported that hallucinogens create different effects based on the area of the brain they effect; psychedelic drugs affect how the brain processes serotonin, dissociative drugs affect how the brain processes glutamate, and other hallucinogenic drugs affect several brain functions. Columbia University (2022) reported some adverse consequences of hallucinogenic drugs include mental, psychological, or physical experiences. The lethal dose of psilocybin or LSD is 1000 times greater than someone might typically take for non-medical use, however ibogaine and PCP have been related with a small number of deaths (NIDAc, 2023).

Marijuana use continues to grow in Colorado, as it is a state that has decriminalized adult possession and recreational use. On November 6, 2012, Colorado voters passed Amendment 64, which decriminalized marijuana even though it would remain illegal at the federal level (Blake & Finlaw, 2022). Research shows that while there have been many concerns about legalization, there have been some health benefits noted. Blake and Finlaw (2022) acknowledged Colorado opponents had concerns about increased addiction, treatment costs, and marijuana being used as a gateway drug to more dangerous drugs, as well as access to marijuana by youth populations. Marshall (2022) reported that symptoms of cancer, pain, and anxiety have been reduced with certain combinations of cannabidiol and THC that also reduce cognitive impairment and

intoxication. Balon (2018) identified that legalization of marijuana increases use and risk of disorder, and is associated with prescription opioid use and disorders, indicating that marijuana is a gateway drug. Mellin et al (2021) reported that the prevalence of illicit drug use following marijuana use varied depending on substance, age, and location, and there may be biochemical changes in the brain with marijuana use that precedes illicit drug use. There are some negative consequences to marijuana use in physical, social, interpersonal, and psychological arenas when used weekly or daily (Miller, 2013).

Alcohol is another legal substance that has the potential for negative consequences. Alcohol use disorder is defined by a recurrent pattern of use, and use must impact several areas of one's life, such as relationships, work, financial, and legal (Miller, 2013). In Colorado, 33.8% of treatment admissions for those 12 years old and older were for primary alcohol abuse (SAHMSA, 2022). Alcohol is generally associated with celebrations, socialization, and relaxation in the Western world and is the most widely used substance. Acute and chronic use can lead to significant adverse outcomes such as addiction or overdose (Von Korff et al., 2011), and chronic diseases such as several physical diseases (CDC, 2022). Alcohol may contribute to physical, psychological, and social consequences (Miller, 2013). Alcohol affects the whole body, including changing brain communication pathways and can result in stroke, cirrhosis, pancreatitis, cancer, and immune dysfunction (National Institute on Alcohol Abuse and Alcoholism [NIAAA], n.d.). Binge drinking can lead to hangovers, and high levels of alcohol can result in "headaches, severe dehydration, nausea, vomiting, diarrhea, and indigestion (Mosel, 2023, n.p.).

The Diagnostic and Statistical Manual (5th Edition) (DSM-5) defines SUD as a chronic relapsing, compulsive pattern of drug taking identified by specific criteria that leads to significant impairment or distress within a 12-month period (American Psychiatric Association [APA], 2022). Features of a disorder include cognitive, behavioral, and physiological symptoms, and a disorder may depend on cultural and environmental factors, and regulations (APA, 2022). The SUD criteria are broken down into 4 groups labelled "impaired control, social impairment, risky use, and pharmacological criteria," which also relate to the severity of the distress caused by a substance, either mild, moderate, or severe (APA, 2022, p. 544). Abuse of a substance is considered when there is the presence of at least two criteria met of 11 total; higher severity is reflected by more criteria met. It is possible that someone may believe their social use on weekends is not problematic because of its infrequency; however, if during times of use there are negative outcomes related to the four groupings, it would be considered disordered use. An individual may attempt to justify their use, stating it meets specific personal needs; however, this may be part of their addiction process, which must be evaluated appropriately. Various treatments can support their understanding of SUD effects.

Opioid Information and Statistics

Opioids include both produced heroin, and includes brown heroin or its base form, and white heroin, or its salt form, and non-medical use of prescription narcotic medications (Miller, 2013). They also include natural and semi-synthetic opioids and methadone (prescription opioids), heroin, and synthetic opioids other than methadone,

including fentanyl (National Institute on Drug Abuse, 2023). The names of some prescription opioids include buprenorphine, codeine, hydrocodone (Vicodin), hydromorphone, oxycodone (Oxycontin), and fentanyl. In the United States, almost one in five adults report a SUD each year (Staab et al., 2022). In 2021, among substance users aged 12 and above, 6.6 million reported using heroin at some point in their lives; 1 million used heroin in the past year, 17.7 million used pain relievers or other opioids in the past year, and 589,000 thousand used heroin in the last month. Just over five million reported using pain relievers or other opioids in the past month (SAHMSA, 2021). Men tend to have higher rates of opioid use than females, although female adolescents are more likely to develop OUDs (American Psychiatric Association, 2013).

In local communities, opioid use is rising daily, and services that can support these individuals are struggling to meet the increase. Vijay et al. (2019) described the prescribing pattern of pain medication opioids prescribed in outpatient and emergency departments, reporting that 17.4% of office-based outpatient visits and 45% of emergency department visits resulted in a prescription of pain-relieving opioids. Garett and Young (2023) reported that 8% to 12% of patients prescribed opioid pain medications will misuse them and develop an OUD. NIDA (2023) reported a rise in opioid-overdose deaths from 21,089 in 2010 to 47,600 in 2017, and an increase from 68,630 in 2020 to 80,411 in 2021. Illicit fentanyl deaths increased from 2128 in 2014 to 15,646 in 2016, probably because of an increase in the distribution of fentanyl (Vijay, 2019). The Office of the Surgeon General (2023) reported that the rise in opioid deaths is due to highly potent opioids being mixed with other substances as well as higher doses of

prescription opioids being provided for long-term chronic pain management. The DSM-5 notes that an opioid overdose does not always occur during intoxication-seeking drug use; however, it is characterized by "unconsciousness, respiratory depression, and pinpoint pupils," and that opioid overdoses are occurring more frequently from synthetic opioids (APA, 2022, p. 611). These statistics demonstrate the highly addictive nature of opioids and how important it is to understand the need for effective recovery services for users.

Opioid Use and Abuse

The origin of the use of opium was likely as a "euphoriant in religious ceremonies," limited to Sumerian priests (Schaefer, et al., 2017, p. 2), and called "the joy plant" (History.com Editors, 2017, p. 2). The cultivation of the opium from the poppy plant dates to approximately 5000 BC, where poppy juice was extracted and dried (Drug Enforcement Administration, 2022). It was thought that opium would help with pain relief, sleep issues, for calming a crying baby, and as anesthesia (History, 2017); generally, it was considered a healing tool (Willis, 2023). The strongest form of pain killer is morphine, and is the active ingredient in opium, and heroin was refined from the morphine base as a safer replacement (History, 2017). Prior to understanding heroin's addictive properties, it was commercialized in the United States by Bayer & Co as a safe pain reliever and cough suppressant (DEA Museum, 2021), and laudanum (opium in an alcohol base) was administered to children and adults to treat many things (Narconon, 2023). Gapper (1801) described providing several remedies for curing hiccups including "musk, assasoetida, amber, aether, volatiles, and opium" (p. 17). In 1821, Daniel Wilson

experimented with creating a tincture of papaver (poppy) to replace a tincture of opii (laudanum) to be used in his medical practice (Wilson, 1821). Laudanum was sold to treat cough, diarrhea, and after using inhaled anesthetics and could be purchased over the counter in combination with other products as opiates (Bateman's Drops, Paregoric, or Godfrey's Cordial) (Warding Off Quacks, 2018). The Anti-Heroin Act was passed in 1924 to make it illegal to make, import, or sell heroin (History, 2017).

Currently, prescription opioids are used to treat moderate to severe pain and are often prescribed after surgery, injury, or for pain management for cancer (CDC, 2023). These prescriptions contain chemicals that relax the body and can provide the feeling of being high when used non-medically (NIH, 2023). These substances are highly addictive, with heroin being the most dangerous opioid. While opioids are generally safe when used as prescribed for pain, they can be misused when taking a dose other than what was prescribed, using another person's opioid medication, or using it for the purpose of getting high (NIH, 2023). There are additional reasons that some may choose to use opioids, including use for chronic physical pain or dealing with negative emotional states. In these cases, opioids are often misused as an attempt to manage physical and psychological pain, leading to increased use when it doesn't help. Unresolved mental health issues can lead to a desire to avoid psychological distress, and opioids provide the numbing effects that reduce that distress. Schaefer et al. (2017) reported that anxiety and Bipolar I disorder are associated with a higher prevalence of opioid use, often due to self-medicating. Opioids have an analgesic effect on the brain, as it acts on mu opioid receptors, crossing the blood-brain barrier, reducing pain behaviors, and increasing

disinhibition where norepinephrine, dopamine, and serotonin is released, eliciting a feeling of reward (Schaefer et al., 2017). Unfortunately, opioids have a progressive loss of efficacy over time (tolerance), reducing the reward received from their use (Schaefer et al., 2017). Regulations for prescribing opioids have increased, leading physicians to under-prescribe pain medications (Willis, 2023). This leads to those with chronic pain disorders seeking relief, and street heroin may provide that relief when legal prescriptions are unattainable. Saadati et al. (2021) conducted a study to identify the difference in quality of life between opium and non-opium users. They found that physical symptoms were higher for non-opium users and mental disorders were lower in opium users; however, non-opium users were generally married, and heroin users reported more mental disorders. There are differences in the effects of opioids when mixed with other substances and how it is administered. The drug can be taken in pill form, smoked, or injected. Opium is currently a Schedule II narcotic in the United States, and heroin is a Schedule I drug (DEA, 2023).

Barriers to Recovery

Some individuals may be able to achieve recovery from substances on their own; however, many others need individualized support in the form of immediate medical stabilization and long-term recovery management with recovery support services, which either may not be familiar to the user, or they may be unaware of how to obtain these resources (Eddie et al., 2019). While there have been significant attempts to rectify and ameliorate the effects of abuse in the United States, there remains millions of individuals who do not receive treatment. There are opportunities for individuals to be connected to

care; however, they are often missed. Gormley et al. (2021) reported that less than one-fifth of those who experience an OUD receive specialized care. Options for connecting individuals to care and maintaining that care for sustained recovery are necessary. Untreated SUD can lead to unintentional overdose death and is more frequent in individuals who recently left detoxification, treatment, or a criminal justice setting (Williams et al., 2018).

OUD is treated as a chronic condition that requires not only the cessation of the substance but also support for overcoming life challenges (Kang & Kang, 2022). Treatment often involves both individual and community-level services to gain and maintain recovery involving relapse prevention strategies. Many healthcare offices do not have the time, money, and/or resources to offer the recovery management resources needed for prolonged and sustained OUD remission. Effective treatment options for OUD include medication for opioid use disorder (MOUD) that reduce opioid overdose and increase engagement in treatment. However, while medication is becoming more available across the United States, there continues to be inequalities in receiving it (Garett, & Young, 2023). Only about a third of those are engaged in MOUD treatment, and the retention rate is only 30% to 50% (Williams et al., 2018). Garett and Young (2023) also identified stigma as a significant factor that contributes to MOUD not being used. Medina et al. (2022) described barriers to recovery that many individuals face including stigma within healthcare and throughout the community, and the need for education on substance use and recovery. Brown et al. (2023) found that stigmatized views of illicit opioid use impacted healthcare providers' willingness to provide treatment

and their endorsement of a MOUD referral. This creates additional issues in connecting opioid users to appropriate treatment.

Criminal Justice Involvement

The American Psychiatric Association (2013) identified that those with a SUD may have an increased history of drug-related crimes (possession, distribution, forgery, burglary, robbery, larceny, receiving stolen goods). French et al. (2000) reported that those who use drugs had a higher prevalence of being arrested, and drug use may be the catalyst for committing a crime. Those being released from prison who previously had substance abuse issues have a high likelihood of returning to environments that increase risk of relapse and further substance use, and treatment tends to focus on reducing this risk (Mignon, 2015). Kras (2013) reported that 70% to 85% of individuals committed a crime due to being intoxicated, or to support their drug habit, and 37% of all treatment admissions occur through the criminal justice system. The NCDAS (2023) reports that 80% of inmates abuse drugs or alcohol and there are 244 thousand people sent to prison annually for drug related crimes. Those on probation or parole who have entered the criminal justice system due to substance use can be required to engage in substance abuse treatment in an outpatient agency. In Colorado, drug court is a process an individual may participate in for treatment and monitored oversight that encourages individual responsibility and maintains public safety (Colorado Judicial Branch, 2023). Drug court integrates three phases that encourage the individual to move from the most intense level of treatment to a modified level of treatment where court fees are paid and community service is completed (Colorado Judicial Branch, 2023). The Colorado Judicial Branch

(2023) reported that its drug court has had a 73% graduation rate over the past 10 years. There are drug courts offered in different jurisdictions in Colorado, and each has a different level, or phase system, and length of time to completion. In this study, the individuals who are providing UA are those who are involved in the criminal justice system, either on probation or parole, and have directions from drug courts to engage in treatment. The treatment provided does not require them to see a PS; however, they may choose to work with a PS, if desired.

SUD Treatment

The DSM-5 is a tool to facilitate appropriate diagnosis of mental health and SUDs. The criteria used to determine diagnoses exemplify the expression of the pathological symptoms and can be used as a guide for treatment purposes and can be an educational resource for practitioners and researchers (APA, 2013). The substance-related disorders include the following substances: alcohol, caffeine, cannabis, hallucinogens, inhalants, opioids, sedatives, hypnotics, or anxiolytics, stimulants, and tobacco (APA, 2013). These disorders encompass the criteria that define the challenges addiction brings such as prolonged use that contributes to social or interpersonal problems and reduced participation in social, occupational, or recreational activities. The diagnostic criteria also define the length of time before a diagnosis can change due to remission (early remission/sustained remission), identifying the ongoing challenges in recovery, as well as specifiers for being on maintenance therapy (MOUD treatment), or if they are in a controlled environment (APA, 2013).

There are several treatment factors that contribute to continued substance use, and research shows that substance use is a chronic, relapsing disorder that may require long-term treatment and recovery support (Stanojlovic & Davidson, 2021). McCarty et al. (2014) report that intensive outpatient programs (IOPs) are as effective as inpatient treatment for individuals with SUD or co-occurring SUD and mental health disorders that do not need medical detoxification. Since individuals often go through several episodes of care due to relapse or treatment reentry, services need to be integrated to accommodate the continuum of care required for sustained recovery. This includes increasing engagement in treatment, referrals to the next step of care, and relapse and recovery support services and requires a method of evaluating the effectiveness of treatment and monitoring client progression (Stanojlovic & Davidson, 2021). While rates of substance use differ very little between rural and urban locations, Young et al. (2015) described additional barriers to recovery including access to treatment, other professionals, and peer support groups, as well as barriers to confidentiality, specifically in rural areas. Rural individuals who do seek treatment tend to be younger and less ethnically diverse and are more likely to be referred to treatment through the criminal justice system (Young et al., 2015).

Substance abuse treatments have improved over the years due to a better understanding of drug classifications through the controlled substances act (Carroll, 2020), federal funding for treatment programs (SAHMSA, 2023), and the introduction of methadone maintenance programs (Wu et al., 2022). Gaining an understanding of the complexity of challenges faced by users, and the barriers that prevent recovery is key. In

rural areas, a focus has been placed more on reducing drug vulnerabilities from individual, family, and environmental conditions (Young et al., 2015). As definitions used to understand the nature of substance abuse have developed, treatment options have also developed. The medical model views addiction as a "physiological disease with specified symptoms and course" (Blume et al., p. 71). The medical model has done well regarding conceptualizing the genetic and biochemical components of addiction, describing it as an ongoing medical illness, (Kincaid & Sullivan, 2010) and a "chronically relapsing brain disease" (Skewes & Gonzalez, 2013, p. 61). The medical model does not specifically address all components of addiction etiology, and substance abuse needs to be addressed through a multi-model conceptualization. The biopsychosocial model considers the biological, psychological, and social factors that lead to substance use; their understanding can aid in the prevention and treatment of SUDs.

While substance use continues to rise in the United States, greater attention to the factors that underlie substance use must be evaluated. SAHMSA (2022) reported that in 2019 12.9% of admissions were for a primary addiction to heroin, and 3.2% of admissions were for other opiates with 18.7% for amphetamines; in 2021, heroin admissions decreased to 10.5%, but other opiates admissions increased to 7.2% and amphetamines only decreased to 18.5%. Attempts through treatment to seek the core causes of continued substance abuse and address them appropriately continue to fall short. Gilmore (2021) stated that illicit drug use in younger users contributes to poorer health, difficulties with academics, and challenging relationships, and some may become

involved in the criminal justice system. Biopsychosocial factors that must be addressed with substance users include physical health conditions and access to healthcare and insurance, criminality, socioeconomic status, gender, race/ethnicity, age, sex, mental health, and concurrent substance use (Montiel Ishino et al., 2020).

While the individuals reviewed in this study are not currently utilizing MOUD, this treatment option must be acknowledged. The use of medications such as buprenorphine, naltrexone, and methadone have been shown to be frontline strategies for managing synthetic and non-synthetic opioid use (Lent et al. (2021). Soyka et al. (2011) reported that the use of MOUD is considered evidence-based due to significant research that shows it is relevant in clinical practice. These medications are effective in the short-term to manage withdrawal symptoms and in the long-term to prevent relapse (APA, 2018). Amura et al. (2022) identified that MOUD treatment in a rural population contributed to less heroin use, improved physical and mental health, and reduced symptoms after 6 months. Unfortunately, a DEA waiver following requirements from the Drug Addiction Treatment Act (DATA 2000) is required for physicians to prescribe MOUD medications such as Naltrexone, Buprinorphine, and Methadone (Riser et al., 2021), and these providers are scarce, especially in rural communities due to burnout (Filteau et al., 2022). So, some communities must rely on alternative treatment modalities for reducing and eliminating opioid use. Research has been occurring that is attempting to identify pharmacological approaches to amphetamine and methamphetamine use. Karila et al. (2010) share that there has been some success with naltrexone, as it is believed to reduce the reinforcing effects of amphetamine, and block cravings.

The biopsychosocial model is a person-centered approach that combines the medical model and the social model with an individual's "beliefs and attitudes" and their influence on behaviors (Whelpley et al., 2023, p. 26). This model posits that many factors contribute to substance use and they must all be considered when establishing prevention and treatment goals (Skewes, & Gonzalez, 2013). Evidence-based treatments for SUDs may include those based on the transtheoretical stages of change (Hashemzadeh et al., 2019) and harm reduction models to improve quality of life without symptom-free recovery (Rempala et al., 2021). Mignon (2015) identified the most common styles of counseling for SUDs to include motivational interviewing, cognitive behavioral therapy, contingency management, and community reinforcement. These counseling techniques include challenging irrational beliefs, emotional regulation, and behavioral changes.

Motivational Interviewing (MI)

Motivational interviewing (MI) is defined by Rollnick and Miller (1995) as a directive style of counseling that encourages behavior change through resolving ambivalence. Miller and Rollnick developed this method of counseling to enhance client's motivation to change through a collaborative relationship with the clinician while following four guiding principles: (a) express empathy for the client; (b) work to develop the discrepancy between client attitudes and behaviors and client goals, including working with client ambivalence; (c) tolerate resistance, do not oppose clients, and avoid arguments over the need to change; and (d) support client self-efficacy—the client is responsible for determining the needed change and following through with change (Mignon, 2015, p.97). This technique utilizes a facilitative style to improve interpersonal

relationships (Rollnick & Miller, 1995). Change is a subjective term defined by the client and begins with change talk. The client generally will make a commitment to themselves for positive behavior change, which is measured by "commitment language," just as "change talk" indicates behavior change (Amrhein, 2004, p. 324).

Commitment and self-change can be easier to achieve through supportive relationships, such as with peer recovery specialists. Kuerbis et al. (2019) reported that Rogerian non-directive strategies, while necessary, are not sufficient for change, and directional strategies must also be implemented. Bischof et al. (2021) noted that MI has been beneficial in enhancing treatment adherence in addition to strengthening motivation for behavioral changes. Social learning theory has a focus on motivation and self-efficacy to initiate behavior change, and MI is a technique that supports this change. Ambivalence is a construct that lends itself to maintaining negative substance behaviors, and Kuerbis et al. (2019) identified that when change talk mostly identified reasons for change, it led to reduced substance use. In a hospital environment, MI has been shown effective as a brief intervention for motivating, assisting, and empowering substance using mothers to connect to treatment (Villarreal et al., 2021).

Cognitive Behavioral Psychotherapy (CBT)

Cognitive behavioral therapy (CBT) is the most common and most used modality of psychosocial treatment for SUDs due to its proven efficacy (Boness et al., 2023; Roos et al., 2020). This theory focuses on cognitive distortions, thought patterns, and beliefs and how they influence emotions and behaviors (Azad et al., 2022). Boness et al. (2023) reported that CBT helps to reduce symptoms and increase functioning by evaluating

cognitive and behavioral processes and framing substance use as positively or negatively reinforced by social and environmental contexts. CBT utilizes insight-oriented interventions, where homework is designed to bring awareness to maladaptive behaviors and increase the use of adaptive thought processing. Once the consequences of behaviors are identified, rewarding alternatives are identified to shift behaviors that lead to reduced substance use (Boness et al., 2023). Barry et al. (2019) identified that clients seeking abstinence from nonmedical opioid use will benefit with the addition of CBT to drug counseling alone based on the feasibility (session attendance and completion), acceptability (post-session satisfaction), and efficacy of the treatment. A significant component of CBT is skills training and coping that includes a focus on emotion regulation, tolerance control, problem-solving, and cognitive adjustment, all which support change (Roos et al., 2020). Skill development can be facilitated by a clinician or support individual and is easily and effectively used by the client for immediate results. CBT can be implemented through computerized modalities with similar results for reduced substance use (Roos et al., 2020). Jennings et al. (2021) reviewed the language that was expressed during CBT treatment for those with comorbid post-traumatic stress disorder and SUD and found that language is an important component of how well someone does in the real-world where the strength of commitment language predicted attempted abstinence outcomes. CBT has a focus on relapse prevention strategies that focus on managing cravings, increasing cognitive awareness, and identifying the connections between cognitions, emotions, and behaviors through functional analysis. Lent et al. (2021) identified that the most effective components of CBT for OUD were

alliance/rapport, coping skills, and MI, based on mental health professional perspectives. CBT along with other therapeutic modalities of treatment may be beneficial; however, CBT and MOUD are most notably efficacious for those with OUD.

Urinalysis (UAs)

UA is used as a general tool for evaluating whether a substance has been used, and it has been used to support a reduction in substance misuse (Dupouy et al., 2014). UA is a typical component of harm reduction models for treatment of SUD. UA provides assessment of use to support a substance diagnosis (Dupouy et al., 2014). The harm reduction model seeks to identify strategies that will reduce the negative consequences associated with substance use (Atkins & Durrance, 2029; Narasimha et al., 2022). UA is also an important component of drug treatment as a method of monitoring substance use, whether the client is receiving MAT or not, to encourage a reduction in substance use while engaging in treatment interventions. UA allows the treatment team to observe substances in the system; once the substances have been indicated, they can identify appropriate supports to work towards recovery goals. Self-report of substance use is often underestimated due to memory and recall issues, misunderstanding of drug classes, or a desire to appear better or worse than actuality (McLouth et al., 2022). When considering a diagnosis of OUD, the DSM-5 indicates that individuals with an OUD will often have a positive UA result when tested, and the substance will remain positive for 12-36 hours after administration (APA, 2022). However, while some UAs cannot capture positive results for fentanyl, oxycodone, methadone or buprenorphine, as they only detect morphine, specialized tests can identify these substances for several days after

administration (APA, 2022). In this study, UA was a way to determine whether substances were continuing to be used while receiving specific recovery treatments. Haymond et al. (2017) reported that most opiate immunoassays can detect morphine and codeine; however, they vary in their ability to detect semisynthetic opioids such as hydrocodone and oxycodone and often do not detect synthetic opioids such as methadone or fentanyl. The UAs used by clients in this study had a high cutoff range that detects all substances, including MOUD substances. Precision Diagnostics (2023) was the company used by the agency for UA results, and they report that they are providing "statistically derived cutoff levels" and can detect the use of drug combinations that threaten life and that support patient outcomes (n.p.).

Additional Treatments

12-Step Programs

While not evaluated in this study, self-help strategies are an important element in recovery. These programs often follow the guiding principles of Alcoholics Anonymous that involve abstinence, surrender to a higher power, and a supportive network (Miller, 2019). Other programs include Narcotics Anonymous, Cocaine Anonymous, Crystal Meth Anonymous, Pills Anonymous, and Heroine Anonymous, and most individuals learn about these programs through treatment centers (Ba, 2022). These programs are designed to address addiction from a religiospiritual perspective, where a spiritual awakening may occur once all 12 steps have been completed (Giannelli et al., 2019). 12-step programs are available in most cities globally, and they are offered every day at no cost (Donovan et al., 2013). Individuals may attend as many groups as they like, for as

long as they feel they are supportive, and are encouraged through the process of sponsorship. They are a source of behavioral change (Donovan et al., 2013) and provide support that requires acceptance through fellowship along with encouraging recovery that leads to sobriety that is crucial to maintaining abstinence (Ba, 2022). 12-step programs appear to support an increase in self-efficacy and confidence (Giannelli et al., 2019), self-esteem (McNeill Brown et al., 2020), resiliency and enjoyment, and decreases stress and negative mood (Litchke et al., 2021). Since these programs are not considered therapy, professionals are not to attend unless they are struggling with addiction (Ba, 2022). It is important to note that if an individual is receiving methadone treatment, they cannot to speak during meetings nor hold a service position, and their sobriety is not recognized as clean time; they may experience pressure to stop their medication (Monico et al., 2015).

Contingency Management

Contingency management is based on the theoretical foundation of operant conditioning, in which drug use is manipulated to reduce its frequency (Andrade & Petry, 2014). Behaviors are modified and changed based on external variables. These behaviors are strengthened with more reinforcement due to biological processes that seek survival (Ferster & Skinner, 1957). The major themes include monitoring the target behavior, target behaviors are reinforced, and no reinforcement with no target behavior (Andrade & Petry, 2014).

Peer Specialists (PSs)

Peer specialists (PSs) can provide significant support in their role as helpers to increase a sense of value and self-esteem (Davidson et al., 1999). The core value related

to PSs success is their ability to draw upon their own experiences of mental health issues, substance use, or both to support others in their journey towards recovery (Addo et al., 2022; Lapidos et al., 2018). Mead et al. (2001) defined a PS as someone who understands and empathizes with another through shared emotional and psychological pain. Stefancic et al. (2021) reported that a PS supports others through using their personal experience of self-identifying with a mental illness. PSs offer personal connection through their lived experience, making them more relatable, and they work within all stages of recovery (Stack et al., 2022). The benefits of PSs have been documented in post incarcerated individuals (Ray et al., 2021) and emergency departments (Wagner et al., 2020). The purpose of the present study is to determine whether the addition of PRS to TAU also leads to reduced substance use in community behavioral health. Boisvert et al. (2008) studied the effects of a peer support community program on relapse rates and found that risk of relapse was significantly reduced with participation. Bassuk et al. (2016) examined the effectiveness of peer-delivered recovery supports on abstinence and found statistically significant improvements in substance use, specifically when the interventions were of higher intensity. Ashford et al. (2021) identified the association between peer-based recovery support and recovery capital (substance resolution), noticing that 53.9% of individuals used these services to support their recovery. There is evidence that general engagement with PSs has a positive benefit on recovery due to the various roles these individuals play. The present study is being used to determine the overall benefit of PRS on substance use.

The U.S. Department of Health and Human Services (USDHHS) (2009) identified the benefits of PRSs through mentoring or coaching, connecting, facilitating, and acting towards recovery goals. There is a recognition of the important task of these individuals adapting to the many stages and environments of recovery, often finding themselves in the communities of the people they support. PSs may find themselves working in an autonomous role within a community organization or as part of a larger agency, collaborating with other substance use professionals. The resources and skills that a PS holds are beneficial, as seen through increases in engagement in harm reduction programs that Ashford et al. (2018) reported reduces death and the transmission of diseases and increases drug user's quality of life. Overall, PRSs focus on the strengths clients must have to help them change their maladaptive thought processes to gain empowerment to utilize skills that result in a reduction in substance use. PRSs are strength-based and holistic, utilizing shared emotional and psychological experiences with clients to both validate and understand their lived experiences (Addo et al., 2022).

History

PRS has only recently become popular, even though stories of substance abuse have been prevalent. In the 1920's, Harry Sullivan recruited young men who had recovered from psychosis to support others in an inpatient setting from their lived experiences in a respectful and compassionate way (Davidson et al., 1999). During the 19th and 20th centuries, many survivors of the psychiatric system attempted to share their stories with the public, although it was the civil rights movement in the 1970's that really brought attention to it (Colorado Mental Wellness Network, 2022). During this time,

many individuals were being released into the community from prisons and psychiatric facilities without any resources or supports; this prompted these individuals to organize and develop self-help groups (Colorado Mental Wellness Network, 2022). In the 1950's through 1970's, therapeutic communities were established utilizing the lived experience of PSs in a leadership role, or that of a role model or friend (Davidson et al., 1999). This led to the modern role of PSs, who advocate for alternative options to traditional mental healthcare with nonjudgmental support. PRS has become a part of many sectors of healthcare, including chronic disease management, screening and prevention, and maternal and child health (Peers for Progress, 2023). In the 1990's, PRS was a service introduced in community behavioral healthcare (Slater et al., 2023). Peer support in the form of lay counselors was implemented in hospitals due to a lack of professionals trained in providing psychotherapy, with positive outcomes (Carkhuff & Truax, 1965), and in 1967, a model of community mental health care was employed that focused on the development, implementation, and evaluation of community interventions (Peers for Progress, 2023). Drake and Latimer (2012) acknowledged the improvements made to community mental health interventions by establishing evidence-based practices, adopting a recovery ideology and implementing PRS. Connolly et al. (2021) reported that interventions provided by trained lay counselors were effective for improving mental health symptoms.

More recently, PRS has become more accepted and an encouraged integration in the treatment of SUDs (Slater et al., 2023). Shalaby and Agyapong (2020) evaluated the effects of PRS in the field of mental health and addiction and found that there are great

benefits to a variety of individuals in the context of family, forensics, and online support. PRS includes individual support, as well as group support meetings that started with the sponsor role used in Alcoholics Anonymous in 1935 (Mendoza et al., 2016). In community behavioral health, various levels of care are used to integrate resources within the local community, where PSs collaborate with all aspects of behavioral health services (Mendoza et al., 2016). Maintenance of PSs in health care requires collaborative efforts from all involved, such as practitioners, managers, and stakeholders (Shalaby & Agypong, 2020).

PS Roles

PSs fill several roles since those in substance recovery have varied needs. PSs can be used in most areas of community behavioral health, medical health, emergency departments, MOUD treatment offices, colleges, and online health service platforms. PSs provide support and encouragement for behavior change (Wagner et al., 2020), share recovery stories (Lapidos et al., 2018), promote understanding the client from a cultural perspective of shared psychological pain (Mead et al., 2001), help others engage and succeed in their recovery process (Cos et al., 2020), reduce relapse (SAMHSA, 2022), self-manage symptoms and relapse prevention (Mendoza et al., 2016), and provide education, referrals, and non-clinical support for setting goals in recovery (Martin et al., 2021). PSs have often felt they are not taken seriously and are not included in agency decision making due to several reasons including their roles being misunderstood and undervalued, limited supervision, and minimal professional development (Stefancic et al., 2021). Their roles not always clear; however, most PSs find that they are best used when

they are able to draw on their lived experiences of recovery from mental illness, SUDs, or both to promote recovery among others sharing similar experiences (Addo et al., 2022; Lapidos et al., 2018, p. 1264). PSs provide services under the premise of shared respect, responsibility, collaboration, and understanding what will be most helpful for the client (Addo et al., 2022). Cos et al. (2020) identified the connection PSs make between using their experience with their own substance use treatment and recovery and their clinical knowledge and skills of evidence-based treatments to help others achieve their goals. Wagner et al. (2020) reported that benefits of having a PS include providing advocacy and providing hope and encouragement towards behavioral change. Addo et al. (2022) identified the importance of social support in recovery, sharing that psychiatric symptoms are evident when peer support is low; when peer support is high, there were minimal psychiatric symptoms.

Davidson et al. (1999) described three forms of peer support, including natural mutual support, consumer-run services, and employing consumers as providers, that improves symptoms, promote social networks, and improve quality of life. The Council of Southeast Pennsylvania (2015) provided a job description for a certified recovery specialist that described their role as being a "role model, mentor, advocate and motivator to recovering individuals" (p. 1). Peer-based recovery support is identified as support that is based on the goal of recovery (Cicchetti, 2010). This indicates the benefit both to the client and to the PS providing support that will help the PS to help others. Davidson et al. (1999) explained that having first-hand knowledge of the substance abuse journey gives the PS value as a mutual support and role model. Additional benefits for the PS include

building confidence and self-esteem, and a sense of accomplishment and ability to cope well (Tracy & Wallace, 2016, p. 145) and creating hope through building relationships and "witnessing disclosure" (Barrenger et al., 2020, p. 479). In a group setting, PSs help clients to become aware of services that are beneficial for them (Mendoza et al., 2016).

Training

Certification as a PS is a pathway for individuals to evidence their standardized knowledge and competency of recovery support services (NAADAC: Association for Addiction Professionals, 2023). In addition to their experiential knowledge of the recovery process, peer support certification may be obtained. NAADAC is the agency that administers the National Certified Peer Recovery Specialist (NCPRSS) certification, which has a focus on a code of ethics that guides their support, including conduct, conflicts, and relationships. An application is completed once specific eligibility requirements are met, which include having a minimum of 2 years in recovery, 200 hours of direct practice, 60 training and education hours, two references, a statement that the code of ethics has been read, and submission with a fee of $235 (NAADAC: Association for Addiction Professionals, 2023). Like other professionals in the behavioral health field, PSs are held to a similar standard when working with individuals in recovery, and their services do not duplicate but complement those of other professionals. While the criteria for national certification differ in each state, a PS may obtain an international credential through the International Certification & Reciprocity Consortium that standardizes the profession through "achievement of a standard of ethics, education, and experience" (International Certification & Reciprocity Consortium, 2023, n.p.).

Rural Community Behavioral Health

Outpatient treatment has generally been considered to include individual and group therapy. Several treatments are used in outpatient treatment, depending upon the experience and interests of the clinician. In substance abuse treatment, empirically supported treatments include MI and CBT, both of which are used at the community behavioral health agency in this study. Community behavioral health agencies typically offer a wide variety of collaborative services to support those in recovery and can be considered a one-stop-shop. However, there remains barriers to recovery in rural areas, such as minimal treatment resources, greater access to substances, minimal law enforcement, and stigma (Young et al., 2015). Jacobs et al. (2022) reported that while using community behavioral health services will reduce recidivism in those with any mental disorder, the same was not clear about those with co-occurring or SUDs. This creates a challenge in identifying the most effective treatments for those with SUDs. Medicaid compensates behavioral health agencies in providing services to those with mental health and SUDs. To utilize funds most effectively, agencies seek to manage funds through an integration of services, such as including behavioral health with medical health, and while access to care has improved, emergency department visits have increased (Sabbatini et al., 2022). While behavioral health agencies work to integrate care, there is still a gap in identifying the most effective services to reduce substance use. Staab et al. (2022) report that integrated behavioral health, which includes medical and behavioral health providers collaborating for the benefit of the client's overall health,

improves outcomes and reduces costs. PRS is an optional collaborative treatment that can be integrated into outpatient behavioral health services.

Summary

The literature reviewed illuminates the negative impact of substance use on individuals and the barriers experienced by a rural population of substance users as well as the benefits of substance use TAU. I introduced the services that peer recovery specialists employ to encourage and maintain substance abstinence. Research has described the roles a PS fills when supporting others to engage and be successful in their recovery. Sharing their own lived experience allows PSs to provide advocacy and hope that can lead to behavior changes, including reduced substance use or abstinence. Treatment outcomes have been shown to be successful in hospital emergency departments and inpatient settings when addressing those surviving from an overdose (Liebling et al., 2021), as well as in community settings, jails, prisons, and recovery agencies (Stack et al., 2022). The ongoing care provided by a PS can support long-term recovery for cognitive, emotional, social, and behavioral goals in addition to the immediate goal of sobriety. The overall goal of substance use treatment is to remove barriers to recovery by addressing all variables that contribute to the continued substance use. PSs have the experience and knowledge to address recovery goals substance users have.

Chapter 3 includes information regarding the quantitative research design for the study. It also includes a description of the population, procedures, constructs, threats to validity, and the data analysis plan used in this study.

Chapter 3: Methodology

Introduction

This chapter includes an investigation of the problem, which is to understand the influence of PRS in addition to TAU in a rural community behavioral health agency on substance use. I used data provided by a rural community behavioral health agency that began providing formal PRSs in early 2019. A PS is an individual who is part of an interdisciplinary team providing paid, formal supportive services both within the agency and the community to individuals in early recovery from a SUD (Sarabia, 2023). This chapter includes the research questions and discusses the research design, methodology, and data analysis plan.

Research Design and Rationale

This quantitative study was designed to understand the influence of the addition of PRS to outpatient TAU on the dependent variable of substance use in a community behavioral health agency. This study includes one independent variable, which is treatment, with two levels (TAU in outpatient SUD services and TAU plus PRS). The dependent variable for this study is substance use as measured by positive or negative UA results of any substance excluding alcohol or marijuana. This study is a non-experimental design utilizing existing data from an established rural community behavioral health agency.

This study used a correlational design utilizing secondary data to determine whether there is a statistically significant relationship between presence or absence of PRS and substance use among drug users using community behavioral health services

and whether the number of peer support contacts influenced substance use (Creswell, 2018). Regression analysis is beneficial for this study, as it can be used to test the relationship between variables and test prediction hypotheses (Creswell, 2018). The independent variable of treatment type (number of peer contacts) was used to predict the value of the dependent variable of substance use (Wagner, 2013). Participants were chosen using a non-probability method, where specific criteria needed to be met. Historical data were gathered and used for analysis.

Methodology

Secondary quantitative data from a rural non-profit community behavioral health agency offering medical health, behavioral health, and recovery services to individuals receiving Medicaid benefits were used for analyses. A quantitative method was chosen to identify the influence of outpatient substance treatment (TAU and TAU with the addition of PRS) and number of PRS contacts on substance use. This section will further describe the target population for this study, and sampling procedures. All participants were receiving services at a rural community behavioral health agency providing medical, mental, and substance use services to all.

Population

Due to the intent of gathering information about specific abstinence outcomes from treatment modalities, those individuals who came to the agency with the desire to receive recovery services through a criminal justice avenue were chosen for inclusion in the study. This ensured that the individuals would be providing UAs to the agency to monitor for a positive or negative result of their substance use. This rural agency sees

thousands of clients annually, many of whom are being seen for SUDs; thus, there was sufficient data to test hypotheses. Several individuals were receiving MOUD, and those data were manually removed to eliminate any uncontrolled variability in the results. The following criteria needed to be met by individuals to be included in this study:

- Individuals were age 18 or older.
- Individuals needed to be enrolled and engaged in substance use TAU or TAU with the addition of PRS for a minimum of 3 months and monitored monthly.
- Individuals had to have provided a UA at least once a month for a minimum of 3 months throughout the duration of their treatment.
- Individuals needed to have an identified SUD diagnosis listed in the electronic health record (EHR).
- Individuals were enrolled continuously in treatment for at least 3 months.

Sampling and Sampling Procedure

I requested via email data from the business intelligence team at the rural behavioral health agency. This team was responsible for approving the request and sorting and providing de-identified numerical and demographic data based on requested population and treatment criteria. Exclusion criteria are those who were not on probation or parole and who were not providing UAs during the period of treatment for substance use. Additional demographic information such as race or age were not a factor for this study and thus was not requested.

No data collection tools or resources were used for this study. Data were obtained directly from the agency EHR system and encompassed the period from July 2019

through September 2022. Clients received substance use services, specifically including those directed by probation or parole status to undergo treatment, and those who were required to provide UA throughout their ongoing treatment. Individuals who were not a current client of the agency during this time will not be included. Utilization of PRS began being offered at the agency in January of 2019. Thus, data on treatment type allow for comparisons between TAU and TAU with the addition of PRSs.

To determine an appropriate sample size, a power analysis was completed using G*Power Analysis, with a 95% confidence interval, indicating 95% probability of correctly rejecting the null hypothesis. Utilizing the online effect size calculator, the sample was calculated using a medium effect size of .30, an alpha of .05, with 1 degree of freedom. The calculated recommended number of participants is 145 individuals. Using a large effect size of .50, the recommended calculated number of participants is 52. Kang (2021) recommended caution on the sample size; too few participants incur effects from random variations, and too many participants create inaccurate statistically significant differences in the variables. Clients were chosen from a period of 3 years that began at the time in which PRS was introduced at the agency.

An email was sent to the agency business intelligence office requesting access to de-identified data for clients receiving treatment for a SUD in the substance use program. Raw data were provided via email in an Excel spreadsheet. An email had been sent to the agency business office prior to determine if these data would be obtainable. All data were de-identified. Data were extracted by the business intelligence office from the agency EHR. UA data were also gathered from the EHR.

Instrumentation and Operationalization of Constructs

TAU includes outpatient services, which includes up to 4 monthly sessions of individual therapy, and up to 9 hours of SUD group therapy per week. PRS added to treatment includes up to 4 monthly individual sessions with a certified peer recovery specialist employed by the agency. This treatment may include additional follow-up or emergency sessions in-office or in the community for support. The outpatient services provided by the rural community behavioral health agency are available to all individuals and include the treatment of co-occurring mental health and substance use, general outpatient services, intensive outpatient services, relapse prevention, and DUI services that are licensed by the Colorado Division of Behavioral Health.

An appropriate measure of level of care is provided by the American Society of Addiction Medicine (ASAM) criteria; this tool is used to assist in creating appropriate treatment plans to meet identified needs. There are six dimensions that are considered, to include intoxication and withdrawal potential; biomedical conditions; emotional, behavioral, or cognitive conditions; readiness for change; relapse or continued use potential; and the recovery environment, to identify the best support needed (Carley, & Oesterle, 2021). This criterion is used by this agency, and the individuals are placed in the appropriate level of care within the outpatient treatment model, which determines the recommended number of contacts per week, and considers motivation and expressed treatment goals. A higher level of care indicates more contacts within the treatment episode. This agency maintains the Medicaid contract for the region and all clients being seen are receiving Medicaid benefits. The level of care process is approved through

Medicaid for billing purposes, and services provided must be considered medically necessary to be paid.

Urine drug testing (UDT) used was provided through a third-party laboratory in the United States that provides “ultra-high sensitivity LC-MS/MS (liquid chromatography-mass spectrometry/mass spectrometry) technology for clinical urine and oral fluid drug testing” (Precision Diagnostics, 2023, n.d.). The lab reported that it can eliminate human error through their automated processes and provide analytics to clinicians to support them in making clinical decisions (Precision Diagnostics, 2023, n.d.). UDT can benefit the individual through supporting their recovery goals and allowing them to maintain their accountability when learning and utilizing new recovery skills. The UDT can inform the treating provider of the need for additional treatment, and client and provider can discuss barriers to recovery goals (McKay, 2021). The results of the UDT are sent to the behavioral health agency through the EHR system, with full access within 48 hours of being scanned into the client chart. The business intelligence office extracted the results of each UDT from the client chart and compiled it into an Excel spreadsheet with treatment data.

UAs were measured on a dichotomous scale (0 = Negative / 1 = Positive) for each UA provided. I manually removed duplicated results from the UA that represent a positive UA for each date provided; therefore, for individual dates that a UA was provided, there will either be a negative result (no presence of any substance) or a positive result (the presence of one or more substances). Treatment type (TAU or TAU + PRS) was measured on a continuous scale by the number of individual contacts with each

treatment provider over the course of a treatment episode of care. The scale was measured as 0 (TAU), 1, 2, 3, etc.… contacts, to capture the total number of contacts with a PS. This information was gathered from the EHR during a period of just over 3 years (6/2019 through 9/2022). PRS was introduced at the agency around this time.

Research Questions and Hypotheses

RQ1: Is there a relationship between PRS and substance abstinence?

$H_0 1_1$: PRS contact, as measured by a dichotomous variable capturing 0 and 1+ contacts, and controlling for time in treatment, is not associated with substance use, as measured by UA test result, a continuous variable capturing the fraction of total UA tests that were positive, in a multiple regression analysis.

$H_1 1_1$: The number of PRS contacts, as measured by a dichotomous variable capturing 0 and 1+ contacts, is associated with substance use, as measured by UA test result, a continuous variable capturing the fraction of total UA tests that were positive, in a multiple regression analysis.

$H_0 1_2$: The number of PRS contacts, a continuous variable capturing the exact number of contacts, and controlling for time in treatment, is not associated with substance use as measured by UA test result, a continuous variable capturing the fraction of total UA tests that were positive, in a multiple regression analysis.

$H_1 1_2$: The number of PRS contacts, as measured by a variable capturing 0, 1, 2, 3, etc.… contacts, is associated with substance use, as measured by UA test result, a continuous variable capturing the fraction of total UA tests that were positive, in a multiple regression analysis.

RQ2: Is there a relationship between the number of PRS contacts and opioid substance abstinence? Specifically, are those who have at least one peer contact less likely to report a positive UA than those who have had no peer contacts?

$H_0$2: PRS, as measured by a dichotomous variable capturing 0 and 1+ contacts, while controlling for time in treatment, is not associated with opioid substance use as measured by UA test result, a continuous variable capturing the fraction of total UA tests that were positive, in a multiple regression analysis.

$H_1$2: The number of PRS contacts, as measured by a dichotomous variable capturing 0 and 1+ contacts, is associated with opioid substance use, as measured by UA test result, a continuous variable capturing the fraction of total UA tests that were positive, in a multiple regression analysis.

Data Analysis Plan

The IBM SPSS V28 was used to complete analyses. A preliminary data analysis was conducted to examine the descriptive statistics of the variables. Mat Roni and Djajadikerta (2021) expressed the importance of ensuring the dataset is correct, so the outputs are also correct. Raw data were sorted and organized to identify and fix any errors. Duplicate data were deleted, and clients with missing values were removed. All statistical significance decisions were made using the criterion $p < .05$. The dependent continuous variable of substance use was extracted from UA results measured by the positive or negative result of each UA provided. Up to four UAs can be provided each month, and the outcome will either be positive or negative for each, regardless of the substances used. If one UA within the month is positive for a substance, the overall

resultant UA for that month will be considered positive. Outcome data for the substance use variable was determined by dividing the number of positive UAs provided by an individual by the total number of UAs provided for each client throughout their treatment, providing a time in treatment control variable. The independent variable is treatment with two levels - TAU and TAU with the addition of PRS - both of which are measured on a continuous scale by the number of contacts in each treatment episode, where 0 = no treatment PRS contact, 1 = 1 contact, 2 = 2 contacts, 3 = 3 contacts, 4 = 4 contacts, 5 = 5 contacts, and so on. The total number of negative UA results can begin to forecast abstinence from the interaction of the two modalities of treatment (Wienclaw, 2021).

Multiple regression analysis involves several assumptions. The first is that the outcome variable is quantitative and normally distributed (Warner, 2013). The second assumption is linearity, in which the independent dependent variables have a linear relationship (Warner, 2013). Variables cannot have any interaction, and the outcome variable needs to be the same at all levels of the predictor variable (Warner, 2013). The inclusion of the two predictor variables (TAU, TAU + PRS) and the addition of the time in treatment control variable tests the hypotheses to determine if they are significant predictors of substance use.

Hypothesis 1

$H_0 1_1$: PRS contact, as measured by a dichotomous variable capturing 0 and 1+ contacts, and controlling for time in treatment, is not associated with substance use, as

measured by UA test result, a continuous variable capturing the fraction of total UA tests that were positive, in a multiple regression analysis.

$H_1 1_1$: The number of PRS contacts, as measured by a dichotomous variable capturing 0 and 1+ contacts, is associated with substance use, as measured by UA test result, a continuous variable capturing the fraction of total UA tests that were positive, in a multiple regression analysis.

$H_0 2$: The number of PRS contacts, a continuous variable capturing the exact number contacts, and controlling for time in treatment, is not associated with substance use as measured by UA test result, a continuous variable capturing the fraction of total UA tests that were positive, in a multiple regression analysis.

$H_1 2$: The number of PRS contacts, as measured by a variable capturing 0, 1, 2, 3, etc… contacts, is associated with substance use, as measured by UA test result, a continuous variable the fraction of total UA tests that were positive, in a multiple regression analysis.

Multiple regression analysis can identify how to predict outcomes using all predictor variables and to determine which variable is more predictive of the dependent variable (Warner, 2013). Regression will measure the degree of association between treatment type, time in treatment, and substance use and will help to describe whether the number of PRS contacts influences substance use overall (Creswell, 2017). A multiple regression analysis is appropriate, as the influence of one independent variable is determined when the other independent variable remains constant (Wagner, 2013). When

the $p < 0.05$, there is a significant relationship between treatment types and substance use.

Hypothesis 2

$H_0$2: PRS, as measured by a dichotomous variable capturing 0 and 1+ contacts, while controlling for time in treatment, is not associated with opioid substance use as measured by UA test result, a continuous variable capturing the fraction of total UA tests that were positive, in a multiple regression analysis.

$H_1$2: The number of PRS contacts, as measured by a variable capturing 0 and 1+ contacts, is associated with opioid substance use, as measured by UA test result, a continuous variable capturing the fraction of total UA tests that were positive, in a multiple regression analysis.

Multiple regression analysis was used to identify the association of treatment type with opioid substance use. A consideration of opioid use is of concern due to it being one of the most widely abused drugs (NCDAS, 2023).

Threats to Validity

Threats to External Validity

External validity is determined based on whether the results of research are generalizable beyond the study (Wagner, 2013). Threats occur due to characteristics of the population, the identified setting, and timing of the experiment (Creswell, 2018). Adult clients who are required to provide UA's due to being involved with the criminal justice system during TAU in an outpatient behavioral health agency are included in the data set. Since PRS is voluntary, not all individuals who are engaged in TAU may have

been offered peer services, or their referral may not have been received during the timeframe for this study. The participants are from a rural community behavioral health agency and do not represent a broader population in the United States or beyond. Therefore, the findings of this study may not be generalized to additional geographical areas. The data is being used from a period including a global pandemic (COVID-19); therefore, results from this study may not generalize to another period of time. Data were gathered from the rural agency, and all clients had the potential of being included in the study data if they meet the inclusion criteria.

Threats to Internal Validity

Internal validity is determined when the data provides correct inferences about the relationships between the variables (Creswell, 2018). Wagner (2013) states that internal validity describes the evidence of a causal relationship between variables in the results. The data was chosen to eliminate the potential of additional events influencing the results. There may be other events that increase or decrease substance use, not including TAU in outpatient treatment, or PRS. To reduce this threat, the data were selected using specific criteria.

Ethical Considerations

Confidentiality was maintained, as data was received from internal agency IT professionals who de-identified the data and organized it based on specific criteria before it was released. Individuals were identified by random number to coordinate matching of various information provided by the same individual (attendance in outpatient treatment, provided UA's, contacts with PRS, etc.). Data was transmitted securely through an

internal agency network and was downloadable only by this researcher and agency employees when requested. All data will be kept secure for a period of 7 years, as determined by agency policy, and will be destroyed at that time. IRB approval was given on 10/12/23 (#10-05-23-0617542).

Summary

This study used a quantitative non-experimental research design that included a logistic and multiple regression analysis to determine the influence of treatment type (TAU or TAU plus peer supports) on substance use. Data was collected by a rural community behavioral health agency and included clients who were required to provide UAs throughout their engagement with the criminal justice system. Regression analysis provides a means for assessing relationships between the variables. Chapter 4 includes a detailed presentation of the results of this study.

Chapter 4: Results

Introduction

The purpose of this quantitative study was to examine the relationship between outpatient treatment and substance use; specifically, the interest was to determine whether those who engage in peer recovery services are more successful in achieving abstinence from substance use in general and opioid use specifically. I used secondary data from individuals receiving TAU with the addition of PRS to determine whether PRS influenced substance use, measured by results of regular UA testing. The independent variable was treatment type, the dependent variable was substance use, and time in treatment was used as a covariate to control for those who had different numbers of tests based on time in treatment. In Chapters 1, 2, and 3, I described the study and provided a literature review that established the foundation for this study, including a review of the theoretical framework. A review of the data collection and study results is provided in Chapter 4.

Data Collection

I gathered secondary data from a rural community behavioral health agency that provides co-occurring mental health and substance use outpatient treatment services to all clients. Data were gathered from a primary substance abuse program that collaborates with the criminal justice system to provide specific treatments such as evidence-based therapy for SUD, outpatient SUD groups, and UAs to monitor substance use. I did not include individuals who were receiving medications for opioid use disorder MOUD

treatment and included all substances except marijuana or alcohol. There was no deviation from inclusion criteria specified in Chapter 3.

Data were requested from the business intelligence office at the agency through email and included variables that met the criteria of this study extracted from the EHR between the dates of June 2019 and September 2022. UA data was also extracted by the BI office from this timeframe and included in the final Excel spreadsheet provided to me. During the timeframe indicated, there were over 400 participants identified as meeting most inclusion criteria for this study. Of this, 155 individuals met the full criteria to be included in the data analyses.

Data Cleaning

Once I received IRB approval, I reached out to the BI office to request the data and received it through email in an Excel spreadsheet. The headings in the Excel spreadsheet included: client ID, client DOB, primary diagnosis, diagnosis description, analyte, flag (positive/negative), result date, total peer contacts, total outpatient contacts, month, and year.

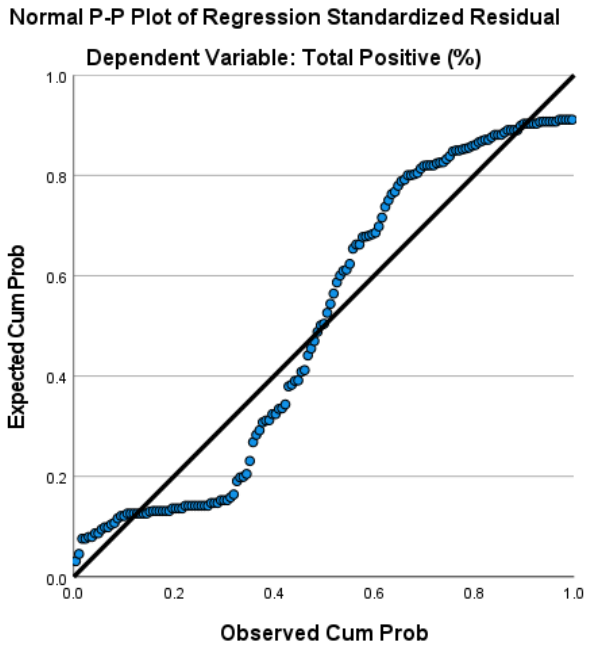
To clean the data, duplicated UAs in a month were removed leaving a positive result if any UA provided in that month was positive and negative if all UAs provided in that month were negative. I then divided the total positive UAs provided by each individual by the total UAs provided over the course of treatment to create a continuous outcome fractional variable (fraction of tests that were positive). I added total UA as a column to the Excel spreadsheet. I then subtracted the number of months from the last date a UA was provided from the first date a UA was provided to identify the total

number of months in treatment. This column labelled time in treatment was also added to the Excel spreadsheet, and I removed the columns that would not be used by SPSS for results. I then transferred the data into SPSS for multiple regression analysis.

The dependent variable is continuous, and there are two independent variables; therefore, multiple regression analysis is appropriate. To test assumptions, data were entered into SPSS to test linearity by plotting a scatter plot of the independent variables against the dependent variable. A partial regression plot was not needed to test linearity between them due to the independent variables being categorical (Laerd Statistics, 2013). There was independence of residuals, as assessed by a Durbin-Watson statistic of 1.943. Homoscedasticity was observed by analyzing the scatter plot and determining that variances along the line of best fit were similar (Laerd Statistics, 2013). Multicollinearity was evaluated using variance inflation factor (VIF) and it was determined that the independent variables were not highly correlated (VIF was less than 10 for each variable), and variance could be determined from one or the other independent variables. When the data was entered into SPSS, no outliers were detected; therefore, the regression equation was able to predict the value of the dependent variable. Normality was identified by observing the P-P plot, and the residuals were approximately normally distributed (see Figure 1).

Figure 1

Normal P-P Plot of Residuals for Fractional Positive UAs (%)



Results

The study sought to identify the influence of PRS in addition to TAU on substance use. The following will present the results of this study, to include the descriptive statistics and the multiple regression analysis outcomes.

Descriptive Statistics

Descriptive statistics of these variables are presented in Table 1. Overall, individuals were primarily in treatment for alcohol (85), amphetamines / methamphetamine (31), opioids (25), cannabis (3), cocaine (3), and other (8). Of the 155 individuals included in this study, 25 clients (16%) had received at least one contact with a PS during their time in treatment. The average length of treatment among all individuals ranged from 3 months to 38 months with a mean of 11.39 (*SD* = 7.469). The

average percentage of positive UAs was 53.435%. The number of peer support services ranged from 0 to 30 with a mean of 1.48 (*SD* = 4.866).

Table 1

Characteristics of Variables (N = 155)

Variable	*N*	%
Substances		
Alcohol	85	54.8
Amphetamine/methamphetamine	31	20
Opioids	25	16.1
Cannabis	3	1.9
Cocaine	3	1.9
Other	8	5.1
PRS contacts		
0	130	83.8
1-5	12	7.7
6-10	4	2.5
11-15	3	1.9
16-20	2	1.2
21-25	2	1.2
26-30	2	1.2
Months in treatment		
Up to 7	60	38.7
8-14	52	33.5
15-21	27	17.4
22-28	11	7
29-38	5	3.2
Positive UA percentage		
0	46	29.6
1-25	11	7
26-50	16	10.3
51-75	12	7.7
76-100	56	36.1

Multiple Regression Analysis

The purpose of this study was to identify the influence of PRS on substance use. I used a multiple regression analysis to answer my research questions.

Research Question 1

RQ1: Is there a relationship between PRS and substance abstinence?

$H_0 1_1$: PRS contact, as measured by a dichotomous variable capturing 0 and 1+ contacts, and controlling for time in treatment, is not associated with substance use, as measured by UA test result, a continuous variable capturing the fraction of total UA tests that were positive, in a multiple regression analysis.

$H_1 1_1$: The number of PRS contacts, as measured by a variable capturing 0 and 1+ contacts, is associated with substance use, as measured by UA test result, a continuous variable capturing the fraction of total UA tests that were positive, in a multiple regression analysis.

The Pearson correlation coefficient (r) represents the linear association between the variables. The correlation between number of peer contacts and percent positive UA was not statistically significant at the $p < .05$ level, $r = 0.17$. However, the correlation between months in treatment and percentage positive UA ($r = 0.20$) and number of peer contacts ($r = 0.19$) were statistically significant at the $p < .01$ level, justifying the importance of the covariate for the model. The correlation matrix is presented in Table 2.

Table 2

Correlations Between Variables

Variables	Positive UAs (%)	Peer contacts	Months in treatment
Positive UAs (%)	1.000		
Peer contacts	.167	1.000	
Months in treatment	.201*	.193*	1.000

Note. *Correlation is significant at the 0.01 level (1-tailed)

The overall regression results for these hypotheses are shown in Table 3.

Table 3

Multiple Regression Results for % Positive UA

% Positive UA	*B*	95% CL for *B*		*SE B*	B	R^2	ΔR^2
		LL	*UL*				
Model						.058	.045
Constant	40.150***	27.924	52.376	6.188			
Peer contact	1.182	-.223	2.587	.711	.133		
Months in treatment	1.012*	.097	1.928	.463	.175*		

Note. Model = "Enter" method in SPSS Statistics; *B* = unstandardized regression coefficient; CI = confidence interval; *LL* = lower limit; *UL* = upper limit; *SE B* = standard error of the coefficient; β = standard coefficient; R^2 = coefficient of determination; ΔR^2 = adjusted R^2.
*p < .05. **p < .01. ***p < .001.

These hypotheses were tested using a multiple regression analysis. There was no significant relationship between PRS and substance abstinence when controlling for time in treatment. The coefficient for PRS is 1.182 (SE = .71, p = .099), indicating that for each additional PRS contact, there is an increase in positive UAs when time in treatment is controlled. The coefficient for time in treatment is 1.012 (SE = .46, p = .03), indicating that for each additional month in treatment, there is an increase in positive UAs when PRS contacts are controlled.

$H_0 1_2$: The number of PRS contacts, a continuous variable capturing the exact number of contacts, and controlling for time in treatment, is not associated with substance use as measured by UA test result, a continuous variable capturing the fraction of total UA tests that were positive, in a multiple regression analysis.

$H_1 1_2$: The number of PRS contacts, as measured by a variable capturing 0, 1, 2, 3, etc… contacts, is associated with substance use, as measured by UA test result, a continuous variable capturing the fraction of total UA tests that were positive, in a multiple regression analysis.

This hypothesis was unable to be tested using a multiple regression analysis due to the sample being much smaller and the distribution not being appropriate for a regression analysis.

Research Question 2

RQ2: Is there a relationship between the number of PRS contacts and opioid substance abstinence? Specifically, are those who have at least one peer contact less likely to report a positive UA than those who have had no peer contacts?

$H_0 2$: PRS, as measured by a dichotomous variable capturing 0 and 1+ contacts, while controlling for time in treatment, is not associated with opioid substance use as measured by UA test result, a continuous variable capturing the fraction of total UA tests that were positive, in a multiple regression analysis.

$H_1 2$: The number of PRS contacts, as measured by a dichotomous variable capturing 0 and 1+ contacts, is associated with opioid substance usage, as measured by UA test result, a continuous variable capturing the fraction of total UA tests that were positive, in a multiple regression analysis.

The number of individuals who were in treatment due to an opioid disorder was N=62. The correlation between number of peer contacts and percent positive UA was not statistically significant at the $p < .05$ level, $r = 0.08$. The correlation between months in

treatment and percentage positive UA (r = 0.19) and number of peer contacts (r = 0.18) were also not statistically significant at the p < .01 level. The correlation matrix is presented in Table 5.

Table 4

Correlations Between Variables

Variables	Positive UAs (%)	Peer contacts	Months in treatment
Positive UAs (%)	1.000		
Peer contacts	.076	1.000	
Months in treatment	.188	.176	1.000

Note. *Correlation is significant at the 0.01 level (1-tailed)

The overall regression results for these hypotheses are shown in Table 6.

Table 5

Multiple Regression Results for % Positive UA

% Positive UA	*B*	95% CL for *B*		*SE B*	β	R^2	ΔR^2
		LL	*UL*				
Model						.037	.005
Constant	26.470**	7.576	45.364	9.442			
Peer contact	.435	-2.114	2.985	1.274	.044		
Months in treatment	.957	-.423	2.337	.690	.180		

Note. Model = "Enter" method in SPSS Statistics; *B* = unstandardized regression coefficient; CI = confidence interval; *LL* = lower limit; *UL* = upper limit; *SE B* = standard error of the coefficient; β = standard coefficient; R^2 = coefficient of determination; ΔR^2 = adjusted R^2.
*p < 05. **p < .01. ***p < .001.

This hypothesis was tested using a multiple regression analysis. There was no significant relationship between PRS and opioid substance abstinence (*B = .435*, SE =

1.27, $p = .734$). The coefficient for time in treatment was not statistically significant ($B = .957$, SE = .69, $p = .17$).

Summary

The results of this study were provided in Chapter 4. There was no statistically significant relationship between peer support services and positive UA tests. In Chapter 5, a review of the study and a discussion of the results will be presented. Conclusions that have been drawn from the findings, and how they may impact treatment with this population, will be discussed. Recommendations will be provided for further research.

Chapter 5: Discussion, Conclusions, and Recommendations

Introduction

The purpose of this quantitative study was to examine the relationship between outpatient treatment and substance use. Specifically, I sought to determine whether those who engage in peer services are more successful in achieving abstinence in substance use in general and opioid use specifically. I chose a quantitative approach to identify the influence of PRS contacts on substance use, and felt it was appropriate, as I was able to gain information to understand this relationship better.

PRS is being used in a variety of environments to engage with clients in a professional manner, to support them in their recovery journey. What has not been studied as frequently is the impact they have on substance abstinence in rural outpatient community behavioral health settings. One main role of a PS is to incorporate their lived experience in the relationship with a substance user to encourage, support, motivate, mentor, and teach them how to overcome the sometimes-grave effects of substance addiction. This study has helped to gain an understanding of the relationship between PRS, and substance use from the perspective of number of PRS contacts and number of months in treatment. It has helped fill the gap in the literature connected to the implementation of PRS in rural community behavioral health agencies in their outpatient treatment programs, bringing awareness to the outcomes of transitioning to this population. This study has also enhanced the lack of understanding of the various roles that PSs play in recovery for those in outpatient treatment. Many studies have been geared toward identifying the benefit of one of their roles in a specific program, rather

than identifying how all of their roles collaboratively help to reduce substance use. This information has the potential to incorporate a uniquely educated, trained, and knowledgeable subfield of providers in community behavioral health outpatient services that can fill a role that has yet to be fully utilized. Therefore, this study sought to find the answer to the following research questions:

RQ1: Is there a relationship between PRS and substance abstinence?

RQ2: Is there a relationship between the number of PRS contacts and opioid substance abstinence? Specifically, are those who have at least one peer contact less likely to report a positive UA than those who have had no peer contacts?

Secondary data were used to understand the relationship between outpatient treatment, the addition of PRS, and substance use among community behavioral health individuals. Data were received from individuals not receiving MAT and who had received a minimum of 3 months of outpatient substance use treatment with and without peer support contacts. Number of contacts with a PS and positive/negative UA results were used to determine this relationship.

This chapter provides an analysis of the major findings related to the research on PRS and substance use and discusses the theoretical framework that was used to understand this relationship. This chapter also discusses the limitations of the study, recommendations for the utilization of PRS in rural community behavioral health agencies, and the implications for social change and future research. This chapter will conclude with a summary of the overall study.

Interpretation of the Findings

The purpose of this quantitative study was to determine what relationship, if any, existed between PRS and substance use. The framework for this study was Bandura's (1971) social learning (cognitive) theory where recovery modeling through observation initiates behaviors that lead to misuse or abstinence of substances (Moos, 2007). This theory instills hope in others through mentoring (Harris et al., 2022) and works to adjust negative core beliefs about self-related to motivation to change (Bandura, 2004). Previous literature shows that the different roles that PS sengage in, specifically sharing their own lived experiences, can lead individuals to behavior changes that can reduce or eliminate substance use and lead to long-term recovery. Literature shows that addiction treatment can reduce substance use although relapse may still occur and PSs provide support from a continuum of care perspective rather than an acute care perspective to address this chronic condition (Bassuk, 2016). Through shared respect, a PS and client can engage in a mutually supportive relationship that is identified as most beneficial for the client (Addo et al., 2022); this means meeting the clients where they are for the best outcomes. PSs in this rural community behavioral health agency engage with individuals one-on-one to provide mentorship that encourages mutual support. Reif et al. (2014) reported that studies do show reduced relapse rates overall with PRS, although it is difficult to accurately identify PRS effects from other peer-based services. No statistically significant relationship between PRS and substance use was found in this study; some possible reasons include small sample sizes, unavailability of comparison groups, heterogenous populations, and undefined or inconsistent outcomes (Leif et al., 2016).

Much research has determined that there is little data to draw definitive conclusions about the effects of PRS on reduced substance use outside of the role of connecting individuals to addiction treatment (Tracy & Wallace, 2016).

SUD is considered a pattern of problematic use leading to significant distress that impacts all areas of an individual's life (Centers for Disease Control and Prevention, 2023). Individuals with SUDs constitute 25.4% of those who use illicit substances (National Center for Drug Abuse Statistics, 2023). They struggle with relationships, employment, and getting their basic needs met. Outpatient substance abuse treatment is designed to help individuals reduce their use and negative personal outcomes through support and evidence-based options. The addition of PRS has shown to build resiliency in those they build a relationship with (Klee et al., 2019). The assumption of PSs providing this type of support in an outpatient setting sets this population up for success in reaching both short- and long-term goals. However, the purpose of this study was to review UA results and PRS contacts to determine substance abstinence, not qualitative factors such as relationship quality. Bassuk (2016) reported that in informal recovery settings, PSs act as mutual aids and there are reductions in substance use in these settings while further research is needed to better understand their effectiveness in more formal one-on-one settings.

The results of this study do not align with the research conducted in other settings. Liebling et al. (2021) reported the benefits of PSs providing consultation and supports that include modeling healthy behaviors and empowering individuals to be engaged in their own recovery through using coping skills, social supports, and teaching others how

to use naloxone in hospital settings as a way to reduce harms associated with post-overdose interventions. Studies on the effects of PRS on mental health in different settings show evidence of personal recovery in hospital settings (Egmose et al., 2023). PRS has been beneficial in linking individuals to treatment in the short-term, and reducing substance use over the long-term (O'Connell et al., 2020), which may account for the reason these individuals are taking advantage of the services offered to them in addition to TAU. Mutual aid models of PRS such as Alcoholics Anonymous are non-formal and focus on bi-directional supportive relationships (Bassuk, 2016). Outpatient TAU includes treatment interventions that address the psychological aspects of addiction, and these programs offer group interventions that provide peer-like interactions with others that may be relevant for supporting their treatment goals, even without PRS contact. This was not possible to determine in the present study, as group interventions at this agency are not peer-led, and group engagement was not monitored. The roles of PSs are vast, and those provided by the PSs at this agency may not have aligned with the needs of the clients in this program. There is difficulty in utilizing the full extent of PS roles, as it is difficult to know which role has the most benefit toward successful recovery.

Theoretical Framework

It is difficult to fully determine whether the results of this study are consistent with Bandura's (2004) social cognitive theory. While this theory contextualizes the roles of PSs from the perspective of behavior influence with those we connect to, and includes facets of motivation, instilling hope, and shifting self-efficacy beliefs (Bandura, 2004), it

does not account for the lack of behavior change seen in the UA results in this study. The measurement of success with this framework involves changes occurring within the individual that are presented in a reduced percentage of positive UAs. This theory does recognize the challenges that individuals face when social norms are implemented and acknowledges how addiction can prevent these expectations from being met. Change occurs only through a process of self-reflection, and with help from others through a relationship of trust, and through connection (Kwasnicka et al., 2016). It is possible that a significant relationship between the PS and individual was not established. Rural Health Hub (2023) explores the concept of expectancies, behavioral capability, self-control, and reinforcements that contribute to behavior change, indicating the complexity of decisions and neurological functioning involved in substance abstinence, including an emotional component that is difficult to conceptualize. It is not known whether the individuals in this study felt a sense of hope or self-control when meeting with a PS or whether a co-occurring disorder persisted that increased emotional reactions that were only potentially minimized through substance use.

Limitations of the Study

Having not conducted a qualitative study to gather specific information directly from an individual, it is difficult to know the qualitative benefit of peer support that goes beyond examining UA tests. Another limitation is not conducting a qualitative study to understand the precipitating factors for the individual's substance use to help identify issues that PRS can address by tailoring support specifically to the individual. Including additional populations and having a larger number of individuals included within the

outpatient substance use community behavioral health agency would help to generalize the results of this study and indicate the true impact of PRS. The limited data confined the findings to only a small sub-population within a larger outpatient program for substance use treatment. A significant limitation is the sample size; for both research questions, the sample sizes were arguably small. That the p-value for the first hypothesis was not significant but less than .10 suggests that the study may have been underpowered. Given this, the positive association between fraction of positive urinalyses and peer support is curious and requires further examination. It is also not possible to know the extent a PS was involved in the individual's recovery, based on a single contact without speaking directly to the individual about their interactions. Although research has shown improvements in substance use with engagement with PRS (Boisvert et al., 2008), this was seen when interventions were of high intensity (Bassuk et al., 2016), perhaps higher intensity than those in the current program. Bandura (2004) stated that observation of behaviors can lead to misuse that may have occurred in this study. It is possible that the individuals, even while receiving PRS, were exposed to substances in their environment that prevented them from gaining sobriety.

Recommendations

A qualitative study that specifically identifies the benefits of each role a PS plays in substance user's recovery journey may provide the needed information to identify training and education efforts for PSs in outpatient programs. These roles can be streamlined to align with the risks and needs of substance users, identifying a niche in the outpatient continuum of care. Interviews with PSs to identify perceived role in an

outpatient setting could support an understanding of the outcomes found in this study, where further research could interview individuals with SUD to learn what PSs roles they believe would be most effective in supporting them in their recovery. This can provide the individualistic care that is required for someone struggling with addiction. This research could benefit from identifying a larger population to include clients' perception of benefits received from using PRS. This can help to streamline the programming in outpatient community behavioral health agencies, filling the gaps in treatment that can lead to abstinence and sustained recovery. Further studies that identify specific roles that a PS engages in can support the relevance of their work in an outpatient setting, compared to other settings. This may also include identifying the specific interventions used by PSs during interactions, and reporting and comparing the environment that the interaction took place.

Implications

Understanding the outcomes and limitations of this study provides the impetus for various levels in coordinating a continuum of care. The work that a PS does is a relevant addition to or standalone service for those in recovery from substance use. The results of this study provide insight into the nature of services provided at a rural community behavioral health agency, indicating that TAU options may already be providing the needed elements of successful recovery. Assuming this, it can also be assumed that further development of PS roles in an outpatient setting may provide much appreciated support that cannot be attained otherwise. The lack of change in substance use indicates that PRS are not eliciting the motivation for change that is necessary to achieve

abstinence through recovery. This also provides information about the potential of PSs not having the confidence in their own recovery to support others, and identifying this barrier can preclude all other diminished results. Rural community behavioral health agencies must first identify the area of most impact that PSs roles provide before making decisions about hiring PSs in outpatient settings. Once effective roles are identified, further training opportunities can be implemented to both PSs and current staff to enhance collaboration.

Conclusion

Peer support has been a beneficial component of substance use treatment in schools, hospitals, and inpatient treatment centers, providing a level of support that meets the social and emotional needs of substance users, assisting them in seeking recovery. In addition to TAU, PSs act as role models who teach adaptive behaviors that reinforce the goals of treatment (Cos et al., 2020). PRS can support a shift in cognition and beliefs in a substance user toward self-control, motivation, and eventually the change they desire. Providing PRS when engaged in TAU, the individual receives personal connection (Stack et al., 2022) with someone with lived experience, and direct knowledge of the stages and environments of recovery. While this study did not align with this research, if results were studied over time, it may show that there is reduced relapse rates, which is another contribution of PRS (Boisvert et al., 2008).

Although the results of this study did not find a significant relationship between PRS and percent positive UA, eliminating PRS as a treatment option in outpatient settings is not indicated based on previous research, and the most important consideration

for PRS success is aligning the role of the PSs with the needs of the clients. This is an important step that must be taken by rural community behavioral health agencies before utilization of PRS can be most successful. PS training must be supported and reinforced to ensure explicit understanding of the recovery process and services. Supervision is an important component of any training experience that reinforces the competencies learned, to include trauma-informed support, self-care, ethics, communication skills, resilience, recovery, and strength-based perspectives (Colorado Mental Wellness Network, 2023). Continued efforts to identify the PRS roles that best support individuals seeking abstinence in rural community behavioral health will be needed, and it is recommended that this information be gathered directly from those utilizing PRS.

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