TRUSTEY, CAROLINE E. Ph.D. More than a Number: Measuring 'Success' in Substance Use Treatment. (2022)
Directed by Dr. Kelly Wester and Dr. Connie Jones. 153 pp.

The *Diagnostic and Statistical Manual of Mental Disorders* (DSM) includes 11 criteria to consider when diagnosing an individual with substance use disorder (SUD), ranging from failure to fulfill role obligations to tolerance and withdrawal (American Psychiatric Association, 2013). Despite these 11 criteria used in diagnosis, only two criteria – treatment completion and changes in use – are typically used in outcome research. Researchers in SUD treatment have historically defined success in treatment as a reduction or cessation in one's use of substances, along with treatment completion, whereas failure is correlated with relapse and/or an inability to complete treatment (Donovan et al., 2012; MacMaster, 2004; Peters et al., 2017). Developers of abstinence-based approaches initially intended for treatment goals in such programs to include cessation of substance use and improvements in quality of life (QoL; Stinchfield & Owen, 1998). However, for over sixty years, researchers have measured outcome as one's ability to complete treatment and cease substance use (e.g., Cook, 1988; Hughto et al., 2021; Laundergan, 1982; Rossi et al., 1963). Recently, researchers have begun to explore secondary treatment effects – those changes that occur alongside changes in substance use – such as improvements in health and relationships (e.g., Pasareanu et al., 2015; Patterson et al., 2019; Tiffany et al., 2012a). Secondary treatment effects tend to mirror DSM criteria for SUD; as one's consequences due to use and SUD symptomology decrease, their secondary treatment effects increase (American Psychiatric Association, 2013; Miller et al., 1995).

Using the DSM criteria for SUD as a framework for both diagnosis and measuring 'success' in treatment, I examined success as a function of secondary treatment effects and QoL, as these are aligned with DSM criteria. To date, researchers have examined correlations between secondary treatment effects and substance use (e.g., Drummond et al., 2009; Patterson et al., 2019) as well as QoL and treatment (Pasareanu et al., 2015). However, most researchers study

individuals who have completed treatment rather than the vast number of people who do not complete treatment. In this study, I explored the associations between change in substance use, secondary treatment effects, and quality of life, for individuals currently in treatment. Utilizing a cross-sectional, descriptive methodology I assessed whether QoL is associated with secondary treatment effects and substance usage. I analyzed the data using a basic correlation, a hierarchical regression with a commonality analysis, and a moderation analysis to explore the relationships, predictors, and moderations between secondary treatment effects, QoL, and changes in substance use.

The results indicate that both secondary treatment effects and differences in substance use contribute to the variance in quality of life scores in individuals in treatment. Secondary treatment effects are marginally more predictive than the difference in use scores, however, the combination of the two variables accounts for more variance in scores than either measurement alone. A moderation did not exist between the predictor variables, implying that both secondary treatment effects and differences in use are individually and uniquely important in terms of the main effect. Limitations of this study included the cross-sectional design of data collection, the inclusion criteria of 28-days in treatment to participate, and the inability to know which individuals will and will not complete treatment in the future. This work contributes to scholarly efforts by broadening the measures used in determining treatment 'success' and outcomes in substance use treatment, as well as encouraging researchers and practitioners to view clients as holistic, multifaceted individuals in treatment.

MORE THAN A NUMBER: MEASURING

'SUCCESS' IN SUBSTANCE

USE TREATMENT

by

Caroline E. Trustey

A Dissertation
Submitted to
the Faculty of The Graduate School at
The University of North Carolina at Greensboro
in Partial Fulfillment
of the Requirements for the Degree
Doctor of Philosophy

Greensboro

2022

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DEDICATION

For Jake – Miss you more, love you most.

APPROVAL PAGE

This dissertation written by Caroline E. Trustey has been approved by the following committee of the Faculty of The Graduate School at The University of North Carolina at Greensboro.

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ACKNOWLEDGEMENTS

My favorite proverb reads: "If you want to go fast, go alone. If you want to go far, go together." My cohort deserves the utmost gratitude for living this process alongside me and challenging me to show up as the best version of myself. Kervins Clement, Jaimie Cory, Brittany Gerringer, and Lindsey Grossman – thank you for also loving me and supporting me on days when I was not my best self. And to Lindsey – our first year we adopted the "doctoral buddy system" and I wouldn't have had it any other way. From road trips to trivia nights to tossing a baseball for hours in the on-call room, thank you for being the reminder that we can have fun while we do hard things.

I have been blessed with family and friends who have supported me – emotionally, financially, and spiritually – over the past 24 years of education. Michaella, having you in North Carolina this past year was the greatest gift. Thank you for keeping me fed, filling my heart, and sending me academic memes. I could not have done this without you. McVeigh, thank you for being a role model of leadership, commitment, and doing for others. Thank you for being a sounding board and a mentor. I am so glad you are always on my team. And to my family – Mom, Claire, and Sean. Sean, thank you for reading my dissertation countless times, providing feedback, and hyping me up as the end got near. Mom and Claire, thank you for never saying no to my dreams. Thank you for believing in me, visiting when things got hard, and answering the phone at any hour of the day. I love you all and I promise I'm really done with school now!

Finally, I'd be remiss to not mention my supporters who sadly won't be here physically to celebrate this accomplishment. Jake, A.J., Anna, and Dad – words won't do justice to how much I miss you and wish you were here for this occasion, and so many others. Thank you for

being a constant reminder of the 'why.' I strive to emulate you all each day and I hope today you

are proud. Thank you.

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CHAPTER I: INTRODUCTION

Twenty million individuals in the United States live with a substance use disorder (SUD; Substance Abuse and Mental Health Services Administration, 2018). Unfortunately, of the population of Americans with SUDs, only 4 million individuals receive substance use treatment (Substance Abuse and Mental Health Services Administration, 2018), and as many as 46% of these individuals who begin treatment will drop out of treatment (Lappan et al., 2020; Stahler et al., 2016). Historically, success and failure have been defined as a binary measure, whereas success is equated with a reduction or cessation in one's use of substances, whereas failure is correlated with relapse and/or an inability to complete treatment (Donovan et al., 2012; MacMaster, 2004; Peters et al., 2017). This narrow definition of success helps explain why almost half of the individuals who enter SUD treatment "fail"; these dramatic numbers warrant a broadening definition and understanding of treatment and what leads to positive outcomes.

Treatment Barriers

A majority of individuals with SUDs do not perceive a need for treatment (Lipari et al., 2016). Of the individuals with SUDs who did not receive treatment, 95% did not believe their substance use was severe enough to necessitate treatment (Lipari et al., 2016). Adolescents aged 12-17 are the least likely to perceive a need for treatment; only 1.4% of adolescents who do not receive treatment believe they need it, compared to 2.7% of young adults (aged 18-26) and 5.5% of adults over the age of 26 (Lipari et al., 2016). This may be due to the binary measure of use vs. abstinence; perhaps if individuals were able to place themselves on a continuum for treatment need and outcomes, as opposed to at the extremes, treatment enrollment patterns would look different.

For the individuals who do engage in SUD treatment, many factors contribute to treatment retention (Lipari & Van Horn, 2017). Although individuals of all cultural backgrounds are affected by SUDs, cultural identities influence treatment outcomes (Andersson et al., 2018; Substance Abuse and Mental Health Services Administration, 2017). For example, treatment dropout is more likely if an individual is African-American, from a lower-income background, younger than 25-years-old, has polysubstance use, or has ever injected a substance (Andersson et al., 2018; Lappan et al., 2020). Conversely, treatment completion is more likely in individuals older than 44-years-old, have at least a middle school education, or use alcohol as their primary substance (Andersson et al., 2018). Individuals presenting with higher rates of mental distress are also more likely to leave treatment before completion, whereas individuals with greater intrinsic motivation are more likely to complete treatment (Andersson et al., 2018).

In SUD treatment, historically, the individual is blamed for treatment incompletion, as opposed to evaluators looking at the treatment environment and other contextual factors and challenging whether the program's protocols and/or narrow definition of success inhibit client wellbeing (e.g., Acion et al., 2017; Hsieh & Hamilton, 2016). Environments are created by systems (e.g., treatment centers) and can aid or hinder the functioning of an individual (Niemiec & Ryan, 2009). Therefore, the environment created by the treatment program meets, or fails to meet, individual basic needs. One of these environmental factors is the narrow focus on treatment completion or cessation of use for a client to be successful in SUD treatment.

Currently, the narrow definition of success makes 'failure' the most likely outcome rather than seeking ways for more people to experience positive outcomes. What if we changed the definition of success and employed alternative measures, which in turn could lead to more positive outcomes for those in treatment and encourage greater numbers of those with SUDs to

enter treatment experiences? A strengths-based approach to therapy would look at what clients gain in treatment beyond their changes in substance use, such as decreased consequences due to use and increased role performance (Patterson et al., 2019). Looking at treatment effects, we can explore limitations in treatment environments that hinder the functioning and success of clients, such as if the treatment is missing a focus on the clients' holistic well-being. This connection between treatment environments and secondary treatment effects leads to quality of life and how a client's quality of life is impacted while in SUD treatment.

Defining "Success"

Researchers classify the 700,000 individuals who do not complete treatment annually as having "non-successful" treatment (Acion et al., 2017, p. 3; Lappan et al., 2020; Lipari & Van Horn, 2017). One measurement of "success" in substance use treatment is treatment completion (Acion et al., 2017). This measurement of success implies non-completion equates to failure and does not consider other aspects of treatment that may have been beneficial to the client. It also does not consider the client's definition of success. However, with an average dropout rate of 30.4% across substance use treatment studies in the United States (Acion et al., 2017; Lappan et al., 2020), it may be important to consider what aspects of treatment were effective for those who do not complete and for those who do. Alternatively, treatment may have been successful in ways that were not explored (e.g., contingency management reward systems, teaching of self-efficacy and coping skills, and social learning; Moos, 2007) or do not fit the traditional research definition of treatment completion to equate "success." Ignoring treatment effects achieved in treatment results in a deficit- and failure-based definition, as opposed to a strength-based one. It also places the onus of success on the client and ignores the role that the treatment environment

plays in facilitating the success of individuals. This is an example of an environment that hinders beneficial treatment.

The second definition of "success" employed within the substance use and counseling literature focuses on reducing or cessation of one's use of substances (e.g., Donovan et al., 2012; Hsieh & Hamilton, 2016; MacMaster, 2004; Peters et al., 2017). Bradizza and colleagues (2006) conducted a review and found definitions of relapse ranging from any use in the prior three months (Bowen et al., 2000) to a return to heavy use, excluding small slips (Fisher et al., 1998). However, clients, especially those who identify as Black or are diagnosed with a co-occurring mental health disorder history, typically undergo between 2-5 treatment attempts (Kelly et al., 2019). If the focus remains on using reduction or cessation of substance use as an indicator of success, many clients may fail treatment at least once due to substance use, although they may simultaneously be experiencing improved outcomes in other aspects of their life.

Given the dropout rate of treatment and the fact that many individuals have more than one treatment attempt, the current definitions of success in substance use treatment (i.e., reduction of use and treatment completion) may be too narrow and misaligned with the diagnostic criteria of SUDs. In addition, this narrow definition of success may contribute to labeling individuals who do not complete treatment as "treatment failures" when researchers neglect the aspects of each recovery attempt and relapse that aided the individual's overall wellbeing (Cook, 1988, p. 737). Deepa Avula, Chief of Staff at SAMHSA recently stated that "The point [of recovery] is that the community, not SAMHSA, should determine their themes" (Knopf, 2020, p. 30). Themes of success in recovery need to be expanded beyond what research has historically defined. Further exploration into these themes, or the potential positive effects of treatment, may need to be examined.

Stakeholders Utilizing the Definitions

The conventional approach that focuses on only two measures -- abstinence and treatment completion -- ignores the complexity of SUD diagnoses and potential paths to recovery. As discussed in more detail in Chapter 3, there is an opportunity to tie all 11 measures from the DSM-5 to how we think about care and what defines success. Many systems and stakeholders are involved when considering the definition of success in substance use treatment; among these are individuals with substance use disorders, medical professionals, addiction professionals, and policymakers within the justice system. The models through which each stakeholder views addiction may vary. For example, an addiction professional may conceptualize substance use through a biopsychosocial model (Engel, 1989; Skewes & Gonzalez, 2013). Followers of the biopsychosocial model posit that addiction is caused by the interaction of biological, psychological, social, cultural, cognitive, and environmental factors; this model acknowledges a holistic view of an individual (Engel, 1989; Skewes & Gonzalez, 2013). A medical professional may view addiction as a disease in which the brain's chemistry is responsible for one's addiction (Leshner, 1997; Wilbanks, 1989). The perspective one employs alters how one views the process and outcomes of treatment -- as is the case of doctors treating a patient for a physical ailment. Policymakers, on the other hand, may view addiction through the moral model (Henden et al., 2013). Followers of the moral model view addiction as a choice made by the individual with the substance use disorder, and therefore it is the individual's choice to cease use (Henden et al., 2013). Due to the moral view of use, punishment (i.e., incarceration) is a way to modify addictive behavior. In addition, this narrow definition does not align with the criteria used in diagnosing substance use disorders (American Psychiatric Association, 2013).

DSM Diagnostic Criteria

When diagnosing substance use disorders, clinicians utilize the *Diagnostic and Statistical Manual of Mental Disorders* (DSM-5; American Psychiatric Association, 2013). An individual must meet specific diagnostic criteria to be diagnosed with a substance use disorder. Among the requirements are symptoms such as "a failure to fulfill major role obligations at work, school, or home" and "recurrent use in situations in which it is physically hazardous" (American Psychiatric Association, 2013, p. 491). Although some criteria in the DSM-5 diagnostic criteria for SUD include ingesting substances, specifically larger amounts of a substance for longer than intended, actual use of the substance is not the sole criteria, nor does the continued use of a substance at all result in a SUD diagnosis. Thus, simply using a substance does not constitute a use disorder (American Psychiatric Association, 2013). Still, the use can lead to difficulties in daily functioning that leads to the diagnosis of SUD. Although the SUD criteria in the DSM-5 include more than just substance use, treatment programs and researchers continue to define success of treatment solely as the cessation or reduction of use of a substance and/or treatment completion, which seems to be a limited definition that ignores the majority of the DSM 5 criteria. When researchers only look at changes in use and finishing a treatment course, they are overlooking the improvements in the other consequences that may come with hazardous substance use, such as poor intrapersonal physical and mental health, challenges with impulse control, loss of employment and the effects of substance use on one's social responsibilities, and fractured interpersonal relationships (American Psychiatric Association, 2013; Miller et al., 1995; Patterson et al., 2019). Currently, researchers measure success using a criterion that is not part of the SUD in the DSM (i.e., change in substance use). Rigid definitions of success may inhibit individuals from entering treatment for fear of failure or perceiving treatment as a bad fit

misaligned with the client's long-term goals. I am proposing how a broader definition might improve how we think about success in SUD treatment to incorporate several aspects of the DSM-5 criteria for substance use disorders as a framework for exploring success in treatment (American Psychiatric Association, 2013).

Tobacco use disorders occur at much higher frequencies than other substance use disorders; as many as 16.6% of transgender and 5.4% of cisgender adults meet criteria for tobacco use disorder, compared to 4.3% of transgender and 1.2% of cisgender individuals who meet criterion for other SUDs (Hughto et al., 2021). Treatment for tobacco use disorders commonly consists of pharmaceuticals and psychoeducation, as opposed to the modalities used in other SUD treatment, and a majority of consequences due to tobacco use are physical health-related (Campbell et al., 2019; Ziedonis et al., 2017).

Quality of Life

Quality of life (QoL) is a subjective measure of one's perceptions of their physical and mental wellbeing, as well as their life satisfaction, social wellbeing, and sense of control (Zubaran & Foresti, 2009). Although the majority of researchers focus on success of treatment equating treatment completion or reduction or cessation of substance use (e.g., Acion et al., 2017; Donovan et al., 2012; Peters et al., 2017), a few researchers and clinicians have shifted toward assessing how one's QoL has been enhanced in mental health treatment (Ruggeri et al., 2002). Researchers have used QoL as a measurement in numerous SUD studies, including those looking at associations between QoL and age of first use (Barati et al., 2021), as well as relationships between QoL and coping, anxiety, and depression in individuals with SUDs (Ciobanu et al., 2020), and QoL of partners of individuals with SUDs (Birkeland et al., 2018). QoL tends to be low or extremely low at the beginning of SUD treatment and increases post-

treatment for most individuals who complete treatment (Pasareanu et al., 2015). There is a gap in research of how QoL changes for individuals who do not complete SUD treatment. Quality of life measurements are aligned with the DSM criteria for SUDs, as both relate to the overall functioning and holistic wellbeing of the individual. Therefore, QoL may better assess or measure success than cessation or reduction of use and treatment completion, especially for individuals who do not complete treatment or enter into in the first place, which is a much larger segment of the population.

Secondary Treatment Effects

Individuals on a panel created by the National Institute on Drug Abuse (NIDA) argued that losses of health, wellbeing, psychological functioning, relationships, productivity, and an increase in criminality are all consequences of substance use that must be addressed when considering appropriate outcome measures for clinical trials (Tiffany et al., 2012a). Historically used evidence-based practices focus on the efficacy and effectiveness of reducing substance use (i.e., success), which is how substance use treatment has been marketed to stakeholders (i.e., clinicians, policymakers, researchers; Tiffany et al., 2012b). Therefore, consideration of secondary treatment effects - including overall intrapersonal health and wellbeing, psychological functioning, impulse control, interpersonal relationships, and social responsibility of individuals should be considered, rather than a narrow definition of success (Miller et al., 1995; Tiffany et al., 2012a). Researchers need to further explore the impact of secondary treatment effects on changes in substance use to determine the impacts of both on quality of life.

In recent years, literature has emerged that considers secondary treatment effects or those outcomes that occur alongside reduced substance use (Patterson et al., 2019). Looking at secondary treatment effects acknowledges that recovery encompasses more than just abstinence

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from substance use and instead includes overall increases in quality of life, such as mental health, physical health, and social relationships. In one such study, Patterson and colleagues (2019) measured social functioning, mental health, physical health, interpersonal consequences, perceived quality of life, and employment alongside decreased substance use. There were a total of 325 individuals who began an 8-week residential treatment program as part of this study (Patterson et al., 2019). 56% ($n = 182$) of the participants completed treatment, and the remaining 31% of participants did not complete a minimum of 28 days of treatment. The researchers did not disclose reasons for treatment incompletions. For completers, decreases in substance use was the primary outcome, but there were also improvements in social functioning, mental health, physical health, interpersonal consequences, and perceived quality of life at both the end of treatment and follow-up compared to baseline (Patterson et al., 2019). The only domain that showed worse outcomes at treatment cessation than baseline was employment, which researchers attributed to the time commitment that a residential substance use treatment demands. Employment scores were significantly higher at follow-up than when participants were enrolled in residential treatment due to the inherent time commitments associated with treatment (Patterson et al., 2019). Curiously for our purposes, a decrease in substance use contributed to an increase in other domains of functioning, underscoring the importance of secondary effects. However, the study is not without limitations. The participants' reduced substance use occurred within a controlled environment (i.e., the participants lived within a residential treatment facility, where access to substances is restricted; American Psychiatric Association, 2013). Due to the researchers' only looking at individuals who completed at least half of treatment, there continues to be a gap in research around what does and does not work for treatment non-completers. Additionally, the researchers did not compare the individuals who completed all of treatment to

those who completed at least half of treatment to determine if any differences existed between treatment dosages and secondary effects. The researcher of the proposed study will include individuals currently in treatment who have had previous "incomplete" treatment experiences to help understand the different outcomes based on the length of one's stay in treatment.

Abstinence does not always correlate with secondary treatment effects, such as increased quality of life (Drummond et al., 2009). Compared with a control group who did not receive intervention, a group receiving brief alcohol intervention demonstrated less frequent drinking but no significant differences in quality of life or mental health (Drummond et al., 2009). The question exists of what aspects of treatment in Patterson et al.'s (2019) study contributed to secondary treatment effects that were missing from the Drummond et al. (2009) analysis? Relatedly, LoCastro and colleagues (2009) found a larger effect on the relationship between the amount one drank in one sitting and their secondary treatment effects than their number of abstinence days, questioning the significance of abstinence to secondary treatment effects. Despite research around secondary treatment effects, there is no consistent representation of alternative domains of success in SUD treatment represented in the literature, nor is it the expectation in research. More consistent consideration of secondary treatment effects as indicators of treatment success may contribute to more individuals opting to engage in treatment and more individuals experiencing treatment success (Tiffany et al., 2012a).

Need for Study

The operationalization of success that is rooted in secondary treatment effects is more consistent with the DSM-5 criteria for substance use disorders and may result in improved Quality of Life in individuals. It is essential to explore if clients find other treatment components equally or more beneficial than substance reduction. An individual in treatment receives a SUD

diagnosis based on the DSM criteria, which indicates the individual is not functioning to their full potential. The individual often reports a decreased QoL before treatment, as well (Pasareanu et al., 2015). Despite diagnosing based on one's inhibited functioning, success continues to be measured based on treatment completion and use reduction, which is not assessed for in the DSM, and seems to leave many individuals "failing" treatment. Instead, researchers and clinicians would benefit from examining secondary treatment effects and changes in individuals' QoL, given that these are aligned with the DSM criteria. If an individual is functioning better in each of these two areas (i.e., increased QoL and secondary treatment effects), the diagnosis of SUD would typically be removed.

Purpose

The purpose of this study is to investigate what, if any, correlation exists between an individual's substance use and secondary treatment effects and this individual's quality of life. To date, researchers have examined correlations between secondary treatment effects and substance use (e.g., Drummond et al., 2009; Patterson et al., 2019) as well as QoL and treatment (Pasareanu et al., 2015). However, most researchers study individuals who have completed treatment rather than the vast number of people currently engaging in treatment, who may or may not complete treatment. There is a significant gap in the research as a result. The researcher in this study will explore the relationship between substance use, secondary treatment effects, and quality of life, for individuals engaging in treatment. The researcher will utilize a cross-sectional, descriptive methodology to assess whether QoL is associated with secondary treatment effects and changes in substance usage.

Significance

The significance of this study is to expand the definition of success in substance use treatment and to adapt research outcome measures to reflect success as individuals' QoL and secondary treatment effects beyond solely reduction of substance use and/or treatment completion. By measuring success based on individuals' QoL and secondary effects and broadening the definition of success in substance use treatment, researchers, clinicians, policymakers, and clients may consider adaptations in treatments and outcomes. These adaptations may help the 50% of individuals who do not finish treatment, may increase the percentage of individuals who view treatment as relevant, and may broadly impact individuals with substance use disorders in terms of self-efficacy in recovery. Additionally, secondary treatment effects and increases in QoL could be appealing to individuals with SUDs who may not be ready to commit to reduction or cessation of use.

Research Questions

The researcher will use three research questions to guide the present study: (1) What is the relationship between secondary treatment effects and change in substance use with quality of life? (2) Are secondary treatment effects or substance usage more significant predictors of participant quality of life? What is the combined predictive power? The researcher hypothesizes secondary treatment effects will be more significant predictors of participant quality of life. (3) Is there a moderation between the two? The researcher hypothesizes that secondary treatment effects will moderate substance usage and quality of life.

Operational Definitions

- *Individual with substance use disorder*: any person over the age of 18 meeting DSM-5 criteria for a SUD

- *Non-successful treatment (traditional definition)*: treatment that is terminated before the predetermined dosage and/or results in an individual relapsing or returning to use

- *Quality of Life*: a subjective measure of one's perceptions of their physical and mental wellbeing, as well as their life satisfaction, social wellbeing, and sense of control (Zubaran & Foresti, 2009)

- *Secondary Treatment Effects:* outcomes that occur alongside reduced substance use, such as improvements in social functioning, mental health, physical health, and perceived quality of life and decreased interpersonal consequences

- *Substance involvement*: ingestion or injection of a substance, withdrawal or tolerance, lifetime use of substances, use in the past 3 months, failure to fulfill expectations in past 3 months due to substance use, attempts to control substance use in lifetime and past 3 months, loved ones' concern about substance use (American Psychiatric Association, 2013; National Institute on Drug Abuse, 2017)

- *Treatment*: a dose of 28 or more days of any of the following: individual and group counseling, medication-assisted treatment (e.g., Suboxone, Naltrexone), contingency-management interventions, harm reduction approaches, abstinence-only approaches

CHAPTER II: REVIEW OF LITERATURE

The current measurement of success for treating those living with a substance use disorder (SUD) implies that failure is almost inevitable. Although dealing with addiction is excruciatingly difficult, the fact that success is reserved for those who complete treatment and abstain from further substance use (e.g., Laundergan, 1982; Nowinski et al., 1995; Rossi et al., 1963; Smith et al., 1991) means that 95% of Americans with a SUD fail in their recovery, which seems overly skewed and unacceptable (Laundergan, 1982; Substance Abuse and Mental Health Services Administration, 2018). Over twenty million individuals in the United States live with at least one substance use disorder (Substance Abuse and Mental Health Services Administration, 2018). Using the current definition of success used in research, only 5% of individuals presumed to live with substance use disorders have the potential to be 'successful' in treatment. Considering only individuals who receive substance use treatment (4 million individuals; Substance Abuse and Mental Health Services Administration, 2018), the "success rate" of individuals who enter treatment is still a meager 28%. These stark results raise questions about measurement that, if altered and enhanced, might dramatically change assessment, treatment, and ongoing care for anyone dealing with a substance use disorder. To this end, I will identify the key trends in substance use disorder treatments and propose an alternative conception and measurement approach to address current weaknesses in the field.

Early Trends in SUD Treatment

The emphasis on abstinence as the primary outcome of substance use disorder (SUD) treatment became mainstream in the 1950s. The Minnesota Model, a program founded in the 12-Step Alcoholics Anonymous model, was initially implemented at Hazelden, a treatment center in Minnesota (Stinchfield & Owen, 1998). Since its implementation in 1950, counselors have

practiced this abstinence-based approach around the United States (Stinchfield & Owen, 1998). Interestingly, researchers posit that improvements in quality of life (QoL) and abstinence are the two goals of the Minnesota Model; however, researchers rarely use QoL as a research outcome and often focus exclusively on abstinence (Cook, 1988; Gallagher et al., 2018; Stinchfield & Owen, 1998).

Dating back to data collected in 1960, researchers have conducted follow-up studies on individuals with SUDs measuring the individuals' post-treatment abstinence (Rossi et al., 1963). Researchers at Hazelden assessed individuals following termination from treatment so participants were only eligible for the study if they had successfully completed treatment and received their completion medallion (Laundergan, 1982). Data on abstinence was collected at 4-, 8-, and 12-months post-treatment (Cook, 1988; Laundergan, 1982). If participants returned to treatment during this period, they were labeled "treatment failures" and were disqualified from the study (Cook, 1988, p. 737). By requiring treatment completion as an inclusion criterion and only measuring abstinence, researchers ignored the voices of individuals who may have experienced increases in quality of life, the other key indicator from the original Minnesota Model. Treatment completion remains a measure of success 60 years later. Researchers have made important strides in inclusive substance use research, like considering treatment outcomes for LGBTQIAP+ individuals (Hughto et al., 2021; Zajac et al., 2020) and barriers to treatment success for court-mandated African-American clients (J. R. Gallagher & Wahler, 2018). Nevertheless, researchers continue to underappreciate the multiplicity of reasons beyond relapse that individuals may choose to reenter treatment.

Defining 'Success' in SUD Treatment

Post-treatment abstinence remains the primary criterion for how researchers measure SUD success (e.g., Nowinski et al., 1995; Smith et al., 1991). Contemporary studies still define "poor treatment outcomes" as dropout, relapse, and treatment readmission (Andersson et al., 2021, p. 207) and partial or complete relapse (C. Gallagher et al., 2018). "Good outcomes" are defined as complete abstinence, abstinence with slips, and controlled drinking; however, it is important to note that the difference between controlled drinking and partial relapse was subjective and up to researcher interpretation (C. Gallagher et al., 2018, p. 36).

In 2020 researchers conducted a global meta-analysis of why participants dropped out of an array of SUD treatment programs, including individual and group inpatient, residential, and outpatient programs (Lappan et al., 2020). They examined results based on treatment approaches (e.g., abstinence vs. harm reduction) and demographic factors (e.g., race/ethnicity, gender/sexual orientation, income). Using literature published between 1965 and 2016, the average dropout rate from treatment programs across all studies is 30.4% (Lappan et al., 2020). In terms of treatment approaches, the researchers found that the most common treatment approach associated with dropout is the 12-step method (38.2%), a historically abstinent-based method. Whereas motivational approaches, in which the therapist often meets the client where the client is and moves at the client's pace, are correlated with the lowest dropout rates (27.7%; Lappan et al., 2020). Concerning demographics, the researchers of this meta-analysis reported that African Americans are more likely to drop out of treatment than White individuals, as are individuals with lower socioeconomic status (Lappan et al., 2020). The sample size of studies including treatment specific for pregnant individuals was small ($n = 1$), but demonstrated low instances of dropout (4.0%; Lappan et al., 2020). Researchers should further explore the differences in

treatment experiences for individuals with privileged identities compared to those with marginalized identities, including experiences and outcomes that go beyond simply dropout or treatment completion.

Andersson et al. (2018) defined dropout as incompletion of the planned treatment duration. Participants in four- to six-month residential treatment programs in Norway dropped out of treatment at a rate of 28% over the course of a 2-year sample (Andersson et al., 2018). Dropout was significantly higher at long-term (6-month) treatment centers (as high as 76%) when compared to short-term (4-month) treatment commitments (18%; Andersson et al., 2018). A client can decide to drop out without a counselor's recommendation or following therapist recommendation due to treatment noncompliance, which the researchers noted included "drug use/urine drug testing by indication" (Andersson et al., 2018, p. 6). Unfortunately, the researchers did not report on the data collected around dropout due to noncompliance. Thus, exploring trends around the number of individuals who leave treatment due to noncompliance was impossible. Furthermore, this approach fails to consider alternative reasons why a participant may leave a program. Additional reasons for leaving a program include a participant not perceiving the program to be a good fit for them personally, or they do not sense a need for additional treatment, or believing they can continue to heal and grow outside a structured program, among other reasons. The researchers of this meta-analysis did not collect data on whether a participant's perceived benefit of treatment affected their decision regarding treatment retention. This limitation, coupled with a lack of information on what the participant perceived to be the benefit of treatment, is a significant gap in the literature (Andersson et al., 2018). Additionally, considering residential treatment is a controlled environment, abstinence is expected, though it limits individuals who may need treatment but not be ready to give up use.

One critique of using inclusion criteria of treatment completion for research studies is that treatment evaluation of "success" may be inflated (Cook, 1988). For example, Laundergan (1982) found that 50% of clients maintained abstinence at the 12-month follow-up (Stinchfield & Owen, 1998). When reporting this information, researchers imply that one-half of clients maintain a year of abstinence; however, it should be noted that the number is actually only one-half of *eligible* participants in the study (i.e., individuals who complete treatment and do not readmit). So, one-half of individuals who complete treatment, and do not readmit to treatment, maintain abstinence. Forty years later, treatment completion persists as an inclusion criterion in SUD treatment outcome studies (e.g., Patterson et al., 2019). But what happens to those who do not complete treatment? What happens to the individuals who return to treatment within one year? They are excluded from research, which skews data. Their treatment outcomes, including treatment gains independent from abstinence, are also lost as these individuals who do not complete treatment are not included in research studies.

In assessing abstinence, anywhere between 37% and 75% of individuals relapse within one year of leaving treatment (Gil-Rivas et al., 2009; McKetin et al., 2018; Suter et al., 2011). Although definitions of relapse range from any use in the prior three months (Bowen et al., 2000) to a return to heavy use (Fisher et al., 1998), McKetin et al. (2018) required "continuous abstinence" in their sample of methamphetamine users, meaning absolutely no use between baseline and the 1-year follow-up interview (p. 71). However, it is essential to note that the researchers excluded 7% of the sample from the follow-up. These individuals maintained complete abstinence but returned to treatment for other, undisclosed reasons (McKetin et al., 2018). This suggests that the researchers considered a return to treatment equivalent to relapse. At one-year post-treatment, 23% (n = 38 of 165) of the participants included in the study

maintained abstinence from methamphetamines (McKetin et al., 2018). Over a quarter of the participants in this one study alone had motivations for treatment that were more aligned with the *Diagnostic and Statistical Manual of Mental Disorders, 5th Edition* (DSM-5) criteria of use impacts on role obligations and legal problems due to use than with abstinence-based criteria (American Psychiatric Association, 2013). For example, 22% of individuals reported their motivation for treatment was to keep or regain custody of children (criterion A5; American Psychiatric Association, 2013), and 16% reported legal motivations (criterion A6; American Psychiatric Association, 2013; McKetin et al., 2018), suggesting that not every individual who enters treatment has motivations of abstinence from substance use. McKetin et al. are some of the few researchers to assess and report the reasons for entering treatment, as many times, researchers do not report these reasons in outcome-based treatment studies. However, these motivating factors for entering treatment could be important as they may align with DSM-5 criteria.

Treatment Utilization and Access

Many factors contribute to who receives substance use treatment. More than age, gender, or race, probation status most affects one's receipt of substance use treatment services. As many as 44% of individuals on probation receive treatment (Johnson et al., 2020). Following probation status, the next most significant predictor of treatment receipt is use severity; 28.4% of individuals diagnosed with severe SUD receive treatment, whereas 7.4% and 2.9% of individuals with moderate or mild SUDs receive treatment, respectively (Johnson et al., 2020). Unfortunately, individuals are more likely to receive treatment only when use disorders escalate to the point where the individual has experienced legal repercussions and/or has severely impaired life functioning due to the substance. Even in such circumstances, receiving treatment

is not the norm. For those who appear to be functioning adequately in their everyday life, seeking treatment is even rarer.

White, non-Hispanic men are the most likely to receive treatment; followed by White, non-Hispanic women; Black, non-Hispanic men; Black, non-Hispanic women; Hispanic men; and Hispanic women (note: researchers have not distinguished between cisgender and transgender identities; Johnson et al., 2020). Barriers to treatment entry for women have been well documented, including pregnancy, fear of losing custody of a child when the baby is born, and lack of childcare options during a woman's treatment (Greenfield et al., 2007). Women also reported fearing prosecution for their substance use (Greenfield et al., 2007). Other barriers to entering treatment include up to 40% of individuals not being ready to stop using and committing to abstinence, followed by not having adequate health care coverage or means to afford services, and worries about treatment negatively impacting their job or how others in the community might view them (Substance Abuse and Mental Health Services Administration, 2018). Consider the repercussions of forcing any one of the individuals living with a SUD into a abstinence-blinded standard of success and the social problems are glaring: clients may avoid treatment due to fear of failure in the form of relapse or treatment incompletion, incarceration due to use, and termination of parental rights, to name a few (Greenfield et al., 2007; Substance Abuse and Mental Health Services Administration, 2018). Thus, more than abstinence and actual use of substances, secondary treatment effects need to be examined as a treatment outcome and equate treatment success. Very little research is conducted on the differences in secondary treatment effects experienced by individuals with privileged identities compared to those with marginalized identities, which may explain variation in treatment rates across demographic groups.

Expanding the Definition

At the turn of the 21st century, a minority of researchers demonstrated interest in more than abstinence and treatment completion and have sought to include additional indicators in their studies, such as secondary treatment effects (e.g., Pasareanu et al., 2015; Patterson et al., 2019; Tiffany et al., 2012b) To get at improvements in SUD treatment, researchers identified several secondary treatment effects, including improved social functioning, physical and mental health, and decreased interpersonal consequences (Patterson et al., 2019). These secondary treatment effects happen as stated – secondarily – to changes in substance use (Patterson et al., 2019). Briefly, researchers can use these additional indicators of success to capture how one's quality of life (QoL) is affected during SUD recovery

Aiming to expand the "narrow" treatment aims and focus on positive treatment outcomes, Pasareanu et al. (2015) opted to measure changes in QoL between admission to the hospital for SUD-related treatment and a 6-month follow-up post-discharge (p. 1). The researchers measured QoL and psychiatric symptomology using the QoL-5 scale and SCL-90-R, respectively; they concluded that lower QoL at treatment onset correlates with higher psychiatric symptomology (Pasareanu et al., 2015). Individuals tend to have higher QoL at six-month follow-up post-discharge and lower psychiatric symptomology (Pasareanu et al., 2015). No abstinence was required to participate in the longitudinal part of this study, but inclusion criteria for the initial screenings mandated that an individual must not be detoxing from substances at the time of completion, as this could affect QoL scores (Pasareanu et al., 2015). In another study, Patterson et al. (2019) used treatment completion as an inclusion criterion but measured secondary treatment effects – along with QoL – including social functioning, mental health, physical health, interpersonal consequences, and employment alongside decreased substance use. Although this

study again loses the data on individuals who have not yet or will not complete treatment, the researchers explored ways to expand the impact of treatment beyond just changes in substance use.

Based on the competing literature on treatment completion and abstinence as inclusion criteria and outcome measures versus a more comprehensive view of success in SUD treatment, researchers could benefit from moving beyond the use of these two constructs as the sole definitions of success or as inclusion criteria for a study, as suggested by more recent researchers (e.g., Pasareanu et al., 2015; Patterson et al., 2019). Instead, evaluative research in SUD treatment should include individuals who have not completed treatment while also expanding the definition of 'success.' Instead of focusing solely on substance use (or treatment completion), rooting the definition of 'success' in substance use treatment in the DSM-5 should be a consideration – which entails ten additional criteria beyond use of a substance, including and not limited to failure to fulfill major role obligations, giving up activities, and continued use despite risks (American Psychiatric Association, 2013). Additionally, including QoL outcomes and secondary treatment effects to align with, and expand, the DSM-5 criteria for substance use can foster opportunities for clients to thrive beyond the antiquated standard of sober days and perhaps will enable more than 28% of individuals in treatment with SUDs to 'succeed.'

Secondary Treatment Effects

Secondary treatment effects are the changes one experiences while in SUD treatment alongside changes in substance use (Patterson et al., 2019). Researchers who look at secondary treatment effects consider not only changes in substance use but also changes in the unwanted consequences typically associated with substance use, such as poor health, impairments in mental wellbeing, and fractured social relationships (Cunradi et al., 2002; Metrebian et al., 2015;

Patterson et al., 2019). These consequences align with the DSM-5 criteria clinicians use when diagnosing SUDs, including continued use despite risks (criterion 8), having physical or psychological problems due to use (criterion A9), failure to fulfill major role obligations (criterion A5), giving up activities (criterion A7), and continued use despite social or interpersonal problems (criterion A6; American Psychiatric Association, 2013). Outcome measures must be inclusive to assess factors beyond changes in use and treatment completion because basing success solely on these two variables creates a siloed expectation and misses the myriad other ways individuals change due to SUD treatment.

Secondary Treatment Effects in SUD Research

Recently, researchers have collected data on illicit drug and alcohol use, mental health, social functioning, and criminal activity of participants at baseline and six-month end-point of the trial to move beyond a singular focus on use (Metrebian et al., 2015). As discussed by Metrebian et al., these 'secondary outcomes' are synonymous with secondary treatment effects and include non-opioid drug use, crime, health, and social functioning at the six-month end-point of the trial (2015 p. 479). Metrebian et al. ran the Randomized Injectable Opioid Treatment Trial (RIOTT), a novel treatment aimed at assisting the significant minority of individuals for whom medication-assisted treatments are ineffective. Participants in the RIOTT received one of three randomized interventions: supervised injectable heroin (SIH), supervised injectable methadone (SIM), or optimized oral methadone (OOM; Metrebian et al., 2015). Each participant in the study reported daily heroin use at baseline and had previously engaged in substance use treatment ($M =$ 4 times, $SD = 4.2$) over an average of 9.8 years (Metrebian et al., 2015). These numbers are consistent with findings that clients typically attend treatment between 2-5 times in their lifetimes (Kelly et al., 2019). At the beginning of treatment, individuals who used crack/cocaine

reported reductions in use from 13.24 days/month to 5.70 days/month for participants in the SIH

group and 15.03 days/month to 9.58 days/month in the SIM group (Metrebian et al., 2015). Had

the researchers been solely interested in measuring cessation of substances as 'success,' these

numbers would read as failures. In reality, there was a dramatic increase in the number of

individuals who altered their frequency and usage levels, specifically decreasing overall usage.

Relatedly, and in addition to changes in substance use, participants in the SIM and SIH

groups reported significant improvements in physical health over the six-month treatment, while

participants in the OOM group reported substantial improvements in mental health. Metrebian et

al. (2015) did not speculate why these important improvements occurred, but the results warrant

further research to deepen our understanding of these critical improvements, with a focus on

secondary treatment effects in addition to substance use. Perhaps most importantly, treatment

adherence over six months was over 95% across groups (Metrebian et al., 2015). A less than 5%

dropout rate is minuscule compared to the 46% of individuals who typically do not complete

treatment (Lappan et al., 2020; Stahler et al., 2016). Researchers should consider if the lower

dropout rate might be attributed to the program's non-abstinence focus. These dramatic

differences in dropout rates call into question how the different expectations and treatment

outcomes measured impacted participants' feelings of competency in treatment, thereby

increasing the likelihood they would persist in treatment and change their substance use patterns.

A critical secondary outcome for those who remain in treatment is that they are less likely

to participate in criminal behavior (Metrebian et al., 2015). This suggests that helping individuals

receive the appropriate support for their SUD can alter other key parts of their lives. In particular,

70% of participants in the RIOTT study reported criminal activity within the 30 days prior to the

RIOTT, including distribution of substances, theft, and shoplifting (Metrebian et al., 2015). At

the six-month point, only one-quarter of participants reported criminal behavior, suggesting that a secondary outcome of the RIOTT is decreased criminal activity (Metrebian et al., 2015).

Other critical secondary treatment effects researchers observed include improvements in physical and mental health (Patterson et al., 2019). Individuals diagnosed with at least one SUD enrolled in a residential treatment center completed a 12-month study measuring their primary (reduced substance use) and secondary (improvements in physical and mental health, quality of life, and decreases in criminality) treatment outcomes (Patterson et al., 2019). The individuals completed a battery of assessments at pre-treatment, treatment cessation, and 3-month follow-up (Patterson et al., 2019). Participants reported significant improvements in mental and physical health (measured using the Addiction Severity Index; McLellan et al., 1992), quality of life, and criminality at treatment cessation and follow-up compared to baseline (Patterson et al., 2019). While the researchers measured changes in substance use, abstinence only represented one potential treatment outcome and was not representative of overall participant functioning (Patterson et al., 2019).

Finally, although substance use does not cause intimate partner violence (IPV), there is an association between substance-related problems and the severity of IPV (Cunradi et al., 2002). Researchers exploring the relationship between substance use and male IPV severity (i.e., IPV perpetrated by a man on a woman) suggest that exploring alcohol-related problems may be necessary for understanding the connection between alcohol and IPV severity (Cunradi et al., 2002). They have defined alcohol-related problems as dependence symptoms, such as withdrawal, and social consequences due to use, such as social, financial, or health problems (Cunradi et al., 2002). In other words, alcohol-related problems are synonymous with secondary treatment effects. As treatment outcomes improve and use patterns decline, individuals are more

likely to experience additional life changes, which are examples of secondary treatment gains (Patterson et al., 2019). Although IPV does not appear to be the result of acute substance use, researchers posit that the consequences of substance use, including marital discord, fights, and verbal aggression, may increase the risk of IPV. A significant limitation to note is that the researchers only examined male IPV and did not look at female-perpetrated IPV, or IPV in couples that do not identify as heterosexual.

When treatment programs focus on more than just abstinence as an indicator of success, there are decreases in treatment dropout, substance use severity, and days of polysubstance use, and improvements in physical and mental health (Metrebian et al., 2015; Patterson et al., 2019), which once again confirms the benefit of expanding the definition of success beyond abstinence in SUD treatment. A representative definition of 'success' that includes secondary treatment effects may increase treatment retention and QoL. Substance use treatment is effective when clinicians emphasize client QoL, health, and reduction of negative consequences due to use (Patterson et al., 2019), and researchers should ensure they include these domains when measuring 'success' in treatment. Although researchers have explored the correlation between abstinence and secondary treatment effects (e.g., Patterson et al., 2019), they have not considered how decreases in substance use, without complete abstinence, may be correlated with secondary treatment effects. Additionally, exploring how secondary treatment effects may moderate changes in substance use and QoL can better explain why focusing on secondary treatment effects in SUD treatment is so important.

Quality of Life

Quality of life (QoL) is a broad term used to measure one's perceptions of physical, mental, and social wellbeing, life satisfaction, and sense of control (Zubaran & Foresti, 2009).

Due to its subjective nature, operationally defining QoL is complex, and researchers have argued over if it is measurable at all (Felce & Perry, 1995). Conceptually, researchers appear to agree that QoL includes the quality of one's life conditions and satisfaction with their life conditions in fulfilling their values, goals, and needs (Borthwick-Duffy, 1992; Emerson, 1985; Felce & Perry, 1995). QoL is measured at individual, community, regional, and national levels and includes components such as livability of a city and individuals' housing satisfaction, individual health wellbeing and community health wellbeing, and income/poverty levels (Mohit, 2014). QoL is addressed in counseling through Maslow's Hierarchy of Needs, including meeting one's physiological, safety, belonging, self-esteem, and self-actualization needs (Maslow, 1954). Poor QoL is a determinant of SUDs and is also an outcome of SUDs. In an optimal treatment environment, QoL will improve due to treatment and decrease one's propensity to use (Muller & Clausen, 2015).

QoL in SUD Research

Researchers have used QoL as a measurement in numerous SUD studies (e.g., Barati et al., 2021; Birkeland et al., 2018; Ciobanu et al., 2020). One cross-sectional study of women who used substances suggested that unsatisfactory QoL levels were displayed more frequently in methamphetamine users, younger women, women with lower education levels, and those who started using at younger ages (Barati et al., 2021). Unsatisfactory QoL was defined based on the mean QoL score being 35.3% of the maximum possible QoL score using the Short Form-36 Inventory (SF-36; Ware & Sherbourne, 1992). Women who were receiving services at a treatment facility completed the SF-36 and reported poor scores in overall QoL and the general health, physical functioning, bodily pain, social functioning, mental health, vitality, and emotional domains (Barati et al., 2021), all of which correlate with DSM-5 diagnostic criteria for

SUDs (American Psychiatric Association, 2013;). The researchers posit that QoL may increase through harm reduction programs for substance use (Barati et al., 2021). Participants in this study were in treatment facilities during their responses. However, researchers did not collect data on how long each participant had been in treatment or how many previous treatment attempts a participant had, which could impact overall results. More research is warranted to explore if and how QoL varies throughout treatment, and how it is impacted by substance use as well as by secondary treatment effects.

Other researchers have determined that QoL tends to be low or extremely low at admission to hospital for SUD-related treatment and improves for a majority of individuals at a six-month post-discharge follow-up (Pasareanu et al., 2015). In their study, Pasareanu et al. (2015) measured baseline QoL in individuals admitted to the hospital for SUDs. Six months later, after hospital discharge, researchers conducted a follow-up and found that 58% of participants showed an improvement in QoL score. Treatment receipt post-hospital discharge was not required to participate in this study. Of the participants who did enroll in treatment following hospital discharge, they did not receive homogenous treatment, and the researchers did not explore what post-hospitalization treatments in which participants may have engaged, so it is impossible to know if the programs focused on abstinence and treatment completion or other potential indicators of success. That said, evidence suggests that QoL measurements can be used to measure therapeutic changes in SUD treatment (Pasareanu et al., 2015). Although the researchers did not explore reasons for the increase in QoL, potential explanations may include one's consequences due to use being high at the time of hospitalization and secondary treatment effects increasing by six-month follow-up. There were no associations between the severity of use at admission and QoL; the researchers suggest that participants may not be admitting to the

hospital due to severity of use, but instead due to factors such as familial intervention (Pasareanu et al., 2015). Familial intervention suggests that one is experiencing social or interpersonal problems (criterion A6; American Psychiatric Association, 2013) which could contribute to higher consequences due to use and lower QoL scores at admission. At follow-up, participants may experience treatment outcomes that include remedied relationships, and thus, their QoL may improve (Miller et al., 1995; World Health Organization, 1998). Therefore, QoL should be explored as an outcome measure in SUD treatment as it paints a more well-rounded picture of success and change than just treatment completion and abstinence.

Exercise is another key factor in shaping treatment outcomes for those with SUDs. Individuals who engage in physical activity are less likely to relapse than individuals who live sedentary lifestyles (Muller & Clausen, 2015). Using the WHOQOL-BREF, researchers measured changes in the QoL of individuals in SUD treatment who engaged in exercise three times a week at baseline and 10-week follow-up (Muller & Clausen, 2015; World Health Organization, 2004b). Participants showed significant improvements in physical QoL between baseline and follow-up (Muller & Clausen, 2015). In addition to improved physical QoL, participants also reported decreases in anxiety, depression, and substance use, suggesting a relationship between QoL and these outcomes (Muller & Clausen, 2015). Relatedly, a meta-analysis on the treatment effects of regular physical exercise on alcohol, nicotine, and illicit substance treatment showed that physical exercise could reduce withdrawal, depression, and anxiety symptoms in individuals in recovery and increase the abstinence rate, suggesting physical QoL may be paramount to conceptualizing successful substance use treatment (Wang et al., 2014).

Although sometimes criticized for being subjective, measuring QoL allows researchers to assess functions that are not assessed when measuring the severity of use (Felce & Perry, 1995). Additionally, it also allows the individual with the SUD to assign importance and satisfaction levels to each function instead of the researcher making assumptions about what domains of QoL should be most important to the individual (Muller & Clausen, 2015). Individuals report that SUDs and subsequent treatment impact QoL (Barati et al., 2021; Ciobanu et al., 2020; Pasareanu et al., 2015). Secondary treatment effects mirror the consequences of substance use used to diagnose SUDs (American Psychiatric Association, 2013; Anton et al., 2006; Brown et al., 2010; Copeland et al., 2001; Drummond et al., 2009; Patterson et al., 2019).

Diagnostic and Statistical Manual of Mental Disorders (DSM-5)

The DSM-5 is the standard by which most disorders are identified and measured (American Psychiatric Association, 2013). Nevertheless, there is a disconnect between the indicators represented in this widely accepted manual and how researchers and practitioners seek to study and treat these disorders, at least in the case of substance use disorders (SUD). Within SUD, the emphasis on treatment completion and abstinence only addresses one aspect of these disorders and fails to engage a majority of the other characteristics of SUDs (American Psychiatric Association, 2013). According to the DSM-5, a person meets the criteria for a substance use disorder if they meet the minimum threshold of symptoms indicated, including:

- using larger amounts of a substance for a longer time than intended
- unsuccessful attempts to decrease use
- spending a lot of time obtaining, using, or recovering from the substance use
- cravings and urges to use
- failures to fulfill major role obligations at work, school, or home

- continued use despite social or interpersonal problems

- giving up social, occupational, or recreational activities

- continued use despite knowledge of risks

- tolerance

- withdrawal (American Psychiatric Association, 2013).

DSM-5 diagnoses and classifications are used for clinical, research, and policy purposes (Hasin et al., 2013). However, of the eleven criteria that comprise a DSM-5 SUD diagnosis, only the three related to substance use – using larger amounts for a longer period of time than intended, unsuccessful efforts to cut down or control use, and cravings or urges to use – are typically represented by researchers in outcome-based research (American Psychiatric Association, 2013).

Prior to the publication of the DSM-5, the DSM-IV and DSM-IV-R were used to classify substance use disorders (American Psychiatric Association, 1994). Rather than having one overarching use disorder per substance (e.g., alcohol use disorder), the DSM-IV classified substance use disorders into two groups: abuse and dependence (American Psychiatric Association, 1994). Dependence was characterized by substance use, tolerance, and withdrawal, whereas abuse was characterized by the interpersonal effects of substance use (American Psychiatric Association, 1994; Hasin et al., 2013). Between the DSM-IV and DSM-5, abuse and dependence became one overarching use disorder (Hasin et al., 2013).

During the transition from the DSM-IV to the DSM-5, a focus group considered which criteria of SUDs should change (Hasin et al., 2013). The focus group omitted legal problems as an inclusion criterion due to the low prevalence of legal problems in adult and adolescent samples and the consideration that legal problems are rarely the only criterion endorsed by

individuals with SUDs (Hasin et al., 2013). The revisionists considered a criterion of "consumption" and decided against adding a criterion focused on the quantity or frequency of use (Hasin et al., 2013). They made this decision due to the difficulty of quantifying drug consumption patterns. This decision to omit frequency of use furthers the argument that use alone is not enough to constitute a substance use disorder. Nevertheless, this idea has not fully been utilized in research in the definition of "success," given that cessation continues to define success in outcome of substance treatment programs in research. More of a focus needs to occur in research that links the outcomes measured to the DSM-5 criteria. Potential constructs such as secondary treatment effects and quality of life (QoL) align with the DSM 5 criteria more than substance use.

DSM-5, QoL, and Secondary Treatment Effects

The following section includes an overview of how the two theoretical frameworks guiding this study – the DSM-5 and QoL – are integrated to create a more comprehensive understanding of SUDs with secondary treatment effects serving as a potential moderator between actual substance use and QoL. Figure 1 models the parallels between DSM-5 criteria (shown on the left), QoL (middle) and secondary treatment effects (modeled on the right) measured using the World Health Organization Quality of Life and Inventory of Drug Use Consequences scales, respectively. This innovative approach to measurement, assessment and treatment offers a potentially new way of conceptualizing individuals with SUDs that improves upon the limitations of earlier studies.

Figure 1. DSM-5 Criteria Representation on WHO-QOL and InDUC Subscales
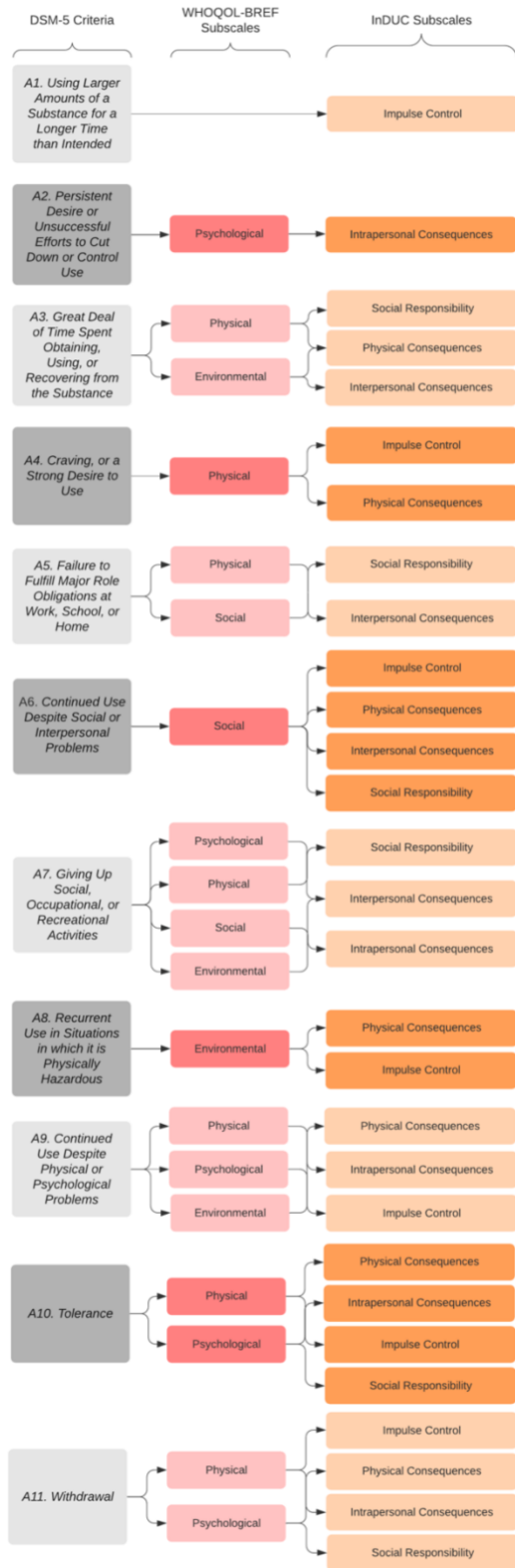
DSM-5 and InDUC Subscales

A critical contribution of this study is providing a link between the DSM-5 indicators of SUD to measurements of secondary treatment effects and quality of life concepts. To make this link, the researcher will employ the Inventory of Drug Use Consequences to measure secondary treatment effects (InDUC-2R; Miller et al., 1995). The InDUC-2R has five subscales – *physical consequences, intrapersonal consequences, social responsibility consequences, interpersonal consequences,* and *impulse control consequences* (Miller et al., 1995). A list of the subscales for the InDUC – as well as the DSM-5 and the WHOQOL-BREF – are shown in Table 1. Lower consequences due to use imply greater secondary treatment effects. *Physical consequences* include consequences that may occur from acute or chronic substance use, such as hangovers, tolerance, and injury (Miller et al., 1995). *Intrapersonal consequences* include the feelings one has about oneself, including feelings of guilt, mood changes, and loss of interest in activities one once enjoyed. The InDUC *social responsibility consequences* touch specifically on failure to fulfill roles in ways observable to others, such as missing work, failing to meet expectations, and having financial difficulties (Miller et al., 1995). Similarly, the *interpersonal consequences* scale focuses on the impact of substance use on one's relationships with others (Miller et al., 1995). The final subscale, *impulse control consequences*, refers to intoxication outcomes, including driving under the influence, criminal justice involvement, and polysubstance use (Miller et al., 1995). Treatment expectations may impact the secondary treatment effects an individual experiences.

DSM-5 and WHOQOL-BREF Subscales

QoL will be measured in this study using the World Health Organization Quality of Life Brief inventory (WHOQOL-BREF; World Health Organization, 1998, 2004b). The WHOQOL-

BREF has four domains – *physical, psychological, social relationships, and environment* (World Health Organization, 2004b). *Physical QoL* includes one's pain levels, energy, sleep, and ability to work and engage in activities (World Health Organization, 2004b). The *Psychological QoL* domain assesses how one feels about oneself, self-esteem, and positive and negative emotions (World Health Organization, 2004b). The *Social Relationships QoL* refers to one's relationships with others (World Health Organization, 2004b). Items including "How satisfied are you with your personal relationships?" target two DSM-5 criteria for SUD related to one's social wellbeing: A6 - continued use despite social or interpersonal problems - and A7 - social/occupational/recreational activities given up (American Psychiatric Association, 2013). Finally, *Environmental QoL* is used to measure one's perceived sense of safety, ability to access services, and leisure activities (World Health Organization, 2004b). For example, the item "To what extent do you have the opportunity for leisure activities?" is closely related to DSM-5 criterion A3 – spending a great deal of time in activities necessary to obtain, use, or recover from substance use (American Psychiatric Association, 2013; World Health Organization, 2004b).

Table 1. DSM-5, WHOQOL-BREF, and InDUC Subscales

DSM-5	WHOQOL-BREF	InDUC
Impaired Control	Environmental QoL	Impulse Control Consequences
Pharmacological Criteria	Physical QoL	Interpersonal Consequences
Risky Use	Psychological QoL	Intrapersonal Consequences
Social Impairment	Social Relationships	Physical Consequences
		Social Responsibility

Considerations

Despite DSM-5 criteria being represented in QoL and secondary treatment effect research (e.g., Anton et al., 2006; Brown et al., 2010; Copeland et al., 2001; Drummond et al., 2009; Patterson et al., 2019), and the diagnosis of SUD being one of the primary factors in entering into treatment (Johnson et al., 2020) - the DSM, or more specifically the criteria to diagnose SUD, is not being used to measure treatment success in substance use research. The few researchers measuring secondary treatment effects utilize components of the definition of substance use disorders but have not drawn explicit connections between the DSM-5 criteria and their outcome variables. The most common criterion assessed from the DSM in treatment outcome with substance use is A1, using substances in larger amounts over an extended period of time. However, while substance use is assessed in many studies, most focus primarily on abstinence as the outcome, or as inclusion criteria for the study (e.g., Donovan et al., 2012; Hsieh & Hamilton, 2016; Peters et al., 2017), along with treatment completion – which is not a DSM-5 criterion that leads to a SUD diagnosis. I will directly connect secondary treatment effects and QoL to the DSM-5 diagnostic criteria.

DSM-5 Criteria for Substance Use Disorder

While 'success' is currently restricted to two criteria (i.e., treatment completion and abstinence), diagnosis of SUD is multifaceted. There are in fact eleven criteria that comprise SUD will be described. Generally speaking, a minimum of 2-3 symptoms must be present to diagnose a mild disorder, 4-5 symptoms indicate a moderate disorder, and six or more symptoms a severe use disorder (American Psychiatric Association, 2013). The DSM-5 is organized into four groupings, where criteria A1-A4 are *impaired control*, A5-A7 *social impairment*, A8-A9 *risky use*, and A10-A11 *pharmacological criteria* (American Psychiatric Association, 2013).

Impaired Control

Criterion A1: Using Larger Amounts of a Substance for a Longer Time than Intended. The first criterion in a DSM-5 diagnosis for any SUD is related to the use of the substance (American Psychiatric Association, 2013). Not every person who uses a substance will meet the diagnostic criteria for a substance use disorder. Simply using a substance does not constitute a disorder, but using a substance in larger quantities over a longer period than intended is an indication of a use disorder (American Psychiatric Association, 2013). Although there is no concrete definition of 'large amounts of substance,' researchers consider four drinks in a day for women and five drinks in a day for men, weekly or more frequently, over the course of the previous 12 months to be an accurate gauge of excessive alcohol use (Grucza et al., 2018). Despite this definition of binge drinking, the diagnostic criterion refers to more use over a longer period than the *client* intended; in other words, the amount of substance consumed is subjective to the client's experience. Some clients may experience negative consequences at lower amounts of use and others may not hit their intended maximum until later. Setting a relative 'large amount of substance' for drug use is more complex, as researchers or clinicians do not accept a concrete amount as acceptable or usual.

Across substance use research, primary treatment outcomes often focus on changes in substance use (Patterson et al., 2019), percentage of days abstinent from substances (Anton et al., 2006; Drummond et al., 2009), reduction in risky drinking days (Brown et al., 2010), and overall abstinence (Copeland et al., 2001; Drummond et al., 2009). The researchers mentioned above-named substance use the "primary outcome" measured in their research, and it is the primary way in which treatment success has been measured. Yet, use of substance is only one of the eleven criteria for SUD in the DSM-5.

Criterion A1 is modeled on the InDUC, specifically on the *impulse control* subscale. Whereas the DSM-5 names criterion A1 'impaired control,' the developers of the InDUC attribute 'impulse control consequences' to include the consequences of overdrinking or excessive drug use (Miller et al., 1995). InDUC item 10 reads "Drinking or using drugs has caused me to use other drugs more" (Miller et al., 1995, p. 69). In other words, the respondent is using more of a substance than initially intended.

Criterion A2: Persistent Desire or Unsuccessful Efforts to Cut Down or Control Use. Unsuccessful efforts to cut down or control use are also characteristic of impaired control (American Psychiatric Association, 2013). When assessing for criterion A2, clinicians and researchers may assess for failed attempts to control, cut down, or stop using the substance(s) (National Institute on Drug Abuse, 2017). Feeling a desire to decrease use, met with an unsuccessful attempt, harms one's feelings of competence (Ryan & Deci, 2017). Researchers have identified successful attempts to cease use as both primary outcomes of SUD treatment (i.e., abstinence) and secondary treatment effects (Anton et al., 2006; Copeland et al., 2001; Drummond et al., 2009). Rooting 'success' in the DSM-5 criteria would mean accepting a decrease in use – and not complete abstinence – as an acceptable treatment outcome, or more specifically, having control over one's use. Copeland et al. (2001) named control over cannabis use a primary treatment outcome, while Drummond et al. (2009) attributed one's self-efficacy for abstinence from susbtacne use to be a secondary treatment effect. Other researchers have considered adherence to medication-assisted treatments, such as Naltrexone and Acamprosate a secondary treatment effect that aided in success in decreasing substance use (Anton et al., 2006).

Criterion A2 is also modeled on the InDUC and the WHOQOL-BREF. Criterion A2 can be categorized under the *intrapersonal consequences* subscale, which the developers noted are

the consequences the individual feels that may not be easily observed by others in their life (Miller et al., 1995). Among the symptoms of intrapersonal consequences are feelings of unhappiness and guilt due to substance use, not having the life one aspires for, and interference with personal growth, life and activities (Miller et al., 1995). An example item is InDUC item 16, "I have felt guilty or ashamed because of my drinking or drug use" (Miller et al., 1995, p. 69). Similarly, *psychological QoL* refers to how one feels about themself (World Health Organization, 2004). When an individual has unsuccessful attempts at decreasing use, they may have negative feelings about themself and their efficacy in recovery. Items such as "How happy are you with yourself?" are indicative of one's psychological wellbeing in relation to their unsuccessful – as defined solely by changes in substance use – efforts in treatment (American Psychiatric Association, 2013; World Health Organization, 2004).

Criterion A3: Great Deal of Time Spent Obtaining, Using, or Recovering from the Substance. The third criterion clinicians use when diagnosing a SUD refers to the amount of time one spends obtaining, using, and recovering from substance use (American Psychiatric Association, 2013). Over 50% of individuals 12 years and older in the United States who misuse prescription pain relievers obtain the medication from a friend or relative; the means of obtaining may be a gift, a purchase, or stolen (Substance Abuse and Mental Health Services Administration, 2018). Approximately 6% of individuals in the U.S. purchase painkillers from a drug dealer or stranger (Substance Abuse and Mental Health Services Administration, 2018). Obtaining substances – via gift, purchase, or theft – takes time and infringes on time individuals can spend engaging in other activities, such as those related to work, social life, or leisure (Miller et al., 1995). Among the reasons individuals reported for their most recent misuse of prescription pain relievers were to relieve physical pain (62.6%), feel good or get high (13.2%), relax or

relieve tension (8.4%), help with feelings or emotions (2.8%), and 'hooked or have to have drug' (2.2%; Substance Abuse and Mental Health Services Administration, 2018, p. 21). In other words, individuals have may spent significant amounts of time using substances in order to quell unpleasant feelings such as pain, emotions, or withdrawals; treatment that emphasizes QoL and secondary treatment effects may encourage clients to enroll, with hope that these symptoms may be treatable alongside changes in use. Recovering from substance use includes coping with withdrawal symptoms and hangovers (American Psychiatric Association, 2013).

Criterion A3 is modeled in both the InDUC and the WHOQOL-BREF. *Physical consequences* of the InDUC refer to the acute and chronic effects of substance use, including hangovers, sleeping problems, injury, and harm to long-term health (Miller et al., 1995). Given that researchers and clinicians are assessing for time spent obtaining, using, or recovering, items such as InDUC item 1, "I have had a hangover or felt bad after drinking or using drugs" is a secondary treatment effect that aligns with this DSM criterion. Additionally, *social* and *interpersonal consequences* are affected when one spends large amounts of time in activities related to substance use, as their ability to engage in relationships with others and fulfill role expectations decreases (Miller et al., 1995). In terms of QoL, the *physical domain* of the WHOQOL-BREF emphasizes the 'energy, enthusiasm, and endurance' a person has to perform necessary daily living tasks, as well as recreational activities (World Health Organization, 1998, p. 57). The developers note that physical QoL can be impacted by many causes, including illness and depression, and further researchers have shown that QoL can be impacted by substance use (Muller & Clausen, 2015; World Health Organization, 1998). Using the WHOQOL-BREF *environmental domain*, researchers and clinicians can assess how easily accessible the things one is seeking in their life are, as well as how safe their environment is (World Health Organization,

2004b). Items in the WHOQOL-BREF including "To what extent do you have the opportunity for leisure activities?" and "How satisfied are you with your ability to perform your daily living activities?" acknowledge the amount of time one spends obtaining, using, and recovering from substance use (World Health Organization, 2004b). It can be inferred that one spending more time engaging in substance use will feel less satisfied with their time available to complete leisure and daily activities.

       Criterion A4: Craving, or a Strong Desire to Use. The final *impaired control* criterion in the DSM-5 is cravings, or urges to use (American Psychiatric Association, 2013). While craving can occur in any location, it is more likely to happen when an individual is in an environment in which they used to use (American Psychiatric Association, 2013). The developers of the DSM-5 recommend assessing for cravings by asking the individual if they have experienced times where their thoughts of using the substance were so strong that they could not focus on or think about anything else (American Psychiatric Association, 2013). Similarly, to criterion A1, criterion A4 can be modeled by the InDUC *impulse control* subscale, which captures the consequences due to excessive substance use, including exacerbation of use (Miller et al., 1995). Craving can also be modeled on the InDUC *physical consequences* subscale, which considers the acute and chronic physical consequences of substance use (Miller et al., 1995). Due to both acute and prolonged use, substances can become addictive and lead to cravings (American Psychiatric Association, 2013). Similarly, the WHOQOL-BREF *physical QoL* subscale is used to note the ways in which craving can cause distressing physical symptoms in one's body, including feelings of being unable to satiate the urge to use unless one returns to the substance (World Health Organization, 2004).

Social Impairment

      Criterion A5: Failure to Fulfill Major Role Obligations at Work, School, or Home.
When assessing one's failure to fulfill major role obligations at home, school, or work, behaviors such as not going to work due to a hangover, attending work or school under the influence, or tending to children while intoxicated should all be considered (American Psychiatric Association, 2013; Goodman, 1990). A few researchers have considered improvements in functioning of major role obligations as secondary treatment effects (e.g., Copeland et al., 2001; Drummond et al., 2009; Patterson et al., 2019). Individuals who show improvement in vocational functioning due to substance use treatment demonstrate fulfilling major role obligations at work (Drummond et al., 2009; Patterson et al., 2019). Similarly, those who demonstrate better financial management and stability fulfill home obligations (Copeland et al., 2001; Drummond et al., 2009). Drummond et al. (2009) also name one's ability to tend to their children as a secondary treatment effect.

      Criterion A5 is the first of three DSM-5 SUD criterion grouped together as *social impairment* (American Psychiatric Association, 2013). Relatedly, the criterion meets InDUC *social responsibility consequences* and the WHOQOL-BREF *social* subscale (Miller et al., 1995; World Health Organization, 1998). For example, a secondary treatment effect measured by the InDUC is the extent to which one has "missed days of work or school because of my drinking or drug use," synonymous with the DSM-5 criterion of failing to meet role obligations (American Psychiatric Association, 1994; Miller et al., 1995). Clinicians and researchers use the social domain of the WHOQOL-BREF to assess one's satisfaction with their commitment to and caring for others (World Health Organization, 1998). The InDUC also considers one's *interpersonal consequences* due to substance use (Miller et al., 1995). These are consequences that affect

relationships as a result of drinking; for example, item 7 assesses how one's ability to be a good parent has been harmed due to substance use (Miller et al., 1995). As discussed with criterion A3, *physical* QoL relates to one's ability to perform the necessary tasks in their life and can be affected by illness, mental health disorders, and substance use (Muller & Clausen, 2015; World Health Organization, 1998). Items such as "How satisfied are you with your capacity for work?" gauge one's perceived satisfaction with their role fulfillment at work (World Health Organization, 2004b). As discovered by McKetin and colleagues (2018), individuals may choose to enter treatment for the specific purpose of improving their fulfillment of role obligations at home; others may be motivated to engage in treatment to fulfill role obligations at work or school.

   Criterion A6: Continued Use Despite Social or Interpersonal Problems. A criterion that adds significant stress and strain to those without SUDs who love individuals with SUDs is continued use despite social or interpersonal problems (American Psychiatric Association, 2013; Orford et al., 2010). Social and interpersonal problems can display as criminal justice involvement, marital discord, or strained relationships, to name a few (Brown et al., 2010; Orford et al., 2010). Most researchers examining secondary treatment effects pay specific attention to how social/interpersonal relationships and other consequences related to substance use improve as a result of treatment (Brown et al., 2010; Copeland et al., 2001; Drummond et al., 2009; Patterson et al., 2019). Interpersonal improvements include decreases in recidivism (Brown et al., 2010; Drummond et al., 2009) and increases in positive social interactions (Copeland et al., 2001; Patterson et al., 2019), including those relationships with friends and partners (Drummond et al., 2009). Interpersonal improvements are an important indicator of success in substance use treatment.

Personal relationships, social support, and sexual activity influence social QoL (World Health Organization, 1998). Because substance use disorders affect more than just the individual with the disorder, many improvements in QoL and secondary treatment effects related to interpersonal relationships are seen in SUD treatment (Cunradi et al., 2002; Hsieh & Hamilton, 2016; Orford et al., 2010). Treatment of SUDs already emphasizes the importance of social connections, such as recovery communities. Recovery communities, such as substance use halfway houses, have been correlated with lower levels of probation revocation in individuals with substance-related charges compared to a control group, suggesting that the social support domain of wellness is an indicator of success (Hsieh & Hamilton, 2016).

Criterion A6 is modeled on the InDUC and the WHOQOL-BREF on multiple subscales. In terms of the InDUC, the criterion aligns with the subscales of *impulse control, physical consequences*, *social responsibility consequences,* and *interpersonal consequences* (Miller et al., 1995). Items such as "I have gotten into a physical fight while drinking or using drugs" (impulse control), "My sex life has suffered because of my drinking or drug use" (physical consequences), and "My marriage or love relationship has been harmed by my drinking or drug use" (interpersonal consequences) are indicative of how one may experience social and interpersonal problems due to use (Miller et al., 1995). When looking at the WHOQOL-BREF, the *social* subscale also aligns with criterion 6 (World Health Organization, 1998). Individuals may be asked to reflect on their satisfaction with their personal relationships, sex life, and the support they receive from others (World Health Organization, 2004b). Support is especially important to SUD treatment. Through a social network analysis approach, researchers looked at the social relationships of individuals who completed treatment at least six months prior (Panebianco et al., 2016). Individuals with larger and more diverse support networks are less likely to relapse

(Panebianco et al., 2016). A diverse support network may include one's family and peers from treatment, but also includes individuals from other parts of one's life, suggesting that they have a social network that extends beyond their recovery and substance use (Panebianco et al., 2016).

Criterion A7: Giving Up Social, Occupational, or Recreational Activities. Individuals meeting diagnostic criteria for a SUD may give up social, occupational, or recreational activities that they once enjoyed to have more time to engage in substance use-related activities (American Psychiatric Association, 2013). The developers of the DSM-5 name withdrawal from family activities and hobbies in order to use substances an indication that this criterion has been met (American Psychiatric Association, 2013). The antithesis of this behavior is the reintegration of fulfilling activities into one's life. Secondary treatment effects that emphasize the importance of fulfilling activities are decreases in neglect and loss of interest in activities (Copeland et al., 2001), and increases in substance use service utilization (Brown et al., 2010) and social functioning (Patterson et al., 2019). One may report losing interest in hobbies due to substance use (*intrapersonal consequences*), giving up occupational activities (*social responsibility consequences*), and giving up their social life due to substance use (*interpersonal consequences*; Miller et al., 1995). An example item on the InDUC that address criterion A7 is "I have lost interest in activities and hobbies because of my drinking or drug use," which encompasses the ways in which one may no longer prioritize their recreational activities amongst ongoing substance use (Miller et al., 1995). Brown et al.'s findings that participants appreciate motivational interviewing's utility in coping with their problems suggests that participants want treatment implementations that add fulfillment to their lives instead of focusing solely on substance cessation (2010).

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Criterion A7 is the final DSM-5 criterion grouped under *social impairment* (American Psychiatric Association, 1994). Much like secondary treatment effects, QoL is impacted by giving up social, occupational, or recreational activities (Miller et al., 1995; World Health Organization, 1998). The WHOQOL-BREF addresses how one may no longer have the opportunity for leisure activities due to their substance use (*environmental QoL*), may not be satisfied with their capacity for work or their ability to engage in activities they once enjoyed (*physical QoL*), may experience negative emotions due to the loss of such hobbies (*psychological QoL*), and may give up their personal relationships (social QoL; World Health Organization, 2004b). In other words, one's overall perception of their QoL may decrease as they give up activities and relationships important to them (World Health Organization, 1998), and engaging in treatment that emphasizes engagement in hobbies and interpersonal connections may result in improved QoL.

Risky Use

Criterion A8: Recurrent Use in Situations in which it is Physically Hazardous. An individual with a SUD may know the risks of use (e.g., needle-borne illnesses, overdose, driving under the influence) and may continue to use substances despite knowledge of these risks (American Psychiatric Association, 2013; MacMaster, 2004). Followers of harm reduction programs seek to reduce the risks associated with substance use, which in turn could result in secondary treatment effects such as decreases in *impulsive behavior* and *physical consequences* due to use (e.g., "While under the influence of alchol or drugs, I have been physically hurt, injured, or burned"; MacMaster, 2004; Miller et al., 1995). Clients in treatment may demonstrate a readiness to acknowledge the risks associated with use and to make changes (Brown et al., 2010), may decrease their use in inappropriate, unsafe situations (e.g., driving, at work;

Copeland et al., 2001), and may consider the effects of substances on their physical and mental wellbeing (Drummond et al., 2009; Patterson et al., 2019).

Environmental QoL is used to assess the health and safety of one's physical environment (World Health Organization, 1998); living in an environment with easy access to substances, without safe-needle exchanges, or where one regularly drives under the influence of alcohol or drugs is synonymous with poor environmental QoL (MacMaster, 2004; World Health Organization, 1998). Individuals may reflect on how healthy their physical environment is and how safe they feel in their daily life when considering their recurrent use in physically hazardous situations (World Health Organization, 1998). Similarly, using the InDUC and reflecting on consequences due to use, individuals may consider their *physical* and *impulse control consequences*, including times in which they have had an accident while using substances or have been physically hurt (Miller et al., 1995). One's use in physically hazardous situations may lead to lower QoL and more consequences due to use.

Criterion A9: Continued Use Despite Physical or Psychological Problems. Criterion A9 refers to one's decision to continue using a substance, despite the substance being the likely cause, or exacerbator, of physical or psychological problems (American Psychiatric Association, 2013). These problems may include harm to one's physical health, eating habits, or sleeping problems (Miller et al., 1995) or may include psychological problems such as substance-induced mental health disorders (Lecomte et al., 2018; Revadigar & Gupta, 2020). Researchers noted that clinicians should be assessing for the individual's decision to continue using the substance despite these problems, and not the problem itself when evaluating (American Psychiatric Association, 2013).

Individuals may experience symptoms consistent with criterion A9 that affect their QoL and secondary treatment effects (Miller et al., 1995; World Health Organization, 1998). One's *psychological QoL* may be affected as they experience difficulties with concentration, feeling life is meaningful, and accepting their bodily appearance (World Health Organization, 1998). Consistent with substance-induced mental health disorders, the individual may also experience feelings of despair, anxiety, or depression, which are correlated with low QoL (Lecomte et al., 2018; Revadigar & Gupta, 2020; World Health Organization, 1998). Additionally, an individual may report lower *physical QoL* scores due to difficulties getting around, satisfaction with their health, and need for medical treatment to function (World Health Organization, 1998). Finally, one may experience difficulty in their *environmental QoL* if healthcare is not easily accessible (World Health Organization, 1998). When considering secondary treatment effects and consequences due to use, one may report *physical consequences* such as impaired sleep or appetite changes, *impulse control consequences* such as risk taking, getting in physical fights, or accidents due to use, or *intrapersonal consequences*, such as feeling bad about oneself (Miller et al., 1995). Despite these consequences and impaired QoL, individuals with SUDs continue to use substances. Showing individuals that their QoL could improve and these consequences may lessen may encourage individuals to enroll in SUD treatment.

Pharmacological Criteria

Criterion A10: Tolerance. Tolerance refers to an individual requiring increased amounts of a substance to achieve the desired effect or the individual feeling a lessened effect when using their typical amount of substance (American Psychiatric Association, 2013; Galanter et al., 2015). The development of tolerance varies across individuals and across substances (American Psychiatric Association, 2013). Tolerance and physiological dependence can reduce physical

functioning, increase irritability and aggression, and decrease *physical QoL* (Barati et al., 2021).

Individuals may use substances to alleviate pain or insomnia, and an individual may become

dependent on a substance for its physical effects (Conroy & Arnedt, 2014). As many as 90% of

individuals with alcohol use disorders report experiencing sleep disturbances and insomnia due

to dependence (Conroy & Arnedt, 2014). Sleep, and physical QoL, typically improve following

withdrawal from the substance (Conroy & Arnedt, 2014). Likewise, *physical consequences* due

to use include tolerance; whereas a hangover is an example of an acute effect of substance use,

tolerance is a chronic effect (Miller et al., 1995). Tolerance can also affect one's *psychological*

QoL and be associated with *intrapersonal consequences* as one may experience mood changes

due to tolerance (Miller et al., 1995; World Health Organization, 2004). Tolerance may

contribute to consequences around one's *social responsibilities* as the individual may be

spending more time obtaining larger quantities of substances (see criterion A3) and therefore

may experience role-fulfillment repercussions, such as failure to meet expectations, performing

poorly in work or school, and tardiness or absences to commitments (Miller et al., 1995). Finally,

tolerance can contribute to *impulse control consequences*, as increases in tolerance can lead to

individuals engaging in polysubstance use to enhance the effects of other substances (Connor et

al., 2014).

  Criterion A11: Withdrawal. Withdrawal occurs when one experiences undesirable

symptoms and abstains from a substance following prolonged use; sometimes, the individual will

continue using the substance or a similar substance to avoid these symptoms (American

Psychiatric Association, 2013; Galanter et al., 2015). Similarly, to tolerance, withdrawal

symptoms vary greatly across substances (American Psychiatric Association, 2013). Researchers

measuring secondary treatment effects around withdrawal have explored substance dependence

and various withdrawal experiences, including physical and affective withdrawal and attempts to relieve withdrawal symptoms (Drummond et al., 2009). Withdrawal symptoms may include illness and vomiting (*physical consequences*), mood changes (*intrapersonal consequences*), missing work or school (*social responsibility* consequences), use of other substances (*impulse control consequences*; Connor et al., 2014), loss of concentration (*psychological QoL*), and sleep problems (*physical QoL*), to name a few (Miller et al., 1995; World Health Organization, 1998).

Treatment Approaches

Despite a multitude of causal models existing, practitioners typically use one of three etiological models to understand the basis of an individual's SUD: the moral, disease, or biopsychosocial model (Pickard, 2017, 2020; Skewes & Gonzalez, 2013). In the moral model, the belief is that addiction and substance use is a choice (Pickard, 2020). No one forced the substance user to pick up the drug; ergo, they made a choice to use, and thus they can make a choice to stop using. Beyond substance use being a choice, followers of the moral model believe that people who use substances are of flawed character (Pickard, 2020). In other words, the choice to use substances directly represents one's values and one's worth. However, viewing addiction as a voluntary choice discounts the struggle of the compulsory disease (Henden et al., 2013). The disease model is the antithesis to the moral model; rather than voluntary substance use, the use is perceived entirely involuntary (Pickard, 2017). In this model, proponent believe that if users *could* stop, they would, but addiction is a brain disease that renders the individual helpless against cravings and compulsions (Pickard, 2017). Yet, viewing addiction as an incurable disease can take away one's feelings of autonomy and competence and decrease motivation and hope of recovery (Pickard, 2017; Ryan & Deci, 2017).

The biopsychosocial model is a commonly used holistic, multicausal model encompassing biological, genetic, and psychological factors that contribute to substance use (Skewes & Gonzalez, 2013). The belief within this model is that no one factor causes addiction, but the interaction of multiple factors is responsible for the disorder and must be addressed in treatment (Skewes & Gonzalez, 2013). From a genetic standpoint, children of adults with SUDs are more likely to develop SUDs themselves; however, this can be due to genetics or environmental impacts of the stressors in the home environment as the child grew up (Vaillant & Hiller-Sturmhöfel, 1996). Another influential factor is gender, where differences exist, such as women being more likely than men to present with co-occurring mental health disorders (Polak et al., 2015; Weinberger et al., 2013). However, it should be noted that transgender and gender-fluid individuals may not conform to the gender binary distinction often used in SUD counseling research and more inclusive research is necessary. Socially, there is a positive correlation between income and hazardous use; however, this may be due to individuals with higher SES being more likely to have access to a car, and the majority of hazardous use is driving-related (Keyes & Hasin, 2008).

Each etiological model – the moral, disease, and biopsychosocial – can be used to inform treatment and how success is measured in treatment outcomes. For example, the disease model is the foundation of abstinence-based programs and cessation of the addiction (i.e., the disease) is considered success (Marlatt et al., 2001). The multicausal, holistic nature of the biopsychosocial model of addiction is the most aligned with treatment approaches that focus on secondary treatement effects as measures of success. Treatment rooted in the biopsychosocial model encompasses one's biological, psychological, and social wellbeing, much like the DSM-5 criteria

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and the secondary treatment effects targeted when practitioners encompass the DSM-5 in defining success (American Psychiatric Association, 2013).

Treatment Approaches

Substance use practitioners typically subscribe to one of two treatment approaches: abstinence-based or harm reduction (HR). The abstinence-based approach is rooted in the disease model, as followers of the first step of 12-step models acknowledge powerlessness over substances (Alcoholics Anonymous, 1953; Marlatt et al., 2001). In an abstinence-based approach, success is characterized by a complete cessation of the problematic behavior (Ilgen et al., 2005). An HR approach utilizes a public health perspective, acknowledges the risks associated with substance use, and seeks to eliminate these risks (MacMaster, 2004). Therefore, abstinence-based models measure the number of days individuals go without any substance use, and HR models measure the number of days individuals go without any *hazardous* substance use.

Abstinence-Based Models

The most frequently encountered measure of treatment outcomes in substance use literature focuses on an individual's use; specifically, relapse or return to use is equated with failure, and abstinence or sobriety is considered a success (e.g., Babor et al., 2017; Clarke et al., 2020). Associating abstinence with recovery or success is consistent with twelve-step treatment models, such as Alcoholics Anonymous, in which abstinence from substance use is considered a crucial step in an individual's recovery from addiction (Alcoholics Anonymous, 1953). The first step of twelve-step treatment programs is admitting one's powerlessness over their substance of choice and embracing the label of 'addict' (Alcoholics Anonymous, 1953). Since 1950, practitioners and researchers have used abstinence models formed based on the Minnesota Model

(Stinchfield & Owen, 1998). In 1992, an estimated 95% of SUD treatment facilities in the United States practiced an abstinence-based method, and a projected 49-64% of treatment completers maintained abstinence at 6-months post-treatment, and 34-55% maintained 1-year post-treatment abstinence (Hoffmann & Miller, 1992). However, a critical limitation in this data is that every one of the 8000 individuals surveyed completed their abstinence-based program; the researchers did not account for the individuals who did not complete this treatment modality, including individuals who left prior to 28-day dosage, or individuals who remained past the 28 days of treatment dosage but did not complete the full three- to six-month treatment program (Hoffmann & Miller, 1992). Therefore, it would be more accurate to say that between 34-55% of individuals who completed an abstinence-based program, and *for whom abstinence-based programs are most appropriate* maintained one year of abstinence.

Abstinence-based models are indeed appropriate for some clients. Due to the physiological tolerance effects of various substances, prolonged substance use results in greater dependence on that substance (Khantzian, 2006). In an abstinent setting, dependence is not prolonged as clients are required to immediately stop using any substance. Thus, following the initial withdrawal from the substance, physical withdrawal symptoms cease. Beyond physical benefits of abstinence-based models, clients may also experience psychological benefits. In practice, abstinence-based models are psychologically beneficial in empowering clients to refrain from using a substance to relieve unpleasant emotions, such as preventing the individual from creating positive associations with the substance (Khantzian, 2006). Individuals engaging in abstinence-based programs have reported lower psychiatric distress levels than those not in recovery (Vaillant & Hiller-Sturmhöfel, 1996). However, individuals do not experience all of the beneficial consequences of abstinence immediately; many individuals report 3-4 years of

sustained abstinence before noticing significant psychiatric, relational, or occupational benefits (Vaillant & Hiller-Sturmhöfel, 1996).

Harm Reduction (HR) Model

A HR approach is a non-abstinence-based, public health perspective that acknowledges the risks associated with substance use (e.g., the transmission of Hepatitis-C, overdoses, automobile accidents) and seeks to reduce and/or eliminate these risks (MacMaster, 2004). Success with the utilization of an HR approach includes reducing the risks associated with an individual's substance use without mandating abstinence. In this approach, abstinence is one modality to reducing substance-related harm but is considered only one of many possible treatment goals for substance users (Leslie et al., 2008; Macmaster et al., 2005). HR is an effective and appropriate treatment model for individuals who seek substance use services but are unwilling, unable, or unconfident in their ability to maintain abstinence at this point in treatment. Although abstinence is not feasible for everyone, substance-related harm is avoidable, and a goal of HR treatment is to minimize the negative consequences of substance use (McKeganey et al., 2004; Tatarsky, 2003). Despite non-abstinence-based treatment considerations by practitioners, researchers continue to measure outcomes in HR research based on substance use-related measures, such as changes in days of risky use (MacMaster, 2004). While changes in days of risky use is related to DSM-5 criterion A8, there is room to measure success in treatment in a way that captures all of the DSM-5 criteria through secondary treatment effects.

Using a HR approach does not penalize individuals for relapsing or using substances (Marlatt et al., 2001). Practitioners who subscribe to the HR approach do not use labels such as 'addict' or 'alcoholic' to describe clients (Marlatt et al., 2001). The practitioners meet clients

where they are; a client who is not ready to change (i.e., cease substance use) will have a different treatment plan and goals than a client who is maintaining abstinence (Prochaska & DiClemente, 1984). Among the commitments made by HR providers are to treat clients nonjudgmentally, with dignity, cultural competence, and respecting client strengths and self-determination (Marlatt et al., 2001). Client autonomy and individualism are honored. Treatment is not one-size-fits-all.

Researchers acknowledge the importance of client autonomy and the lack of representation of client voices in SUD treatment decision-making and asked clients about their treatment preferences (McKeganey et al., 2004). Approximately 56% of individuals beginning SUD treatment – regardless of treatment approach– reported goals of abstinence from treatment, while the remaining 44% of respondents reported harm-reduction-based goals ranging from stabilization to reduced use, safer use, or abstinence combined with a harm-reduction goal (McKeganey et al., 2004). Safer substance use is a secondary treatment effect, as individuals may move away from using in situations that are physically hazardous and may experience fewer physical and impulse control consequences (American Psychiatric Association, 2013; Miller et al., 1995). As a result, one may notice improvements in their environmental QoL (World Health Organization, 1998). The researchers note that individuals seeking substance use treatment appear to perceive HR goals as not severe enough to seek out SUD services (McKeganey et al., 2004). Normalizing treatment goals beyond abstinence may encourage more individuals to seek SUD services.

Within HR models, success in substance use treatment remains focused on changes in an individual's substance use-related behaviors, with little to no focus on treatment goals that acknowledge the other areas of life impacted – the areas that usually drive individuals to

treatment and are used in the DSM-5 SUD criteria. The utilization of HR acknowledges that

substance use termination is not the only avenue to success in substance use treatment

(MacMaster, 2004). However, success continues to be measured based on use-related behaviors.

As noted earlier, the harm related to substance use can span non-use domains. For example,

increased substance use can adversely affect the quality of relationships as evidenced by the fact

that married individuals who frequently were intoxicated from alcohol at age 23 were more

likely to report divorce by age 29 (Collins et al., 2007). The researchers posited that frequent

alcohol intoxication in relationships led to divorce due to its consequences such as health

problems, legal problems, job loss, IPV, and intimacy struggles (Collins et al., 2007).

Substance use also impacts mental health (Galanter et al., 2015). A harmful, causal

relationship exists between mental health and SUDs, with the co-occurrence of each worsening

the prognosis of the other (Galanter et al., 2015). Additionally, substance-induced mental

disorders are triggered by use (Galanter et al., 2015). Substance-induced depression occurs in as

many as 60% of individuals with alcohol use and 55% with opioid use disorders (Revadigar &

Gupta, 2020), 36.5% of individuals who use methamphetamine will experience substance-

induced psychotic disorder (Lecomte et al., 2018). While HR models acknowledge that the desire

and motivation to change substance usage, and that one size does not fit all, it still neglects to

focus on or utilize the various DSM-5 SUD criteria that include social/relational, psychological,

and other substance related consequences to assess success upon treatment completion. Harm

reduction models could benefit from lowering the harms related to substance-induced mental

health disorders alongside the physical harms due to use. Incorporating changes in QoL and

secondary treatment effects may better address the harms related to substance use that are not

solely physical, such as relational and psychological harms.

A newer movement in HR underscores the barriers that poverty, classism, racism, trauma history, gender-based discrimination, and other social inequalities play roles in one's use, treatment, and changing of substance-related behaviors ("Harm Reduction Principles | National Harm Reduction Coalition," n.d.). Recognizing the systemic roles of power, privilege, and oppression reassigns the onus of responsibility from individuals and focuses on environments and health promotion as a whole (Kickbusch, 2003). Access to a safe home environment, financial resources, quality healthcare, learning opportunities, recreation and leisure activities, transportation, and surroundings free from pollution, noise, and poor climate ensure one's environmental QoL (World Health Organization, 1998). Among the barriers to substance use treatment is accessibility; as many as 20% of individuals have an environmental QoL that does not include access to quality SUD treatment (Liebling et al., 2016). Barriers to attempting to enroll in treatment include previous incarceration, drug-related discrimination by medical professionals, and cost, whereas barriers to accessing treatment include waiting lists, insurance denying coverage, and cost (Liebling et al., 2016). Access to SUD healthcare that qualifies success on a continuum may improve environmental QoL. This shift in recent studies has moved away from focusing on changing individuals' behaviors to addressing the systemic factors and determinants that affect health (Kickbusch, 2003). Researchers consider how changing an environment and the systems at large can have a trickle-down effect on individuals' health and wellness (Kroelinger et al., 2014).

Treatment Dosage

The goal of this study is to improve upon the narrowly defined conception of success as treatment completion by broadening out how much treatment may be sufficient to improve outcomes for those suffering with an SUD. While many researchers have differing opinions on

what equates an optimal and sufficient treatment dose (e.g., Bale et al., 1980; Condelli &

Hubbard, 1994; De Leon et al., 1982; Simpson, 1979), many have agreed on 28 days as the

critical number of days needed to see improvements in clients receiving substance use treatment

(Gossop et al., 1999; Lookatch et al., 2017; Luoma et al., 2012). Evidence exists suggesting that

clients who stay in treatment longer than 28 days may see better outcomes than those who

terminate prior to the 28-day mark, but those who stay for a minimum of 28 days will show

improvements at the one-year follow-up (Gossop et al., 1999). Among these improvements are

that the odds of sustained abstinence of all substances is five times greater for individuals who

complete a treatment dose of 28 days, along with criminalization decreasing two-fold, and

trafficking substances decreasing by a factor of three (Gossop et al., 1999). Given the

improvements that appear to happen after 28 days of treatment, 28 days is the minimum dose

required to participate in the study.

Treatment Considerations

Practitioners consider myriad factors when treatment planning: social and environmental

factors, mono- vs. polysubstance use, and co-occurring mental health diagnosis. As counselors

consider individualization of treatment, there is a need to also individualize treatment goals and

outcomes. For example, they may take into account that 90% of individuals seeking treatment for

only or primary marijuana use will attend outpatient treatment; these individuals are also less

likely to self-refer and more likely to be referred by an employer or a court order and therefore

present with goals related to DSM-5 criterion A5 – fulfilling major role obligations (Choi &

DiNitto, 2019). A counselor may also contemplate why African-American clients have had lower

completion rates of court-mandated drug treatment historically and how the expectations of

success in court-mandated treatment may be limiting to clients. The quantitative research in this

area is limited and the qualitative research suggests that there have been both beneficial and detrimental aspects of court-mandated treatment (Gallagher & Wahler, 2018). Formal and informal support groups are beneficial; however, an inability to leave unhealthy home environments is a barrier to success, and counselors take each of these components into consideration while treatment planning (Gallagher & Wahler, 2018). For these reasons, counselors also set treatment goals with clients based on such considerations; researchers, too, should consider these critical components that affect treatment outcomes.

Social and Environmental Factors

Social and environmental factors can facilitate or hinder progress (Niemiec & Ryan, 2009). Environments themselves do not control individuals' behaviors, but they affect treatment experiences (Niemiec & Ryan, 2009; Ryan & Deci, 2017). Counselors can play a role in fostering environments that encourage wellness in clients. Although counselors cannot directly change a client's behaviors, nor should they try to do so, they can influence the treatment environment and create treatment spaces that facilitate empowerment instead of failure. Therefore, counselors can impact clients' senses of success and confidence in treatment, which in turn can promote QoL.

Ryan and Deci (2017) describe relatedness as "belonging and feeling significant among others…being integral to social organizations beyond oneself" (p. 11). Recovery communities are a perfect example of positive social QoL. Twelve-step groups, which hold members accountable and incorporate aspects such as volunteer work and spirituality to make recovery bigger than oneself is one way such communities affect outcomes. Additionally, residential treatment centers, which facilitate group cohesion through shared experiences and support of one another, also facilitate improvements in social QoL in SUD treatment because participants are

reminded that they are not alone in this journey. Individuals who attend AA meetings demonstrate higher levels of abstinence than their counterparts who do not attend AA meetings in large part because they feel relatedness with their peers in recovery (Vaillant & Hiller-Sturmhöfel, 1996). Due to the stigmatized nature of substance use disorders (Janulis et al., 2013), relatedness creates space for individuals to process their shame without worrying that the environment will create additional shame.

When considering substance use treatment outcome measures, measuring 'success' based on abstinence can contribute to one's feelings of incompetence. Receiving feedback that relapse or continued use is bad, regardless of any other strides an individual has made in recovery, can deplete the confidence one had in their recovery and instead leave one feeling like a failure due to the negative feedback received. On the other hand, feeling in control of one's recovery can be an indicator of success in treatment (American Psychiatric Association, 2013). When one feels competent in their recovery, emphasizing the *essential areas of their life* (i.e., the areas *they* deem important), one will be motivated to work toward successful outcomes (Ryan & Deci, 2017).Individuals with SUDs encounter multiple barriers to entering and receiving treatment. Among the barriers to entering treatment are lack of perceived need for SUD treatment (95.7%), perceived need but lack of effort to receive treatment (3.0%), and perceived need and effort made to receive treatment (Substance Abuse and Mental Health Services Administration, 2019). This perceived lack of need for treatment may be due to the focus on abstinence by many programs, when individuals may not see the need to change their use. Even HR models, while allowing for continued use, have treatment goals that focus on substance use. More specifically, individuals with perceived need for treatment who did not receive services reported barriers including not being ready to stop using (39.9%), not knowing where to get treatment (23.8%),

and a lack of health care or financial resources to pay for treatment (20.9%; Substance Abuse and Mental Health Services Administration, 2019). Since 2015, data has been stable around individuals' hesitations to enter treatment due to not being ready to commit to abstinence (Substance Abuse and Mental Health Services Administration, 2019). A treatment environment that emphasizes improvement in social, physical, and psychological domains (e.g., QoL) may encourage an individual to enter treatment. The narrow focus on the cessation of use for a client to be successful in substance use treatment may hinder the client's success in the treatment environment.

Polysubstance Use

When practitioners and researchers use the term 'polysubstance use,' they refer to an individual's use of more than one substance over a defined period (Connor et al., 2014). The substances can be used concurrently or separately for experimental purposes, to enhance the effects of one another, or to stave off the adverse consequences of craving or withdrawal (Connor et al., 2014). Among individuals with opioid use disorders, polysubstance use is widespread; in a sample of over 15,000 individuals, nearly every single individual reported using at least one non-opioid substance in the past month (Cicero et al., 2020). Perhaps, polysubstance use among those with opioid use disorders is a norm and not an exception. Individuals who misuse both prescription opioids and heroin or fentanyl endorsed using an average of four other non-opioid drug classes per month (e.g., cannabis, alcohol, benzodiazepines, cough syrups; Cicero et al., 2020). In a sample of the general population of young adults, aged 19-29, in Australia, the most common substance pairing was alcohol and cannabis (20% of the population), followed by alcohol and ecstasy (10.5%), cannabis and ecstasy (7.42%) and alcohol and meth/amphetamines (6.42%; Quek et al., 2013). Similarly, 23% and 15% of college-aged

students report misusing over-the-counter medications with alcohol and illicit substances, respectively (Benotsch et al., 2014). These researchers did not explore the propensity of students to use alcohol and illicit substances in tandem.

Individuals with polysubstance use report worse mental health than individuals who use zero or one substance (Connor et al., 2014). Polysubstance use is linked to difficulties in the treatment of the substance use disorders; however, to date, most researchers focus on polysubstance use prevention (Connor et al., 2014; Hedden et al., 2010). Deciding whether to treat substances concurrently or individually and sequentially is left to the practitioner's discretion (Connor et al., 2014). While Patterson et al. (2019) collected data on mono- vs. polysubstance use alongside secondary treatment outcomes, they did not analyze this data to determine the differences between groups. However, 39% of respondents in their study endorsed polysubstance use (Patterson et al., 2019), and investigation of how secondary treatment effects vary between groups could be critical in aiding clinicians in the decision of how to treat polysubstance use disorders. In the proposed study, mono- and polysubstance use disorders will be controlled for statistically.

Co-Occurring Diagnoses

Researchers estimate that at least 36% of individuals with a substance use disorder have a co-occurring mental health disorder (Van Wormer & Davis, 2016). Individuals with diagnoses of schizophrenia, bipolar disorder, or major depressive disorder are significantly more likely to use substances than individuals without severe mental health disorders (Hartz et al., 2014). These individuals are approximately five times more likely to be heavy alcohol drinkers and 4.6 times more likely to experiment with drugs at least ten times in their lives (Hartz et al., 2014). It is impossible to say if mental health precedes substance use or vice versa. Although as many as

70% of individuals with alcohol use disorders have co-occurring major depressive disorders, individuals with major depressive disorder are not more likely to relapse than those without (Suter et al., 2011). However, individuals with co-occurring mental health and substance use disorders have an increased risk of unintentional overdose (Johnson et al., 2013) and lifetime suicidal ideation or attempt (Rodríguez-Cintas et al., 2018). Individuals with co-occurring mental health and substance use disorders report lower QoL, including in the mental health QoL domain, when measured on the Health Related Quality of Life scale compared to individuals who have substance use disorders alone or severe mental illness alone (Benaiges et al., 2012). The lower self-reported QoL of individuals with co-occurring disorders suggests that individuals in this group may report lower QoL scores while in SUD treatment than individuals in treatment with SUD diagnoses alone. Researchers should consider this and control for differences between groups that may occur based on co-occurring vs. non-comorbid diagnoses.

It is apparent that treatment for co-occurring mental health and substance use disorders is crucial. Individuals do not receive combined treatment at high rates (Jones & McCance-Katz, 2019). In a sample of individuals meeting diagnostic criteria for opioid use disorders, 64.3% met diagnostic criteria for a mental health disorder within the past year (Jones & McCance-Katz, 2019). Over a quarter of the entire sample met the criteria for a severe mental illness, meaning their symptoms caused severe functional impairment that interfered with or limited at least one major life activity (Jones & McCance-Katz, 2019). Despite the high numbers of co-occurrence, only 24.5% of the individuals with opioid use and mental health symptoms received combined SUD and mental health treatment (Jones & McCance-Katz, 2019). However, over 54% of the individuals with co-occurring disorders enrolled in solely mental health programs (Jones & McCance-Katz, 2019). Future research could look at how co-occurring mental health and

substance use diagnoses may impact QoL and secondary treatment affects or potentially impact one's recovery. As a result, mental health diagnoses and additional mental health treatment should be assessed for by researchers as a control factor when considering 'success' in substance use treatment, as the experiences of secondary treatment effects and QoL for individuals with co-occurring mental health and substance use disorders may look different than those of individuals with substance use disorders alone.

Conclusion

Given the multitude of considerations in treatment planning, a one-size-fits-all model of success in SUD treatment may undermine progress made by individuals in treatment that does not fit the typical model of success but does reduce symptomology around the 11 DSM criteria for SUD. Although some individuals may benefit from a rigid definition of success encompassed by abstinence and treatment completion, this narrow definition may be contributing to a lack of enrollment in or completion of services by other individuals. The new formulation proposed in this study assesses treatment outcomes on a continuum. It includes one's quality of life and secondary treatment effects and honors one's subjective motivations for seeking and utilizing treatment services. More individuals may enter, and complete treatment and their outcomes will likely improve if operationalized.

CHAPTER III: METHODOLOGY

Research Design

The researcher utilized a cross-sectional, descriptive, correlational design. Three research questions guided the present study: (1) What is the relationship between secondary treatment effects and change in substance use with quality of life? (2) Are secondary treatment effects or changes in substance use more significant predictors of participant quality of life? What is the combined predictive power? The researcher hypothesized secondary treatment effects would be a stronger predictor of participant quality of life. (3) Is there a moderation between the secondary treatment effects and changes in substance use in relation to participant quality of life? The researcher hypothesized that secondary treatment effects would moderate changes in substance use and quality of life.

Participants

Inclusion Criteria

Participants were required to be at least 18 years of age, self-report a formal diagnosis of at least one SUD, and engaged in a minimum of one substance-use treatment modality (e.g., outpatient counseling, group counseling, residential treatment). The participant had a minimum dose of 28 days of treatment to be eligible to complete this study. Participants from both harm reduction and abstinence-based programs were eligible to participate in the study. Having co-occurring mental health diagnoses did not exclude participants; however, co-occurring diagnoses were asked about in the demographic questionnaire and could be controlled for statistically, if needed, based on preliminary analyses.

Exclusion Criteria

A participant was excluded from the study if the sole treatment setting they are engaging in is a 12-step or mutual support group, as these groups are not practitioner-led. Participants were asked to indicate the substances for which they have treatment history; a participant who only endorsed nicotine history was excluded. Participants who have a history of nicotine use in conjunction with other substances were eligible for the study. Finally, participants with fewer than 28 days of treatment were excluded from the study.

Sample Size

The sample size was obtained using G*Power for a fixed model linear multiple regression (Erdfelder et al., 1996). To achieve a power of 0.8 with an error of $\alpha = 0.05$, a medium effect size of $f^2 = 0.15$, and five predictor variables, a minimum sample size of 92 participants was necessary. The five predictor variables include two independent variables – change in substance use and secondary treatment effects – and up to three additional control variables depending upon the results of the preliminary analysis (i.e., mono vs. polysubstance use, number of treatment experiences, and HR vs. abstinence program, number of co-occurring diagnoses, dosage of days in current treatment program).

Measures/Instruments

Participants completed all measures online through Qualtrics (see Appendix A).

Demographics

Demographics collected included the participant's age, race, ethnicity, and gender identity. Race options included "American Indian or Alaska Native," "Asian," "Black/African American," "Multiracial (describe, if you wish)", "Native Hawaiian or Other Pacific Islander," "White," and "My racial identity is not listed (please describe)" and participants could select all

that apply. These were determined based on the Data Standards for Race, Ethnicity, Sex, Primary

Language, and Disability established by the Department of Health and Human Services and the

2020 Census (Dorsey & Graham, 2011; U.S. Census Bureau, 2020). The same standards were

used to offer the options of "Hispanic or Latinx" and "Not Hispanic or Latinx" for Ethnicity

(Dorsey & Graham, 2011; U.S. Census Bureau, 2020). The researcher used a two-step method

for collecting gender demographics to reduce the chance of participants feeling misgendered or

excluded due to their gender (Kronk et al., 2021). The first step asked if the individual's gender

identity matches the gender they were assigned at birth and the second step asked the participant

to check all gender identities that apply and includes "Female; Woman; Girl," "Male; Man,

Boy," "Nonbinary," "Questioning; Exploring," "Prefer not to respond; prefer not to disclose,"

and "Gender identity not listed (please specify)" (Kronk et al., 2021). The researcher also

collected information regarding whether the participant has any co-occurring mental health

diagnoses and if they were receiving treatment for these diagnoses at the time of survey

completion, the treatment setting(s) the participant was receiving treatment (e.g., residential,

AA/NA, outpatient), the number of times the participant has entered substance use treatment, and

their number of treatment completions. The participant was asked to confirm they have been in

the current treatment program for at least 28 consecutive days; if the participant indicated they

have not, the researcher coded the survey using display logic thanking the participant for their

time and letting them know they are not eligible to complete the survey.

Quality of Life

To measure participant quality of life (QoL), the researcher used the World Health

Organization's Quality of Life Assessment - Brief Inventory (WHOQOL-BREF; World Health

Organization, 2004a). The WHOQOL-BREF is an abbreviated, comprehensive version of the

100-item WHOQOL assessment, achieved in 26 items instead of 100. The developers of the WHOQOL-BREF have validated the measure cross-culturally, norming the data across 23 countries in all of the WHO regions of the world and across cultural and socioeconomic levels (Skevington et al., 2004). The developers recruited adult participants, but 'adult' was culturally defined instead of being defined by western standards. In other words, although the United States views adulthood as occurring at ages 18 and older, the developers did not use this definition of "adulthood" across their sample procedures and instead sampled adults from each country based on that country's definition of adulthood.

Users self-administered the instrument and were asked to reflect on their life over the past two weeks. Using a Likert scale ranging from scales such as "very dissatisfied" to "very satisfied" and "not at all" to "extremely," users answered questions such as *How satisfied are you with your personal relationships?"* and *"How safe do you feel in your daily life?"*, respectively. Users of the WHOQOL-BREF were scored on four domains of QoL: physical health, psychological, social relations, and environment, with a cumulative score also given. The researcher used the cumulative score for analysis. Confirmatory factor analysis suggests a four-domain model is a very good fit (Krägeloh et al., 2013).

Researchers who have used the total sum score of the WHOQOL-BREF for analysis have found excellent test-retest reliability (intraclass correlation coefficient = 0.919; Naumann & Byrne, 2004) as well as good criterion-related validity (Krägeloh et al., 2013). Discriminant validity distinguishes well from unwell users of the measure on overall score and can be modeled best in the physical domain, followed by psychological, social, and environmental (Skevington et al., 2004; World Health Organization, 1998). Correlations between domain scores on the WHOQOL-100 and WHOQOL-BREF range from 0.89 to 0.95 (World Health Organization,

1998). Researchers using the WHOQOL-BREF report good internal consistency of the total instrument ($0.83 \leq \propto \leq 0.91$) (Krägeloh et al., 2013; Rosén et al., 2020). The sum score was not significantly impacted by age, gender, marital status, education status, or occupational prestige (Naumann & Byrne, 2004). Negative correlations exist between the WHOQOL-BREF and the Hamilton Depression Rating Scale, providing discriminant validity, suggesting that lower QOL is associated with higher depressive symptoms (Naumann & Byrne, 2004).

The WHOQOL manual suggests self-administration of the instrument if users have "sufficient reading ability" (World Health Organization, 1998, p. 49). The WHOQOL-BREF was normed on a sample that included one-third of participants who had not completed secondary school (Skevington et al., 2004). The authors do not indicate concerns with these individuals' literacy ability to complete the assessment, suggesting a post-primary school reading level is sufficient.

Changes in Substance Use

Changes in participant substance use were measured using the Level 2-Substance Use-Adult screening measure. The instrument is a self-report measure adapted from the National Institute on Drug Abuse's modified ASSIST measure (National Institute on Drug Abuse, 2017). The American Psychological Association (APA) indicates that this is one of many "emerging measures" being used for further research and clinical evaluation of individuals who are using substances and can be used to make initial assessments as well as monitor progress while in treatment (https://www.drugabuse.gov/sites/default/files/pdf/nmassist.pdf, n.d.). Participants were asked to indicate the severity of their use of ten substances – including painkillers, stimulants, sedatives, marijuana, cocaine or crack, club drugs, hallucinogens, heroin, inhalants, and methamphetamines - over the course of the previous two weeks using a Likert scale ranging

from "not at all" (0) to "nearly every day" (4; National Institute on Drug Abuse, 2017). The researcher has modified the instrument to include "alcohol" as an eleventh substance, which was included on the original NM-ASSIST.

When scoring, clinical providers look at each item individually to determine the treatment needed based on the use of each independent substance. However, participants received a total sum score of the eleven substances for research purposes. Given the ability to use the Level 2-Substance Use-Adult screening measure to track change across time while in treatment, participants in this study took the scale twice: first, they reflected on their use in the two weeks before entering treatment, and second, they reflected on the previous two weeks from the time they completed the questionnaire. The score provided from subtracting current usage from prior usage will be used as the participant's Difference in Substance Usage score. Using a difference score, as opposed to a cumulative score, allowed the researcher to account for polysubstance use and the degree to which substance use has changed since entering treatment. In other words, a difference score prevents skewing of the data that could suggest that polysubstance use is more severe than monosubstance use as an individual with polysubstance use would score higher on a cumulative score. Additionally, a difference score modeled any improvement a participant has in treatment (i.e., moving from using daily to using weekly for one participant may be of equal 'success' for that participant as moving from weekly use to no use is for another).

Although no psychometric properties are provided for this emerging screening measure, it includes the same items from the NM ASSIST. Therefore, psychometric properties of the NM ASSIST are provided, recognizing that the items used on the Level 2-Substance Use-Adult screening measure are just the items about usage from the NM-ASSIST. The initial NM-ASSIST

is a free tool used to assess eleven factors – *alcohol, cannabis, cocaine, prescription stimulants, methamphetamine, inhalants, sedatives or sleeping pills, hallucinogens, street opioids, prescription opioids, and other* – across seven domains – *lifetime use, use in the last year, and use in the past three months; problems related to substance use; risk of current or future harm; dependence; and injecting drug use* (National Institute on Drug Abuse, 2017). Researchers have normed psychometrics for the NM ASSIST on populations in Australia, Brazil, India, Ireland, Israel, Palestinian Territories, Puerto Rico, United Kingdom, and Zimbabwe (Henry-Edwards et al., 2003). The NM ASSIST has concurrent validity and construct validity across primary care settings and substance use treatment settings, suggesting its durability at various levels of SUD treatment (Henry-Edwards et al., 2003). Test-retest reliability correlation ranged from r=.58 to 0.9, and the NM ASSIST exhibited convergent validity with the Addiction Severity Index ($r = 0.84$; Henry-Edwards et al., 2003). The developers of the NM ASSIST argue that the assessment is "valid for cross-cultural use" (Henry-Edwards et al., 2003, p. 18).

Secondary Treatment Effects

Secondary treatment effects were assessed using the Inventory of Drug Use Consequences (i.e., InDUC-2R; Miller et al., 1995). This assessment was chosen based on the DSM-5 criteria for diagnosis of SUD and the domains that Patterson et al. (2019) defined as secondary treatment outcomes, including decreases in the adverse consequences of use, changes in social functioning, and changes in fulfilling role obligations (American Psychiatric Association, 2013). Developers of the InDUC-2R focused on measuring the negative impacts of use noted in the DSM-5 through their assessment (Miller et al., 1995), congruent with the current researcher's study. Lower consequence scores equate greater treatment outcomes, and higher consequence scores are associated with fewer secondary treatment outcomes.

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The InDUC-2L measures lifetime consequences due to use, and the InDUC-2R measures consequences in the past three months. The researcher adapted the InDUC-2R and use consequences "in the past two weeks" to focus on the current treatment experience. Participants received five domain scores – *physical, interpersonal, intrapersonal, impulse control, and social responsibility* – as well as a total score of consequences (Miller et al., 1995). The self-report assessment has 50 items, such as "*During the past two weeks, how often has this happened to you? – The quality of my work has suffered because of my drinking or drug use.*" The participant then answered using a 4-point Likert scale ranging from "*0-never*" to "*3-daily or almost daily.*" Five items are control items and are used to detect 'careless or dishonest responding' (Miller et al., 1995, p. 72), These items did not contribute to the total InDUC score. The researcher used the participant's total InDUC-2R score. A lower score indicated lower consequences due to use. A sixth-grade reading level is indicated for use.

The InDUC-2R is not a measure without limitations. Among the most severe limitations is the developers' sample used to norm the instrument. The sample was predominantly male (77%) and White (53%) (Miller et al., 1995). Additionally, only 3.3% of the participants sampled when developing the norms for this assessment were Black, 6.7% Native American, and 20% Hispanic (Miller et al., 1995). Nine participants did not indicate race or ethnicity on the demographic questionnaire (Miller et al., 1995). This brings into question whether the items are culturally relevant to individuals who do not identify as White men. The researcher considered this limitation when analyzing data to check for trends that may suggest the measure was not valid for all participants.

The InDUC-2R is a face-valid instrument and appears to measure what it says it will measure. Test-retest reliability was strong, exceeding $r=0.9$ in all domains, including total

consequences, except for impulse control (r = 0.79; Miller et al., 1995). The InDUC-2R total score has high internal consistency at intake and 1-month follow-up ($\alpha = .96\ and\ .98$, respectively; Gillaspy & Campbell, 2006). Researchers suggest using consideration when interpreting results, as users can answer in a socially desirable way and report fewer consequences than they actually experience (Miller et al., 1995).

Procedures

Sampling and Recruitment

The researcher used convenience and snowball sampling due to the trust needed when working with individuals actively in treatment. The researcher recruited participants from substance use treatment settings in the United States. To establish communication, the researcher initially communicated via email with clinical directors and program coordinators at outpatient and residential counseling sites (Appendix C). The researcher also used listservs that targeted mental health and substance use practitioners. She distributed the link via listserv. The researcher created a flyer with a scannable QR code to be posted around treatment sites and distributed to clients (Appendix D). Clients could scan the code from their phones to access the questionnaire or follow the URL on a computer.

Once the researcher established contact and built rapport with program directors, she distributed a video introducing herself, the purpose of the study, the risks and benefits associated with the study, and directions on how to complete the study. The video was accessible at the beginning of the Qualtrics survey for sites using video. The current researcher hoped this video would humanize her research to participants and open the door to communication should participants have questions or comments. The researcher aimed to ensure that participants understood that their participation was voluntary and that there were no consequences for

choosing not to participate or terminating their participation early. Participants completed a

thorough informed consent (Appendix E) before participation, provided on Qualtrics before the

survey. Participants initialed indicating their consent.

Following informed consent, participants self-administered the demographic survey, the

WHOQOL-BREF, the Level 2-Substance Use-Adult, and the InDUC-2R via Qualtrics. There

were no benefits to participating in this study and no consequences for withdrawing from the

study at any time. The first 100 participants to complete the study received a $10 gift card via

email. At the end of the research survey, the participants were prompted to complete a second

survey in which they simply entered their email addresses. Their email addresses were not linked

to their survey responses. The researcher sent gift cards from Tango Card, allowing recipients to

choose where they would like to redeem the funds. Potential redemption sites included Walmart,

Home Depot, and Panera Bread, to name a few.

An incentive for treatment programs to distribute flyers and assist in recruiting

participants is an assurance that the program director would receive a file containing a brief

report of the aggregate data for their site only, depending on how many participants respond. The

number of participants had to be sufficiently large so program staff could not identify

individuals; therefore, if at least 10 the clients at a given site participate, the site received

aggregate data. Demographic information will not be shared with sites to preserve participant

privacy. This data allowed program directors and evaluators to tailor their treatment expectations

based on the outcomes reported by their clients.

Data Analysis

Data analysis was done using SPSS (IBM Corp, 2017). RQ1 was analyzed using a basic

correlation and RQ2 was analyzed using a hierarchical regression with QoL as the dependent

variable with three steps, followed by a commonality analysis. Step 1 of the regression included control variables if required, step 2 included differences in substance use (Level 2-Substance Use-Adult), and step 3 added the secondary treatment effects (InDUC-2R). A commonality analysis (described below) was also conducted. RQ3 explored the potential moderation and was answered using a hierarchical multiple linear regression, as per Baron and Kenny (1986). Utilizing the regression from RQ2, step 4 included moderating secondary treatment effects and substance use to see if secondary treatment effects affected the direction or strength of the relationship between substance involvement and quality of life (Baron & Kenny, 1986).

For RQ2, a commonality analysis explored the unique versus shared variance explained by the predictors. A commonality analysis is a technique used with multiple linear regressions that partitions the R^2 explained by all predictors (Nimon & Oswald, 2013). In a regression, the model has a total variance (R^2), separated into a combination of unique and common effects (Nimon & Oswald, 2013). Common effects provide the shared variance between the predictors. In contrast, unique effects provide a unique variance to each predictor (i.e., the amount of variance each predictor individually explains of the criterion variable) (Nimon & Oswald, 2013). The commonality coefficients can be compared based on the magnitude to determine the stronger predictor (unique effects of individual predictors or the shared effect of the combined predictors). In this study, the predictors are changes in substance use and secondary treatment effects. The researcher employed a commonality analysis to assess how substance use involvement and secondary treatment effects operated with one another in the regression model.

A commonality analysis requires $2^k - 1$ equations, where k is the number of predictor variables in the regression (Nimon & Gavrilova, 2010). Since this regression had two predictors, there were $2^2 - 1 = 3$ equations necessary. The equations are:

(1) $U(STE) = R^2_{y.STE\ SI} - R^2_{y.SI}$

(2) $U(SI) = R^2_{y.STE\ SI} - R^2_{y.STE}$

(3) $C(STE\ SI) = R^2_{y.STE\ SI} - U(STE) - U(SI)$

Where *STE* = secondary treatment effects and *SI* = substance involvement

(*changes in substance use*). The SPSS script for running commonality analyses is available

free from Nimon et al. (2008).

Limitations

This study is not without limitations. First, some treatment providers may view

medication-assisted therapies as substance use, although the researcher chose to omit this. The

researcher views medication-assisted therapies as a treatment modality. Additionally, the Level

2-Substance Use-Adult adapted from NM ASSIST, WHOQOL-BREF, and InDUC-2R are self-

report inventories. The researcher cannot guarantee that participants answered in a way that

reflects their authentic experiences instead of responding in a socially desirable manner. Another

consideration in the study is the researcher's use of convenience sampling. The researcher made

this decision based on the importance of having trust and rapport with participants and the

agencies with which they are associated; however, convenience sampling can reduce

generalizability. Finally, the researcher requires that individuals have been in treatment for a

minimum of 28 days before participating in the study. This decision may have limited the voices

of individuals who left treatment before the 28-day milestone.

Pilot Study

Pilot Study RQs

Before the proposed research, the researcher conducted a pilot study to answer a few logistical and preliminary questions about the proposed study. The researcher used four research questions to guide the pilot study:

(1) Do participants encounter problems while using Qualtrics? The researcher aimed to ensure the display logic and skip logic questions perform as expected and that users understand how to progress through the survey.

(2) What is the estimated time range it takes users to complete the survey? The researcher gauged the time commitment being asked of participants and to be able to provide participants an accurate estimate of the time commitment.

(3) Are there changes between the pre-treatment and in-treatment substance use scores? This will be a comparison between the Level 2-Substance Use-Adult adapted NM ASSIST measure to verify the ability of participants to respond to both versions of the measures used in this study.

(4) What do participants deem to be appropriate compensation for their time taking this survey? The researcher asked pilot study participants if the $10 incentive they received was reasonable and would leave space for compensation amount suggestions.

Inclusion and Exclusion Criteria

Inclusion and exclusion criteria matched those for the complete study.

Sample Size

The sample size for the first iteration of the pilot study was six participants. The average age of participants was 30 years old. Three cisgender men and three cisgender women took the

pilot study. The participants identified as White (*n* = 5) and American Indian or Alaskan Native (*n* = 1). Treatment episodes ranged from one to five; five participants reported completing treatment each time they enrolled, and one reported completing once in three enrollments. Five participants indicated 90+ consecutive days in treatment, and one indicated 60-90 days in treatment.

Measures

The researcher administered the same Qualtrics survey to the pilot study participants that she intends to distribute to participants in the full study. The survey includes a demographic questionnaire, the World Health Organization's Quality of Life Assessment – Brief Inventory (WHOQOL-BREF; World Health Organization, 2004a), the Level 2-Substance Use-Adult, and the Inventory of Drug Use Consequences (i.e., InDUC-2R; Miller et al., 1995).

The researcher used Qualtrics data to see the amount of time participants took to complete the questionnaire. Additionally, there were questions at the end to ask for feedback on the survey. First, a participant answered, "Did you encounter any problems while taking the survey?" The participant chose "yes (please specify)" or "no." The participant then answered open-ended questions asking, "Were there any questions that did not make sense to you?" and "Do you have any suggestions for changes to this questionnaire?" Participants indicated if they would have completed the survey had it not been incentivized, and a follow-up, open-ended question of what amount of compensation feels appropriate. A complete list of questions is in Appendix B.

Procedures

The researcher used convenience and snowball sampling for the pilot study. She reached out to a peer in early recovery and asked them to share the link with a few of their peers in

recovery via a peer support group. She also recruited from an intensive outpatient and recovery

community site in the Midwest. Participants were eligible for the study if they engaged in

treatment beyond peer support groups (i.e., see an individual or group counselor). Participants

were given informed consent prior to beginning the study. Following informed consent,

participants self-administered the demographic survey, the WHOQOL-BREF, the Level 2-

Substance Use-Adult, the InDUC-2R, and the follow-up questions via Qualtrics. The researcher

did not share a video introducing herself to participants before the study; she will implement this

in the full study. There were no consequences if a participant chose to withdraw participation,

and there were no benefits to participating in the pilot study. Participants who completed the

pilot study received a $10 gift card as a token of gratitude for their time.

Results

Participants in the pilot study reported no problems with using Qualtrics. Display and

skip logics worked as anticipated and participants were able to complete the questionnaire

without difficulties. One participant suggested amending the wording of INDUC question 25:

"Drinking or using drugs has helped me to have a more positive outlook on life" to "Drinking or

using drugs has made life more tolerable."

Participants took between 400 and 877 seconds to complete the questionnaire, with an

average time of 10.2 minutes (612 seconds). Participants reported the $10 incentive felt

appropriate for the amount of time they committed.

Finally, the researcher wondered if there were changes between the pre-treatment and in-

treatment substance use scores. This will be a comparison between the Level 2-Substance Use-

Adult adapted NM-ASSIST measure to verify the ability of participants to respond to both

versions of the measures used in this study. Based on the preliminary pilot study report,

differences exist between the groups. Pre-treatment use scores ranged from 4-20 points, with an average of 13, and current use (past 2 weeks) ranged from 0-11, with a mean of 2.5 points. This suggests that individuals are able to reflect on their use pre-treatment and accurately report it. Change scores ranged from 3 to 19, with an average Change in Use score of 10.5.

Discussion and Implications

Given responses to participant incentives and response time, no changes were made on the full study. Participants responded that a $10 incentive is appropriate for the time and effort asked of this study. While one participant did recommend changing the wording of INDUC question 25 from "Drinking or using drugs has helped me to have a more positive outlook on life" to "Drinking or using drugs has made life more tolerable," no change will be made. The InDUC is a psychometrically sound measure and changing the wording may compromise the integrity of the measure. Additionally, item 25 is a control item, intended to detect dishonest responding. The item is one of five items that does not contribute to the total InDUC score and is used to detect social desirability.

Through the pilot study, participant recruitment was more difficult than anticipated. The researcher contacted program coordinators who shared the link with their groups; however, without a flyer, participation was low. The researcher has made alterations to the full study procedures to increase participant recruitment. First, a flyer was created a flyer with the study information and a scannable QR code to the questionnaire that can be displayed at sites (Appendix C). Second, the researcher coordinated with sites to visit sites in person. The researcher intended to bring hard copies of the questionnaire and physical gift cards as incentives. However, due to COVID-19 restrictions, site visits were not made.

CHAPTER IV: RESULTS

In Chapter I, I provided an argument for the need for the proposed study and its purpose and significance. I reviewed the relevant literature about substance use treatment outcomes throughout Chapter II. I paid particular attention to the historic definitions of 'success' in treatment and how defining success as reduction or cessation of substance use and/or treatment completion can be rigid and miss other possible areas of growth one experiences in treatment, such as improved quality of life. I grounded the proposed study in the DSM-5 criteria for substance use disorders, arguing that 'success' should encompass a broader spectrum of the criteria used in diagnosis. In Chapter 3, I proposed a cross-sectional, descriptive methodology to answer three research questions. I outlined a plan for sampling and recruitment, instrument implementation, and data analysis. I trialed this methodology in a pilot study. Now, in Chapter IV, I will report on the characteristics of the data collected, the preliminary analyses I ran to determine predictor variables for the multiple linear regression, and the overall results of the data.

Research Questions

Three questions guided this study:

1. What is the relationship between secondary treatment effects and change in substance use with quality of life?

2. Are secondary treatment effects or changes in substance use more significant predictors of participant quality of life? What is the combined predictive power?

3. Is there a moderation between the secondary treatment effects and changes in substance use in relation to participant quality of life?

Description of Sample

Recruitment was completed using convenience and snowball sampling. Participants recruited for this study were individuals engaging in at least one substance-use treatment modality (e.g., outpatient counseling, group counseling, residential treatment, transitional living community). Using G*Power, a sample size of 92 was determined sufficient for analysis. A total of 151 individuals entered the Qualtrics survey and 137 completed the study. An additional 11 participants were excluded for not meeting inclusion criteria. Specifically, 9 participants did not meet the 28-day threshold of time in treatment to participate in the study, one participant was only attending 12-step meetings and no practitioner-based treatment modalities and one participant was eliminated based on validity issues because they selected the first option on every single item - questioning the validity of that participant's response. The total usable sample size was 126 participants ($N = 126$). The flow process for selecting participant eligibility is modeled in Figure 2.

Figure 2. Selection Process
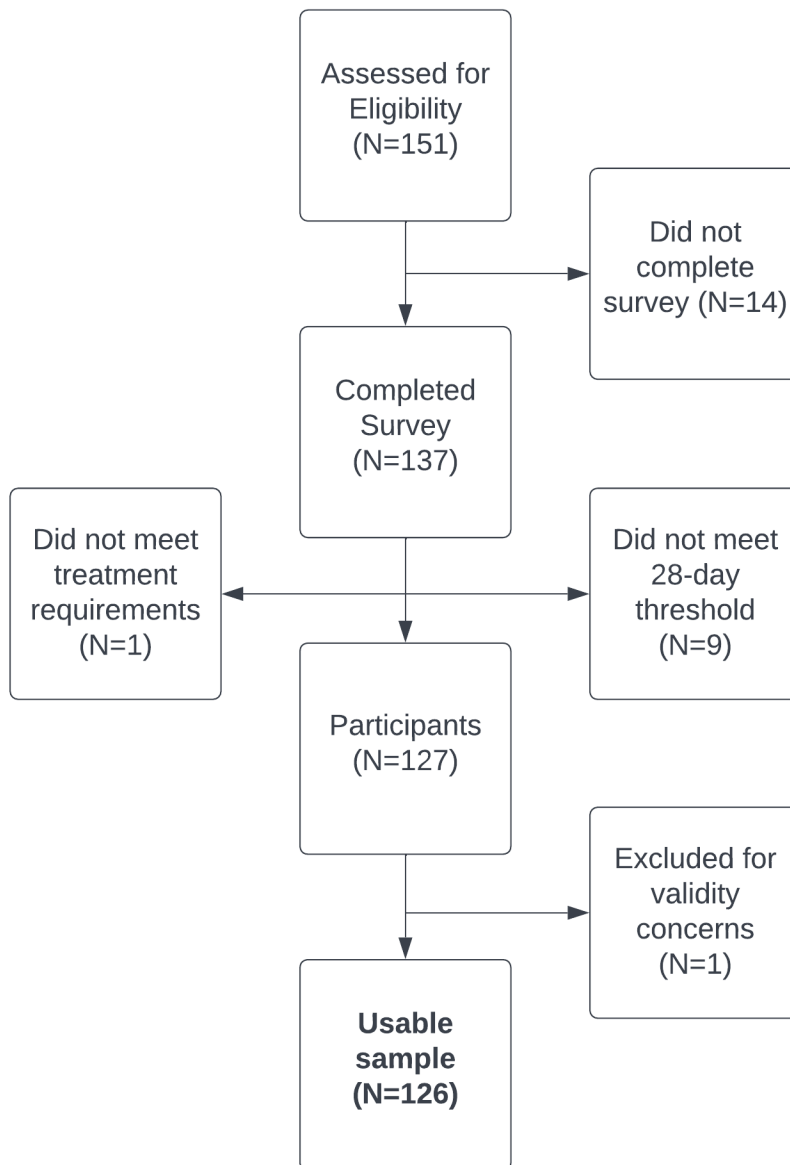
Demographic information collected on participants included age, gender identity, racial

identity, ethnicity, number of treatment entries, number of treatment completions, treatment

modalities currently attending (e.g., residential, outpatient treatment facility, individual

counselor, 12-step meetings), co-occurring mental health diagnosis, and whether treatment

involvement is voluntary or court-mandated. Table 2 models the frequencies and percentages of the nominal demographic variables.

Table 2. Participant Demographics

	N	%
Race		
American Indian or Alaskan Native	28	22.2
Black/African American	53	42.1
Multiracial	6	4.8
Native Hawaiian/Pacific Islander	5	4.0
White	34	27.0
Ethnicity		
Hispanic or Latino	73	57.9
Not Hispanic or Latino	53	42.1
Gender Identity Match Assigned at Birth		
Yes	116	92.1
No	4	3.2
Prefer not to respond; Prefer not to disclose	6	4.8
Gender Identity		
Male/man	71	56.3
Female/woman	50	39.7
Non-binary individual	3	2.4
Prefer not to say	1	0.8
Not listed	1	0.8
Mandated to Attend Tx		
No, attending voluntarily	99	78.6
Yes, court-mandated	27	21.4
Co-occurring Mental Health Disorder		
No	110	87.3
Yes	16	12.7
Polysubstance Use		
Pre-treatment Yes	122	96.8
Pre-treatment No	4	3.2
Current Yes	79	62.7
Current No	47	37.3

Participants ranged in age from 20-years-old to 58-years-old ($M = 30.93$, $SD = 7.40$). Total number of treatment entries ranged from 1 to 14 ($M = 3.46$, $SD = 2.61$) and number of treatment completions ranged from 0 to 9 ($M=1.83$, $SD=1.84$). The number of treatment modalities an individual is currently engaging with ranges from 1 to 5 ($M=1.60$, $SD=.93$). Descriptive statistics for these scales are provided in Table 3.

Table 3. Descriptive Demographics of Participants

	Mean	Std. Deviation	Minimum	Maximum	Range
Age	30.93	7.397	20	58	38
How many times have you started substance use treatment (include current experience)?	3.46	2.613	1	14	13
How many times have you completed substance use treatment?	1.83	1.836	0	9	9
# of treatments engaging in	1.60	.931	1	5	4
Time in treatment (days)	716	947	29	4611	4582

Table 4 presents the locations where participants are receiving substance use services; since individuals can engage in more than one treatment modality, the sum of percentages is greater than 100.

Table 4. Treatment Utilization

	N	%
Outpatient Treatment Facility	100	79.4
Living in Recovery Community	40	31.7
Peer Support Groups	31	24.6
Individual Therapist	21	16.7
Residential Treatment Facility	12	9.5

Note: percentages sum to greater than 100 as participants may utilize more than one treatment modality. Any participant attending peer support groups also received at least one other treatment service.

Preliminary Analyses

To determine which variables to control for in the multivariable linear regression, preliminary analyses were run to determine which factors were significantly influencing quality of life (the dependent variable). The factors tested included: current polysubstance use, co-occurring mental health disorders, peer support group attendance, mandated treatment attendance, ethnicity, race, gender identity, time in treatment, and number of treatment modalities. A combination of t-tests, one-way ANOVA, and correlations were used. P-values less than 0.05 were considered for significance.

Independent t-test results indicated that current polysubstance use should be a control variable ($t(124) = 2.835$, $p < 0.001$; Connor et al., 2014), indicating that individuals with current polysubstance use have lower QoL than those with current monosubstance use or abstinence. Additionally, responses from individuals attending peer support groups in addition to practitioner-led treatment were significant ($t(124) = 1.112$, $p = 0.017$; Janulis et al., 2013; Vaillant & Hiller-Sturmhöfel, 1996), revealing that participants who attended peer support and

practitioner-led treatment had higher quality of life. These two variables were added as control variables in the analyses. There were no significant differences between individuals with and without co-occurring mental health disorders ($t(124) = 1.186$, $p = .093$), individuals mandated to attend treatment vs. those attending voluntarily ($t(124) = .068$, $p = .180$), or individuals with and without Hispanic or Latino ethnicities ($t(124) = 5.169$, $p = .151$). These variables were not added or further explored as control variables.

One-way ANOVA was used to assess for statistically significant differences that exist between more than two independent groups; in this instance, ANOVA was used to determine differences between racial identities and gender identities. Significant differences existed between racial identities ($F(4, 121) = 4.54$, $p = .002$). In post hoc Bonferroni tests, it was found that significant differences existed between the American Indian/Alaskan Native and White groups and between American Indian/Alaskan Native and Black groups (Johnson et al., 2020). There were not significant differences between any other racial groups. As a control variable, race will be dummy coded as "American Indian/Alaskan Native" (1) and "Not American Indian/Alaskan Native" (2). There are no significant differences between genders ($F(3, 122) = 1.49$, $p = .221$).

Correlation analyses were utilized to assess relationships between WHO-QOL scores and continuous variables. There are significant relationships between groups based on the number of treatment modalities an individual is engaging in ($r = .187$, $p = .036$) and the amount of time an individual has been in treatment ($r = .255$, $p = .004$; Gossop et al., 1999). Thus, the more treatment modalities and the longer someone has been in treatment, the greater their quality of life. Both of these factors will be controlled for in analyses. There are five control variables

accounted for in this analysis: Days in treatment, number of treatment modalities, race (dummy-coded), peer support group attendance, and current polysubstance use.

Research Question 1

Research question 1, exploring the relationship between differences in substance use, secondary treatment effects, and quality of life was answered using linear regression. Initially, all five control variables were entered along with the two predictor variables. However, multicollinearity existed in the analysis. Multicollinearity occurs when two or more variables are highly related to one another. In the analysis, multicollinearity occurred, and two predictor variables were eliminated from the analysis: polysubstance use and peer support group attendance. Polysubstance use was also highly correlated with the InDUC measurement ($r(126) = .815, p < .001$) and with the difference in use measurement ($r(126) = -.600, p < .001$). Peer support group attendance was highly correlated with the number of treatment services used by the individual ($r(126) = .806, p < .001$). Therefore, these two control variables were removed from the analysis. Additionally, the remaining dependent, predictor, and control variables were centered in order to decrease multicollinearity. The analysis performed consisted of five variables entered. The control variables were race (dummy-coded), time in treatment in days (centered), and number of services (centered), and the predictor variables were secondary treatment effects (InDUC score, centered) and difference in use (centered). The dependent variable was the Quality of Life (WHO-QOL score, centered). The overall regression model was significant $(F(5, 120) = 11.353, p < .001, R^2 = .321)$, with difference in use, secondary treatment effects, and race being significant predictors of Quality of Life (see Table 5). Thus, as consequences due to use decrease (meaning secondary treatment effects increase), Quality of Life increases. Additionally, as individuals had a greater difference in use since entering

treatment, quality of life increased. Individuals who identify as American Indian/Alaskan Native had lower QoL scores than those who do not identify as American Indian/Alaskan Native (i.e., all other racial identities).

Table 5. Regression Coefficients

Model		Unstandardized Coefficients		Standardized Coefficients		
		B	Std. Error	Beta	t	Sig.
1	(Constant)	-14.103	4.263		-3.308	.001
	CTR_TimeTx	.001	.001	.085	.969	.334
	CTR_DiffUse	.365	.168	.209	2.178	.031
	CTR_InDUC	-.242	.094	-.285	-2.579	.011
	CTR_NoServices	-.013	1.127	-.001	-.011	.991
	DummyCodeRace	7.933	2.336	.259	3.395	<.001

Note: Dependent variable: CTR_WHOQOL

Research Question 2

A commonality analysis was used to determine whether secondary treatment effects or difference in use is a greater predictor of quality of life for the second research question. A series of equations were used to calculate the unique and shared variances of the control, differences in use, and InDUC scores (Capraro & Capraro, 2001). Various regression analyses were conducted to calculate R^2 for (model 1) all three control variables, (model 2) difference in use, (model 3) secondary treatment effects (InDUC), (model 4) combined variance of difference in use + secondary treatment effects (InDUC), (model 5) difference in use + control, and (model 6)

secondary treatment effects (InDUC) + control. These values for variance explained are modeled in Table 6. As previously identified in the first regression, answering research question 1, the combined variance overall for the model is $R^2 = .32$.

Table 6. R^2 among Predictor Variables

Model	R Square	Df	F	Sig
(1) Control Variables	.18	3, 122	9.026	$< .001$
(2) DiffUse	.17	1, 124	26.625	$< .001$
(3) InDUC	.22	1, 124	36.599	$< .001$
(23) DiffUse + InDUC	.25	2, 123	20.887	$< .001$
(12) DiffUse + Control	.28	4, 121	11.970	$< .001$
(13) InDUC + Control	.29	4, 121	12.615	$< .001$
(123) Total Model	.32	5, 120	11.353	$< .001$

The following equations were used to calculate the unique and common variances:

$$U(1) = R^2_{123} - R^2_{23},$$

$$U(2) = R^2_{123} - R^2_{13},$$

$$U(3) = R^2_{123} - R^2_{12},$$

$$C(12) = R^2_{13} - R^2_{3} + R^2_{23} - R^2_{123},$$

$$C(13) = R^2_{12} - R^2_{2} + R^2_{23} - R^2_{123},$$

$$C(23) = R^2_{12} - R^2_{1} + R^2_{13} - R^2_{123},$$

$$C(123) = R^2_{12} - R^2_{2} + R^2_{3} - R^2_{12} - R^2_{13} - R^2_{23} + R^2_{123}$$

where U represents unique variance and C represents common variance (Capraro & Capraro, 2001). Common and unique variances are modeled in Figure 3. As hypothesized, secondary treatment effects accounted for greater unique variance (4%) than differences in use scores (3%). Thus, secondary treatment effects are a greater predictor of quality of life than differences in substance usage. However, the combined common variance explained of both difference in substance use and secondary treatment effects is greater than the individual unique variance (7%), suggesting that the combination of secondary treatment effects and difference in substance use explains the variance of QoL more than either variable alone (common variance 7%, combined unique and common variance 14%). Additionally, the control variables (dummy-coded race, time in treatment, and number of treatment modalities) explain more unique variance (7%) than secondary treatment effects (4%) or differences in use (3%) do on their own.

Figure 3. Unique and Common Variances

Venn diagram of three overlapping circles. The blue circle is labeled "InDUC, $R^2 = .04$". The teal circle is labeled "DiffUse, $R^2 = .03$". The orange circle is labeled "Control Variables, $R^2 = .07$". The overlap between InDUC and DiffUse is labeled "InDUC + DiffUse, $R^2 = .07$". The overlap between InDUC and Control is labeled "InDUC + Control, $R^2 = .04$". The overlap between DiffUse and Control is labeled "DiffUse + Control, $R^2 = .00$". The central overlap of all three is labeled "Common to All, $R^2 = .07$".

Research Question 3

The final research question explored if a moderation existed between the secondary treatment effects and changes in substance use in relation to participant quality of life, where differences in use are a direct effect and secondary treatment effects strengthen or enhance the relationship between differences in use and QoL. The variables were standardized to avoid multicollinearity by centering the variables and creating an interaction term between secondary treatment effects (InDUC) and differences in substance use. The model was not significant for

moderation ($F(6, 119) = 10.02, p > .05$). Since the model was not significant, I did not interpret

the findings. Therefore, secondary treatment effects did not moderate difference in use scores.

CHAPTER V: DISCUSSION AND IMPLICATIONS

Previous researchers of counseling treatment outcomes for individuals with substance use disorders have focused on two criteria when defining 'success': abstinence and treatment completion (Donovan et al., 2012; MacMaster, 2004; Peters et al., 2017). Unfortunately, this approach means that 46% of those with SUDs "fail" because they do not abstain from use and/or complete treatment (Lappan et al., 2020; Stahler et al., 2016). Additionally, this approach potentially results in nearly 90% of individuals with SUDs never even pursuing treatment in the first place for a myriad of reasons (Lipari et al., 2016).

In recent years, a few researchers have expanded the conventional definition of 'success' and focused instead on the quality of life of individuals with substance use disorders (Barati et al., 2021; Ciobanu et al., 2020; Pasareanu et al., 2015) and the secondary treatment effects one often experiences alongside reduced substance use (Patterson et al., 2019). Yet, while some movement has been made, the dominant approach continues to focus solely on abstinence and substance use reduction as forms of success. Ironically, this dominant approach has only included two of eleven DSM-5 criteria for diagnosing substance use disorders. This study builds upon recent studies that seek to broaden the definition of success by suggesting a fuller integration of the DSM-5 criteria into how we treat and study those with SUDs. The enhanced approach proposed in this study shifts attention away from treatment completion, abstinence, or even a sole focus on a decrease in substance use. Instead, it operationalizes success as a function of secondary effects and quality of life often associated with reductions in substance use. This new approach aligns measures of success more fully with the DSM-5 diagnostic criteria for SUDs, which in turn could impact treatment programs. If adopted, this approach could improve

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treatment outcomes for far greater numbers of individuals and could have positive ancillary implications for treatment programs and the legal system.

This dissertation examines the importance of this broader and enhanced approach by investigating the correlation between an individual's substance use and the secondary treatment effects and quality of life among a representative sample of individuals with experience in SUD treatment programs. In this chapter, I will discuss the findings from this quantitative study, the study's limitations, its implications for substance use practitioners and counselor educators, and suggestions for future research.

Discussion of Results

The results of this study suggest three main themes. First, measuring success beyond sole cessation of or changes in substance usage and completion of treatment provides a more holistic and potentially more accurate perspective of treatment. Second, an emphasis on changes in substance use, rather than abstinence, is associated with improvements in the quality of life for those with SUDs. However, there is an even more significant impact on one's quality of life when considering the secondary effects of treatment. Thus, positive experiences may occur during treatment that increase quality of life in previously unnoticed or ignored ways, suggesting that both secondary treatment effects and substance use are important to assess and explain more in the outcome of quality of life. For example, participants who lowered their substance use but did not complete treatment reported lower consequences due to use in their experiences at work and relationships with family and friends. Finally, the combination of reduction of substance use and the reported secondary effects of treatment explain more variance in outcomes than either variable does independently. This reinforces the theoretical claims identified within this new approach and underscores the need to include both variables when treating individuals with

SUDs. Again, such an approach alters how treatment outcomes are assessed and could greatly

increase the numbers of individuals that successfully go through treatment and that enter

treatment due to the changed context in which SUDs are treated and understood.

Holistic View of Success Rooted in DSM-5

Even though most scholars and practitioners understand that ongoing use for someone with

a SUD has a negative impact on one's quality of life, few acknowledge or focus on the positive

consequences that decreases in substance use can have on many aspects of one's quality of life.

Again, we understand that greater substance usage is generally associated with negative

secondary effects and QoL. Still, we often ignore that even minor decreases in substance use for

one suffering from a SUD can improve one's overall wellbeing. Previously used definitions of

success (i.e., treatment completion and/or abstinence; Acion et al., 2017; Donovan et al., 2012;

Peters et al., 2017) may be too rigid and not fully encompass how one's experiences in treatment

affect other parts of their life. For example, rigid definitions of success do not consider one's

social relationships in determining successful treatment outcomes. This study overcomes this

limitation as the researcher measured myriad secondary treatment effects, including relationships

with friends and family. Thus, the secondary effects of treatment enhance the quality of life for

individuals in ways that would have been unnoticed and appreciated had the previous definition

of success been employed.

Success and failure are measured as a binary outcome in the conventional approach. This,

unfortunately, ignores the considerable variation of outcomes that exist for most people with

SUDs. For example, the World Health Organization's Quality of Life (WHOQOL) index

measures individuals' self-perception of their life conditions based on a score from 26-130; in

the current study, the scores on this index ranged from 48-118, illustrating the continuum of

results individuals identify in their lives (World Health Organization, 2004b). If evaluators used a binary measure here – like they do when evaluating success in substance use treatment, the results would be dramatically altered, suggesting that participants either have a positive or negative quality of life given their experience of treatment. This binary approach, along with primarily focusing on change or abstinence in substance use, is too narrow of a focus to determine successful outcome from substance use treatment.

Changes in substance use and secondary treatment effects are not measured on a binary in the current study. Instead, a continuum is employed, suggesting that there is more to each individuals' treatment process than just abstinence vs. use. For example, InDUC scores ranged from 0-45, difference in use scores ranged from -5-48, and WHOQOL scores ranged from 48-118. These ranges model that each individual has a unique experience in treatment. Therefore, we must employ a broader measure of how treatment and changes in usage influence other parts of peoples' lives (American Psychiatric Association, 2013). Adopting such an approach is similar to how we could improve our understanding of treatment and recovery if we seek to include all eleven criteria used for diagnosing a SUD, rather than focusing on one or two criteria because an individual may meet between two and eleven criteria. A detailed analysis of the relationship between treatment experiences and outcomes and an individual's perception of their quality of life is beyond the scope of this study. However, there is a clear relationship between one's usage and one's quality of life. Declines in use for someone with a SUD generally lead to positive consequences in other aspects of their life. In contrast, increases in usage are associated with negative consequences for this person's quality of life.

Another reason to adopt a holistic understanding and approach to treatment is that a significant percentage of individuals with SUDs are not seeking to abstain from substance use as

they strive to improve their lives (McKegany et al., 2004). Prior researchers have found that client motivations and treatment goals include sobriety (56%), harm-reduction (20%), and a combination of sobriety and harm-reduction (24%; McKeganey et al., 2004). Given that 44% of clients seek outcomes beyond sobriety, treatment could benefit from adopting a more holistic approach that encompasses reducing consequences due to use and improving QoL (McKeganey et al., 2004). Offering treatment that is more responsive to clients' goals and acknowledges client autonomy may help individuals feel more intrinsic motivation to seek substance use treatment (Deci & Ryan, 2000). Consistent with the findings from this dissertation study, substance use cannot and should not be ignored in evaluating one's treatment outcomes. Nevertheless, changes in usage do not occur in a vacuum, nor is it the sole focus of treatment. Linking changes in usage with an analysis of trends of how treatment affects other aspects of one's life will improve overall treatment outcomes.

Relationship Between Secondary Treatment Effects and QOL

The results of this study underscore the benefits of considering secondary treatment effects in measuring success. Secondary treatment effects were measured using a "consequences due to use" scale, whereby lower scores imply greater secondary treatment effects (Miller et al., 1995). As confirmed in the first research question, there is a significant negative relationship between consequences due to use and quality of life, which can be read as greater secondary treatment gains is related to greater quality of life. Inversely, quality of life improves as one decreases substance usage. These findings are consistent with Patterson et al. (2019); however, their study looked only at individuals who had completed substance use treatment and did not account for individuals currently in treatment who may or may not complete treatment. Thus, the

study relied on the outcome of treatment completion in assessing growth due to secondary treatment effects, while not all individuals who enter treatment complete it.

To overcome these previous limitations, I hypothesized in this study that secondary treatment effects would be a stronger predictor of participant quality of life than differences in substance use. This hypothesis was confirmed, albeit by a small margin, as 4% of the unique variance can be attributed to secondary effects and 3% to differences in use scores. This finding is important because it suggests that secondary treatment effects and differences in use each explain a unique, though essentially equal, component of QoL. However, as demonstrated in the literature, differences in use are used to measure "success" at far more frequent rates than secondary treatment effects. Suppose we ignore secondary treatment effects when considering an individual's progress in substance use treatment. In that case, we fail to appreciate significant indicators of improvement one may have experienced in one's professional, personal and social life. Unfortunately, this narrower approach also minimizes the individual to being equated solely as the result of their substance use.

The Impact of Declining Substance Use on QoL

While secondary treatment effects account for more unique variance than difference in use, difference in use scores cannot be ignored. This study models that difference in use scores account for 3% of the unique variance in quality of life scores. This finding suggests that changes in substance use cannot be ignored when quantifying treatment success. Previous researchers who have relied on the difference in use in measuring success were not incorrect but instead were missing the whole picture. Changes in use are significant in improved QoL in individuals in treatment, but they must be considered alongside a multitude of areas that one may show improvements.

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Combination of Secondary Treatment Effects and Difference in Use on QOL

Perhaps the most important finding from this study is that the combination of secondary treatment effects and differences in use account for more variance than either measurement alone. This finding enhances the theory that a holistic approach to measuring success would greatly enhance our understanding and treatment of this with SUDs. Overall, the model accounted for 32% of the overall variance in QoL scores. The shared variance between secondary treatment effects and difference in use accounted for 7%. Given that uniquely secondary treatment effects and difference in use account for 4% and 3%, respectively, 14% of the 31% in variance can be explained by these two variables alone. Additionally, another 7% in variance was explained by the control variables: days in treatment, number of treatment modalities, and dummy-coded race.

The variance explained by the three control variables tells us that as time in treatment and the number of treatment modalities an individual is engaging in increases (e.g., outpatient treatment and 12-step meetings), QoL increases. Time in treatment is consistent with previous research findings that time spent in treatment is a predictor of treatment outcomes (Condelli & Hubbard, 1994). Condelli and Hubbard looked at outcome differences in treatment stays ranging from 50-365 days and found that while longer stays were correlated with decreases in heroin, cocaine, and marijuana use, and increases in employment, there were many outcomes not measured; the researchers suggested these outcomes be explored in future studies, such as this one. In both the Condelli study and the present study, a top "cut-off" score was not identified to determine the optimal time in treatment and number of treatment modalities to optimize QoL and can be explored in future studies. Finally, in the present study, individuals who identify as American Indian/Alaskan Native had lower QoL scores than those who do not identify as

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American Indian/Alaskan Native (i.e., all other racial identities). Due to the quantitative design of the study, more information is needed to understand this racial discrepancy. Previous researchers have reported higher rates of substance use among American Indian/Alaskan Native adolescents when compared to White adolescents; this is further complicated by the fact that American Indians/Alaskan Natives are less likely to hold a Bachelor's degree and more likely to be of low socioeconomic status (Whitesell et al., 2012). American Indian/Alaskan Native adults report lower rates of alcohol use than White adults, but those who do report use report more frequent heavy drinking (Whitesell et al., 2012). The items assessed on the WHOQOL-BREF and InDUC may not encompass the components of QoL that are targeted by treatment for American Indian/Alaskan Native individuals. Future researchers can consider the use of other measurements that may be more comprehensive in understanding QoL in this population.

The findings that the two variables of interest – secondary treatment effects and difference in use – are critical in the understanding of QoL are consistent with the diagnostic criteria for SUDs, in which the first two criteria consider substance use, and the following nine criteria emphasize the effect of substance use on one's life (American Psychiatric Association, 2013). Just as an individual is not diagnosed with a substance use disorder based solely on the quantity of substance used, success should not be quantified by the amount of substance use. Instead, developing a broader array of measures that operationalize all eleven DSM-5 criteria would better reflect both changes in use and secondary effects and the impact that these have on one's quality of life. The adoption of this new approach could lead to the types of changes in treatment that occurred in the mental health field when practitioners and researchers combined psychopharmacological and therapeutic interventions to create more effective outcomes for individuals with certain mental health disorders (e.g., obsessive-compulsive disorder, panic

disorder) than either intervention produced on its own (Foa et al., 2002). Whereas mental health practitioners amend treatment modalities to meet client needs best, substance use researchers can also amend treatment expectations to facilitate improvement at every stage of the treatment process.

Moderation

Secondary treatment effects did not moderate the direct relationship of difference in use to QoL. Therefore, both secondary treatment effects and differences in use are individually and uniquely important in terms of the main effect. As mentioned previously, the combination of secondary treatment effects and differences in use is stronger in influencing QoL than either variable alone. However, secondary treatment effects do not strengthen differences in use with QoL.

<div align="center">

Limitations

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This dissertation study is not without limitations. First, the surveyor only collected data at one time point. Participants reflected on their substance use in the two weeks before beginning treatment. For some individuals, these two weeks fell less than two months before survey completion; for others, they were asked to reflect on their use up to 12 years before completing the survey. It is impossible to know the accuracy of one's memory of their use. Second, the measures used in the study are self-reported inventories. The researcher cannot guarantee that participants answered in a way that reflects their authentic experiences as opposed to responding in a socially desirable manner. Still, the survey was designed to limit systematic error associated with such responses. In particular, five items on the InDUC are control items that are employed to detect 'careless or dishonest responding' (Miller et al., 1995, p. 72), These items do not contribute to the total InDUC score, but they allow the researcher to assess the validity of

participant responses. Participants scoring low on these five items can be removed from the analysis. The researcher reviewed the control items and did not eliminate any participants based on their responses to the control items, suggesting participants responded honestly.

Ideally, we would collect data from individuals on a complete continuum ranging from those with SUDs that have never experienced treatment to those who have completed long-term treatment programs and everything in between. As the data stands currently, the use of a cross-sectional study prevented the researcher from exploring if secondary treatment effects changed over time, if difference in use occurred simultaneously or sequentially with secondary treatment effects, and if QoL is impacted if an individual seeking abstinence experiences a relapse. The use of a longitudinal study would allow the researcher to collect data at multiple time points. However, a researcher must engage a manageable population so we can begin to understand the spectrum of experiences those with SUDs undergo when seeking improvement in their lives. To this end, this researcher required participants to complete a minimum of 28 days of treatment to meet inclusion criteria. Researchers' consensus that 28 days is the critical number of days in treatment necessary to see improvements in clients receiving substance use services informed this decision (Gossop et al., 1999; Lookatch et al., 2017; Luoma et al., 2012). This treatment dosage requirement, however, excludes individuals who leave treatment earlier than 28 days. In doing so, critical data is lost regarding what, if any, the benefits of the first few weeks of treatment have on one's recovery. Unlike previous studies (e.g., Andersson et al., 2018; Laundergan, 1982; Patterson et al., 2019), however, treatment completion was not a prerequisite for this study. Unfortunately, we were not able to disregard the conventional measure of 'success' altogether as individuals included in this study still had to meet a minimum treatment threshold of four weeks. Future research would benefit from engaging this population of

individuals who have not met the 28-day minimum to test these hypotheses on a broader segment of the SUD population. Nevertheless, and unlike previous studies (e.g., Andersson et al., 2021; Laundergan, 1982; Patterson et al., 2019), this study did not require treatment completion as a requirement to start addressing this concern about a continuum of care affecting treatment outcomes. Although the ultimate goal of this research agenda will be to broaden "success" as much as possible, this study measured success as anyone who experienced at least 28 days of treatment.

Finally, the structure of data prevents us from tracking which participants will and will not complete treatment and will or will not reach abstinence, which are the conventional measures. Relatedly, we cannot compare the impact of various treatment lengths or changes in usage among these different population samples. Ideally, it would be helpful to determine how outcomes vary based on whether individuals complete treatment or are discharged early and how treatment outcomes may vary for individuals who maintain abstinence. Once again, future research would benefit from engaging a large enough sample to test the differences in outcomes in terms of treatment and usage/abstinence and how this affects secondary effects and quality of life.

<h2 style="text-align:center">Implications</h2>

As outlined in Chapter 1, multiple stakeholders rely on the definition of success in substance use treatment. Among these are individuals with SUDs, practitioners, counselor educators and researchers, and policymakers. There is momentum among a growing number of scholars to consider other outcomes in evaluations of treatments of SUDs (Tiffany et al., 2012a). For example, a 2009 panel of experts created by the National Institute on Drug Abuse concluded that health, wellbeing, psychological functioning, relationships, productivity, and criminality are

all consequences of substance use that must be addressed when considering treatment outcomes (Tiffany et al., 2012a). Critics of this new approach argue that evidenced-based practice supports the focus on the efficacy and effectiveness of reducing substance use because this is how treatment has traditionally been marketed to stakeholders (i.e., clinicians, policymakers, researchers; Tiffany et al., 2012b). Ironically, these critics ignore yet another critical group of stakeholders, i.e., individuals in treatment. In doing so, these scholars and practitioners fail to appreciate new evidence that points to a broader set of measures that more accurately address the experience of individuals with SUDs.

Implications for Individuals with SUDs

The results of this study demonstrate that a shift to a more holistic approach and understanding of treatment could dramatically alter the numbers of individuals with SUDs seeking treatment and the quality of their experiences and outcomes once they enroll. Despite more than 21 million individuals in the United States living with SUDs, only 10% will enroll in treatment in a given year (Lipari et al., 2016). Of those who do not enroll in treatment, 95% report not feeling a need for treatment (R. N. Lipari et al., 2016). Expanding the messaging of what individuals can expect in treatment – i.e., moving from an abstinence expectation to an expectation of improved quality of life – may result in more individuals being 'successful' in treatment. The combination of positive outcomes may, in turn, reduce the negative stigma associated with help-seeking behaviors in individuals with SUDs, as individuals learn that it is normal to have multiple and ongoing treatment experiences (Janulis et al., 2013). Additionally, this newfound definition of success emphasizes the biopsychosocial model of addiction, in which an individual's entire wellbeing is considered in treatment, including their familial roles,

relationships, work and leisure activities, as well as their emotional and mental functioning and changes in use (Skewes & Gonzalez, 2013).

Implications for Practitioners

The conventional wisdom among clinicians is that the widespread use of evidence-based practices (EBPs) has closed the "researcher-practitioner gap" as these practices are empirically sound and contain evidence of efficacy and effectiveness (Sexton, 1999). A significant weakness of many EBPs has been their reliance on homogenized samples, which ignores important cultural considerations that alter how clinicians deal with patients of varied socioeconomic, racial, ethnic, and sexual identities and how they experience treatment (Ingraham & Oka, 2006). Despite this lack of multiculturalism and individualism, EBPs are still used by counselors, largely due to the fact that insurance companies and Medicaid/Medicare strongly prefer EBPs for clients receiving treatment and have structured their reimbursement models to align with EBP use (Crable et al., 2022). Researchers note that most SUD EBPs focus on the efficacy and effectiveness of decreasing substance use (Tiffany et al., 2012a). Beyond a focus on reduced substance use, however, increasing numbers of clinicians have also emphasized social components of recovery (e.g., employment, family relations), spirituality, and mental health functioning (Dodge et al., 2010). Since a core tenet of successful counseling requires clinicians to emphasize and set treatment goals with individual clients, many clinicians have begun focusing on more than abstinence to address their clients' needs, even though these success domains are not consistently reflected in research.

Clinicians, therefore, can continue to emphasize holistic approaches to SUD counseling. Practitioners should be trained to utilize the DSM-5 for not only diagnostic purposes but also for outcome evaluation. Courses focusing on treatment planning and assessment can incorporate the

DSM beyond diagnosis. The three measures used in this study - the NIDA Modified Assist, InDUC, and WHOQOL-BREF - are closely aligned with the DSM-5 criteria for SUDs (see Figure 1). Using these three measures, instead of solely using a substance use quantity measure (i.e., AUDIT, DAST), can give clinicians a broad and comprehensive understanding of client needs and progress in treatment.

Implications for Counselor Educators and Researchers

The primary contributions of this study have been to broaden our definition of treatment success and to offer a more holistic approach to treatment that links declining substance use with improved secondary effects of treatment and quality of life. This study also makes several additional contributions that can alter how research is conducted and how counselors are trained. First, the current study was comprehensive in sampling procedures. The researcher contacted program coordinators from sites around the country that served myriad populations. This resulted in a diverse sample, including 40% female, 42% black or African American, and 58% Hispanic or Latino respondents. This cultural inclusivity is essential in SUD research because previous researchers have identified that White, non-Hispanic men are most likely to receive SUD treatment, which points to treatment outcomes being normed in this sample (Johnson et al., 2020). Researchers should continue to explore the treatment needs, expectations, and outcomes of diverse samples of individuals. Continued use of the InDUC, which was normed on a predominantly white (53%) male (77%) population, can help researchers develop more culturally sound psychometrics for the instrument (Miller et al., 1995).

Second, as mentioned previously, counselor educators should train new counselors to incorporate all eleven criteria of the DSM-5 for diagnostic and treatment purposes. CACREP addiction standard 1.e notes a contextual understanding of the "neurological, behavioral,

psychological, physical, and social effects" of substance use is necessary in one's addiction education; these standards align with the DSM-5 categorizations of *impaired control, social impairment, risky use,* and *pharmacological* criteria (American Psychiatric Association, 2013; Council for Accreditation of Counseling and Related Educational Programs, 2009). Counselor educators can model the use of the DSM-5 in their teaching of diagnosis and outcome evaluation. CACREP standard 2.f for addiction counseling emphasizes teaching the role of wellness (i.e., quality of life) in relation to the addiction recovery process (CACREP, 2016). Relatedly, researchers may explore how this broader definition of success alters the numbers of individuals seeking treatment and the experience of those who enroll in treatment programs.

Implications for Policy Makers

Policymakers, who historically have relied on the moral model of addiction, may expand their understanding of substance use beyond viewing addiction as a choice made by the individual with the substance use disorder (Henden et al., 2013). From a moral view, punishment (i.e., incarceration) is a way to modify addictive behavior. In the criminal justice system in the United States, for example, the Anti-Drug Abuse Act (1988) requires an abstinence-based drug policy, including fines and imprisonment for substance abuse. This Act, a pivotal movement in the War on Drugs, has contributed to drug-related offenses being responsible for two-thirds of the increase in federal prisons and the number of incarcerated individuals in the U.S. multiplying from 300,000 to over 2 million in just 30 years (Mauer, 2006). Policymakers may consider whether incarceration is the best approach in working with individuals with drug-related convictions. By emphasizing holistic treatment that does not punish one's substance use, policymakers may dramatically reduce recidivism among individuals with SUDs and put these individuals on a path toward healthy societal relationships. Policymakers may also use the results

that secondary treatment effects and differences in substance use are of nearly equal importance (4% and 3% of variance explained, respectively), and combined are more important than either variable alone (7% of variance explained) to influence the funding of programs that appreciate a holistic approach in focusing on both reductions in use and improvements in secondary treatment effects. Since substance use treatment can be lengthy and intensive, policymakers may expand funding to treatment programs for individuals with SUDs, especially among demographic groups with high numbers of individuals incarcerated due to substance use-related crimes. In principle, the number of individuals with drug-related convictions should decrease as treatment enrollment and resources increase for these key demographic groups.

Suggestions for Future Research

This study is the first phase of a larger research agenda that seeks to redefine substance use treatment success. A critical next step in this research agenda will be to conduct a longitudinal study that examines the interplay of declining substance usage with secondary treatment effects and quality of life over more extended periods of time. This would allow researchers to determine critical periods in substance use treatment and whether different treatment programs and durations vary in their effectiveness and long-term impact on various types of clients. Additionally, researchers conducting a longitudinal study may be able to identify if either improvement in secondary treatment effects or differences in use precedes the other. Post-treatment, follow-up analyses can also shed light on how QoL is affected after treatment, as well as differences that may exist between individuals who complete treatment and those who do not.

This quantitative study determined a general relationship between secondary treatment effects, substance use, and QoL. It did not, however, suggest which focuses of treatment are

perceived as most important to individuals in treatment. A Delphi methodology could be conducted to answer the question of what experts in substance use recovery (i.e., individuals with at least one diagnosed SUD who are currently in treatment, clinicians, and individuals who did not complete treatment) deem are the key areas that facilitate recovery. The Delphi method is utilized in scenarios where there is a lack of empirical evidence about a construct or phenomenon (Powell, 2003) and can indicate when findings may be "critical" (i.e., will affect and influence change at organizational and systemic levels; Clayton, 1997). In the case of substance use treatment recovery, such a study may reveal that previous focal points, such as abstinence, are not the most critical components of treatment success. If this is the case, current definitions of success may need to be overhauled rather than merely expanded upon, as this study suggests. A gap currently exists in the research that clearly defines what components are most important to individuals in treatment.

Finally, redefining how we measure success should not be limited to substance use disorders. Researchers in other mental health specializations, such as eating disorder recovery, may also explore what a comprehensive view of "success" looks like. This may challenge previous definitions of success and encourage more DSM-rooted definitions for diagnosis and treatment.

Conclusion

Previously utilized, rigid definitions of success are isolating to individuals who do not meet such criteria. Rooting substance use treatment success in the DSM-5 recognizes that success is not limited to abstinence or treatment completion but encompasses all of an individual's wellbeing. Encouraging improvements in quality of life may result in more individuals attending substance use treatment. While changes in use are essential in improving

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quality of life, so too are secondary treatment effects, such as improved relationships, mental wellbeing, and physical functioning. This dissertation study confirmed that treatment success should be comprehensively defined and rooted in the DSM-5 and will allow the researcher to continue exploring the most critical aspects of treatment in future studies.

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I. Demographic Information

1) What is your age?
   a) Fill in the blank
2) How do you identify your race? Select all that apply.
   a) American Indian or Alaskan Native
   b) Asian
   c) Black/African American
   d) Multiracial (describe, if you wish)
   e) Native Hawaiian or Other Pacific Islander
   f) White
   g) My racial identity is not listed (please specify)
3) With what ethnicity do you identify?
   a) Hispanic or Latino
   b) Not Hispanic or Latino
4) Does your gender identity match the gender you were assigned at birth? Choose one.
   a) Yes
   b) No
   c) Unsure; Maybe; Questioning; Exploring
   d) Prefer not to say; Prefer not to disclose
   e) Something else (please specify)
5) What is your gender identity? Choose all that apply.
   a) Female; Woman; Girl
   b) Male; Man; Boy
   c) Non-binary
   d) Questioning; Exploring
   e) Prefer not to respond; Prefer not to disclose
   f) Gender identity not listed (please specify)

II. Treatment History

1) How many times have you been in substance use treatment (include current experience)?
   a) Fill in the blank
2) How many times have you completed substance use treatment?
   a) Fill in the blank
3) How many consecutive days have you received treatment?
   a) 0-27 days (if selected, survey is terminated)
   b) 28-60 days
   c) 60-90 days

d) 90+ days
4) Where are you currently receiving treatment? Select all that apply.
   a) Residential Treatment Facility
   b) Outpatient Treatment Facility
   c) Individual Therapist
   d) Peer Support Group such as Alcoholics Anonymous or Narcotics Anonymous
   e) Living in Recovery Community
5) Please enter the name(s) of all the facilities, therapists, and meetings where you currently receive treatment:
6) Do you have a co-occurring mental health disorder?
   a) No
   b) Yes
       (i) If YES: Are you receiving treatment for your mental health disorder (either by the same therapist/at the same agency as your substance use treatment or at a different agency?)
       i. No
       ii. Yes, at the same agency
       iii. Yes, at a different agency

III. Pre-treatment Substance Use
1) In the two weeks PRIOR TO treatment, about how often did you…
   a) Have an alcoholic beverage (beer, wine, liquor, etc.?)
       (i) Not at all
       (ii) Less than a day or two
       (iii) Several Days
       (iv) More than half the days
       (v) Nearly every day
   b) Have 4 or more drinks in a single day?
       (i) Not at all
       (ii) Less than a day or two
       (iii) Several Days
       (iv) More than half the days
       (v) Nearly every day
2) In the two weeks PRIOR TO treatment, about how often did you use any of the following medicines ON YOUR OWN, that is, without a doctor's prescription, in greater amounts or longer than prescribed?
   a) Painkillers (like Vicodin)
       (i) Not at all
       (ii) Less than a day or two
       (iii) Several Days

(iv)More than half the days

(v) Nearly every day

b) Stimulants (like Ritalin, Adderall)

(i) Not at all

(ii) Less than a day or two

(iii)Several Days

(iv)More than half the days

(v) Nearly every day

c) Sedatives or Tranquilizers (like sleeping pills or Valium)

(i) Not at all

(ii) Less than a day or two

(iii)Several Days

(iv)More than half the days

(v) Nearly every day

3) In the two weeks PRIOR TO treatment, about how often did you use any of the following substances?

a) Marijuana

(i) Not at all

(ii) Less than a day or two

(iii)Several Days

(iv)More than half the days

(v) Nearly every day

b) Cocaine or crack

(i) Not at all

(ii) Less than a day or two

(iii)Several Days

(iv)More than half the days

(v) Nearly every day

c) Club drugs (like ecstasy)

(i) Not at all

(ii) Less than a day or two

(iii)Several Days

(iv)More than half the days

(v) Nearly every day

d) Hallucinogens (like LSD)

(i) Not at all

(ii) Less than a day or two

(iii)Several Days

(iv)More than half the days

(v) Nearly every day

e) Heroin
    (i) Not at all
    (ii) Less than a day or two
    (iii)Several Days
    (iv)More than half the days
    (v) Nearly every day

f) Inhalants or solvents (like glue)
    (i) Not at all
    (ii) Less than a day or two
    (iii)Several Days
    (iv)More than half the days
    (v) Nearly every day

g) Methamphetamine (like speed)
    (i) Not at all
    (ii) Less than a day or two
    (iii)Several Days
    (iv)More than half the days
    (v) Nearly every day

IV. Current Substance Use

1) Over the past two weeks, about how often did you…
   a) Have an alcoholic beverage (beer, wine, liquor, etc.?)
       (i) Not at all
       (ii) Less than a day or two
       (iii)Several Days
       (iv)More than half the days
       (v) Nearly every day
   b) Have 4 or more drinks in a single day?
       (i) Not at all
       (ii) Less than a day or two
       (iii)Several Days
       (iv)More than half the days
       (v) Nearly every day

2) Over the past two weeks, about how often did you use any of the following medicines ON YOUR OWN, that is, without a doctor's prescription, in greater amounts or longer than prescribed?
   a) Painkillers (like Vicodin)
       (i) Not at all
       (ii) Less than a day or two
       (iii)Several Days
       (iv)More than half the days

            (v) Nearly every day

    b) Stimulants (like Ritalin, Adderall)

          (i) Not at all

          (ii) Less than a day or two

          (iii)Several Days

          (iv)More than half the days

          (v) Nearly every day

    c) Sedatives or Tranquilizers (like sleeping pills or Valium)

          (i) Not at all

          (ii) Less than a day or two

          (iii)Several Days

          (iv)More than half the days

          (v) Nearly every day

3) Over the past two weeks, about how often did you use any of the following substances?

    a) Marijuana

          (i) Not at all

          (ii) Less than a day or two

          (iii)Several Days

          (iv)More than half the days

          (v) Nearly every day

    b) Cocaine or crack

          (i) Not at all

          (ii) Less than a day or two

          (iii)Several Days

          (iv)More than half the days

          (v) Nearly every day

    c) Club drugs (like ecstasy)

          (i) Not at all

          (ii) Less than a day or two

          (iii)Several Days

          (iv)More than half the days

          (v) Nearly every day

    d) Hallucinogens (like LSD)

          (i) Not at all

          (ii) Less than a day or two

          (iii)Several Days

          (iv)More than half the days

          (v) Nearly every day

    e) Heroin

           (i) Not at all
           (ii) Less than a day or two
           (iii)Several Days
           (iv)More than half the days
           (v) Nearly every day
     f)   Inhalants or solvents (like glue)
           (i) Not at all
           (ii) Less than a day or two
           (iii)Several Days
           (iv)More than half the days
           (v) Nearly every day
     g) Methamphetamine (like speed)
           (i) Not at all
           (ii) Less than a day or two
           (iii)Several Days
           (iv)More than half the days
           (v) Nearly every day

V. Inventory of Drug Use Consequences (since beginning treatment)

1) I have had a hangover or felt bad after drinking or using drugs.
    a) No
    b) Yes
2) I have felt bad about myself because of my drinking or drug use.
    a) No
    b) Yes
3) I have missed days of work or school because of my drinking or drug use.
    a) No
    b) Yes
4) My family or friends have worried or complained about my drinking or drug use.
    a) No
    b) Yes
5) I have enjoyed drinking or using drugs.
    a) No
    b) Yes
6) The quality of my work has suffered because of my drinking or drug use.
    a) No
    b) Yes
7) My ability to be a good parent has been harmed by my drinking or drug use.
    a) No
    b) Yes

8) After drinking or using drugs, I have had trouble with sleeping, staying asleep, or nightmares.
   a) No
   b) Yes

9) I have driven a motor vehicle while under the influence of alcohol or other drugs.
   a) No
   b) Yes

10) Drinking or using one drug has caused me to use other drugs more.
   a) No
   b) Yes

11) I have been sick and vomited after drinking or using drugs.
   a) No
   b) Yes

12) I have been unhappy because of my drinking or drug use.
   a) No
   b) Yes

13) Because of my drinking or drug use, I have lost weight or not eaten properly.
   a) No
   b) Yes

14) I have failed to do what is expected of me because of my drinking or drug use.
   a) No
   b) Yes

15) Drinking or using drugs has helped me to relax.
   a) No
   b) Yes

16) I have felt guilty or ashamed because of my drinking or drug use.
   a) No
   b) Yes

17) While drinking or using drugs, I have said or done embarrassing things.
   a) No
   b) Yes

18) When drinking or using drugs, my personality has changed for the worse.
   a) No
   b) Yes

19) I have taken foolish risks when I have been drinking or using drugs.
   a) No
   b) Yes

20) I have gotten into trouble because of drinking or drug use.
   a) No

b) Yes

21) While drinking or using drugs, I have said harsh or cruel things to someone.
   a) No
   b) Yes

22) When drinking or using drugs, I have done impulsive things that I regretted later.
   a) No
   b) Yes

23) I have gotten into a physical fight while drinking or using drugs.
   a) No
   b) Yes

24) My physical health has been harmed by my drinking or drug use.
   a) No
   b) Yes

25) Drinking or using drugs has helped me to have a more positive outlook on life.
   a) No
   b) Yes

26) I have had money problems because of my drinking or drug use.
   a) No
   b) Yes

27) My marriage or love relationship has been harmed by my drinking or drug use.
   a) No
   b) Yes

28) I have smoked tobacco more when I am drinking or using drugs.
   a) No
   b) Yes

29) My physical appearance has been harmed by my drinking or drug use.
   a) No
   b) Yes

30) My family has been hurt by my drinking or drug use.
   a) No
   b) Yes

31) A friendship or close relationship has been damaged by my drinking or drug use.
   a) No
   b) Yes

32) I have spent time in jail or prison because of my drinking or drug use.
   a) No

b) Yes
33) My sex life has suffered because of my drinking or drug use.
   a) No
   b) Yes
34) I have lost interest in activities and hobbies because of my drinking or drug use.
   a) No
   b) Yes
35) When drinking or using drugs, my social life has been more enjoyable.
   a) No
   b) Yes
36) My spiritual or moral life has been harmed by my drinking or drug use.
   a) No
   b) Yes
37) Because of my drinking or drug use, I have not had the kind of life that I want.
   a) No
   b) Yes
38) My drinking or drug use has gotten in the way of my growth as a person.
   a) No
   b) Yes
39) My drinking or drug use has damaged my social life, popularity, or reputation.
   a) No
   b) Yes
40) I have spent too much or lost a lot of money because of my drinking or drug use.
   a) No
   b) Yes
41) I have been arrested for driving under the influence of alcohol or other drugs.
   a) No
   b) Yes
42) I have been arrested for other offenses (besides driving under the influence) related to my drinking or other drug use.
   a) No
   b) Yes
43) I have lost a marriage or a close love relationship because of my drinking or drug use.
   a) No
   b) Yes
44) I have been suspended/fired from or left a job or school because of my drinking or drug use.

a) No

b) Yes

45) I have used drugs moderately, without having problems.

a) No

b) Yes

46) I have lost a friend because of my drinking or drug use.

a) No

b) Yes

47) I have had an accident while using or under the influence of alcohol or drugs.

a) No

b) Yes

48) While using or under the influence of alcohol or drugs, I have been physically hurt, injured, or burned.

a) No

b) Yes

49) While using or under the influence of alcohol or drugs, I have injured someone.

a) No

b) Yes

50) I have broken things or damaged property while using or under the influence of alcohol or drugs.

a) No

b) Yes

VI. WHO-QOL

1) How would you rate your quality of life?

a) Very poor

b) Poor

c) Neither poor nor good

d) Good

e) Very good

2) How satisfied are you with your health?

a) Very dissatisfied

b) Dissatisfied

c) Neither satisfied nor dissatisfied

d) Satisfied

e) Very satisfied

3) The following questions ask about how much you have experienced certain things in the last two weeks:

To what extent do you feel that (physical) pain prevents you from doing what you need to do?

a) Not at all
b) A little
c) A moderate amount
d) Very much
e) An extreme amount

4) How much do you need any medical treatment to fnction in your daily life?
   a) Not at all
   b) A little
   c) A moderate amount
   d) Very much
   e) An extreme amount

5) How much do you enjoy life?
   a) Not at all
   b) A little
   c) A moderate amount
   d) Very much
   e) An extreme amount

6) To what extent do you feel your life to be meaningful?
   a) Not at all
   b) A little
   c) A moderate amount
   d) Very much
   e) An extreme amount

7) How well are you able to concentrate?
   a) Not at all
   b) A little
   c) A moderate amount
   d) Very much
   e) An extreme amount

8) How safe do you feel in your daily life?
   a) Not at all
   b) A little
   c) A moderate amount
   d) Very much
   e) An extreme amount

9) How healthy is your physical environment?
   a) Not at all
   b) A little
   c) A moderate amount
   d) Very much

e) An extreme amount

10) The following questions ask about how completely you experienced or were able to do certain things in the last two weeks:

Do you have enough energy for everyday life?
a) Not at all
b) A little
c) Moderately
d) Mostly
e) Completely

11) Are you able to accept your bodily appearance?
a) Not at all
b) A little
c) Moderately
d) Mostly
e) Completely

12) Have you enough money to meet your needs?
a) Not at all
b) A little
c) Moderately
d) Mostly
e) Completely

13) How available to you is the information that you need in your day-to-day life?
a) Not at all
b) A little
c) Moderately
d) Mostly
e) Completely

14) To what extent do you have the opportunity for leisure activities?
a) Not at all
b) A little
c) Moderately
d) Mostly
e) Completely

15) How well are you able to get around?
a) Very poor
b) Poor
c) Neither poor nor good
d) Good
e) Very good

16) The following questions ask you to say how good or satisfied you have felt about various aspects of your health over the last two weeks.

How satisfied are you with your sleep?

a) Very dissatisfied
b) Dissatisfied
c) Neither satisfied nor dissatisfied
d) Satisfied
e) Very satisfied

17) How satisfied are you with your ability to perform your daily living activities?

a) Very dissatisfied
b) Dissatisfied
c) Neither satisfied nor dissatisfied
d) Satisfied
e) Very satisfied

18) How satisfied are you with your capacity for work?

a) Very dissatisfied
b) Dissatisfied
c) Neither satisfied nor dissatisfied
d) Satisfied
e) Very satisfied

19) How satisfied are you with yourself?

a) Very dissatisfied
b) Dissatisfied
c) Neither satisfied nor dissatisfied
d) Satisfied
e) Very satisfied

20) How satisfied are you with your personal relationships?

a) Very dissatisfied
b) Dissatisfied
c) Neither satisfied nor dissatisfied
d) Satisfied
e) Very satisfied

21) How satisfied are you with your sex life?

a) Very dissatisfied
b) Dissatisfied
c) Neither satisfied nor dissatisfied
d) Satisfied
e) Very satisfied

22) How satisfied are you with the support you get from friends?

a) Very dissatisfied

b) Dissatisfied

c) Neither satisfied nor dissatisfied

d) Satisfied

e) Very satisfied

23) How satisfied are you with the conditions of your living place?

    a) Very dissatisfied

    b) Dissatisfied

    c) Neither satisfied nor dissatisfied

    d) Satisfied

    e) Very satisfied

24) How satisfied are you with your access to health services?

    a) Very dissatisfied

    b) Dissatisfied

    c) Neither satisfied nor dissatisfied

    d) Satisfied

    e) Very satisfied

25) How satisfied are you with your transport?

    a) Very dissatisfied

    b) Dissatisfied

    c) Neither satisfied nor dissatisfied

    d) Satisfied

    e) Very satisfied

26) The following question refers to how often you have felt or experienced certain things in the last two weeks:

How often do you have negative feelings such as blue mood, despair, anxiety, depression?

    a) Never

    b) Seldom

    c) Quite often

    d) Very often

    e) Always

VII.   **Collection of Email Addresses**

1) If you'd like to receive a $10 gift card for your time, please follow the link below to enter your email address. Your email address will not be connected to your survey answers.

    a) Email Address Collection

        i. Fill in the blank

APPENDIX B: PILOT STUDY QUESTIONS

I.   Did you encounter problems while taking the questionnaire?
      a. Yes (please specify)
      b. No

II.   Were there any questions that did not make sense to you?
      a. Yes (please specify)
      b. No

III.   Do you have any suggestions for change to this questionnaire?
      a. Yes (please specify)
      b. No

IV.   You were paid $10 to take this questionnaire. Did this amount feel appropriate for the amount of time the questionnaire took to complete?
      a. Yes
      b. No

V.   If $10 did not feel appropriate, what amount would incentivize this study?
      a. Free response

Dear _____,

      My name is Caroline Trustey, and I am a third year doctoral student in Counseling and Counselor Education at the University of North Carolina at Greensboro. I am reaching out to you today as I am completing a dissertation on substance use treatment outcomes. I am currently conducting a research study and examining the connections between Quality of Life, Secondary Treatment Effects, and changes in substance use. The purpose of my study is to explore how quality of life and secondary treatment effects (such as changes in mental health, employment, and relationships) might be indicators of 'success' in substance use treatment alongside or independently of changes in use.

      I have created an IRB-approved survey that I am asking individuals currently in treatment to complete. The survey can be taken online via Qualtrics. Participants will receive informed consent information prior to starting, and then will complete a survey. The survey asks participants questions about their use history, their quality of life, and the recent impact substance use (or lack thereof) has had on their life. The survey takes approximately 10-15 minutes, and the first 100 participants will be paid a $10 gift card for their time.

      To be eligible for participation, an individual must be at least 18 years old, have a diagnosis of a substance use disorder(s), and have been engaging in treatment for a minimum of 28 days. Participants will be excluded if they have been in treatment for fewer than 28 days or if nicotine is their only substance use disorder (a diagnosis of nicotine use disorder cooccurring with other use disorders are eligible for participation). Clients with co-occurring mental health disorders are eligible to participate.

      I am hoping you will distribute this flyer and survey link at your site. As an incentive to you, if greater than 10 of your clients participate, you will receive a brief data report which will outline the treatment outcomes that clients at your site report.

Additionally, I am hoping to come to your site to offer the survey via paper and pencil for individuals who may not have access to the internet. I would love to speak with you more about what this may look like.

If you have any questions, please do not hesitate to reach me at (978) 400 – 1820 or cetruste@uncg.edu.

Thank you for your support of this project!

Warmly,
Caroline Trustey (she/her)

Doctoral Student
Department of Counseling and Educational Development
The University of North Carolina at Greensboro
978-400-1820 // cetrustey@uncg.edu

MORE THAN A NUMBER:

Measuring Success in Substance Use Treatment

A research study exploring changes in quality of life and secondary treatment effects (mental health, employment, relationships, etc.) as indicators of success in substance use treatment.

SEEKING PARTICIPANTS

to complete a brief (10-15 minute) survey about treatment outcomes in substance use treatment

$10 gift card
UPON COMPLETION FOR FIRST 100 PARTICIPANTS

TO PARTICIPATE:

Scan the QR code or visit:
tinyurl.com/uncg2

INCLUSION CRITERIA

- at least 18 years old
- diagnosed with a substance use disorder
- currently engaging in treatment (inpatient, outpatient, residential, individual therapy)
- been in treatment a minimum of 28 days

EXCLUSION CRITERIA

- only substance of choice is nicotine
- fewer than 28 days in treatment

IF YOU HAVE QUESTIONS, CONTACT CAROLINE TRUSTEY, DOCTORAL STUDENT AT UNIVERSITY OF NORTH CAROLINA AT GREENSBORO AT CETRUSTE@UNCG.EDU

UNC GREENSBORO

UNIVERSITY OF NORTH CAROLINA AT GREENSBORO
CONSENT TO ACT AS A HUMAN PARTICIPANT

Project Title: More than a Number: Measuring Success in Substance Use Treatment

Principal Investigator and Faculty Advisor: Caroline Trustey; Faculty Advisors: Dr. Kelly Wester and Dr. Connie Jones

What are some general things you should know about research studies?
You are being asked to take part in a research study. Your participation in the study is voluntary. You may choose not to join, or you may withdraw your consent to be in the study, for any reason, without penalty.

Research studies are designed to obtain new knowledge. This new information may help people in the future.   There may not be any direct benefit to you for being in the research study. There also may be risks to being in research studies. If you choose not to be in the study or leave the study before it is done, it will not affect your relationship with the researcher or the University of North Carolina at Greensboro.
Details about this study are discussed in this consent form. It is important that you understand this information so that you can make an informed choice about being in this research study.

You are allowed to screenshot or save this consent form. If you have any questions about this study at any time, you should ask the researchers named in this consent form. Their contact information is below.

What is the study about?
    This is a research project. Your participation is voluntary. The purpose of this study is to explore if and to what extent quality of life and secondary treatment outcomes (for example, changes in employment, mental health symptoms, and relationships) occur alongside or independently of abstinence from substances.

Why are you asking me?
    For this study, we are interested in the experiences of individuals in substance use treatment. You are being asked to participate because you are over 18 years of age, you currently have a diagnosis of a substance use disorder(s), and you are currently engaging in treatment for a minimum of 28 days.

What will you ask me to do if I agree to be in the study?

During this study, you will be asked to complete a questionnaire about your experience with substance use, the impacts of substance use on your life, and your quality of life. You should expect to spend between 10-15 minutes completing the questionnaire. You will not be asked to engage in any follow-up studies or discussions.

Is there any audio/video recording?

No audio or video recording will occur.

What are the risks to me?

The Institutional Review Board at the University of North Carolina at Greensboro has determined that participation in this study poses minimal risk to participants.

As this questionnaire asks about your experiences with mental health, if you experience any distress, anxiety, or suicidal ideation, please reach out to the **National Suicide Prevention Hotline** at **(800) 273 – 8255.**

If you have questions, want more information, or have suggestions, please contact Caroline Trustey, Dr. Kelly Wester, and Dr. Connie Jones who may be reached at (978) 400 – 1820 or cetruste@uncg.edu. Dr. Kelly Wester can be reached at klwester@uncg.edu and Dr. Connie Jones can be reached at ctjones4@uncg.edu.

If you have any concerns about your rights, how you are being treated, concerns or complaints about this project or benefits or risks associated with being in this study please contact the Office of Research Integrity at UNCG toll-free at (855)-251-2351.

Are there any benefits to society as a result of me taking part in this research?

Benefits to society as a result of your taking part in this research may include adapting substance use treatment modalities and outcome measures to reflect individuals' quality of life or treatment outcomes other than reduction of substance use.

Are there any benefits to *me* for taking part in this research study?

There are no direct benefits to participants in this study.

Will I get paid for being in the study? Will it cost me anything?

There is no cost to you for participating in this study. Following completion of the study, the first 100 participants will be emailed a $10 gift card from Tango Card. This gift card can be redeemed at a location of your choosing. If the participant completes the study in person, the researcher will have physical gift cards available for him/her/them to choose. If a participant elects to discontinue participation during the study, no payment will be made.

How will you keep my information confidential?

All information obtained in this study is strictly confidential unless disclosure is required by law. Information will be password protected and under two-factor authentication. Data collection procedures are anonymous. Your IP address will be hidden so the data cannot be linked back to you. Your email address will be collected to send you a gift card through a second survey and will not be connected to your survey answers.

Absolute confidentiality of data provided through the Internet cannot be guaranteed due to the limited protections of Internet access. Please be sure to close your browser when finished so no one will be able to see what you have been doing.

Will my de-identified data be used in future studies?

Your de-identified data will be kept indefinitely and may be used for future research without your additional consent.

What if I want to leave the study?

You have the right to refuse to participate or to withdraw at any time, without penalty. If you do withdraw, it will not affect you in any way. If you choose to withdraw, you may request that any of your data which has been collected be destroyed unless it is in a de-identifiable state. The investigators also have the right to stop your participation at any time. This could be because you have had an unexpected reaction, or have failed to follow instructions, or because the entire study has been stopped.

What about new information/changes in the study?

If significant new information relating to the study becomes available which may relate to your willingness to continue to participate, this information will be provided to you.

Voluntary Consent by Participant:

By completing this survey you are agreeing that you read, or it has been read to you, and you fully understand the contents of this document and are openly willing consent to take part in this study. All of your questions concerning this study have been answered. By initialing, you are agreeing that you are 18 years of age or older and are agreeing to participate in this study described to you by Caroline Trustey.

[box to initial on qualtrics]