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THE MODERATING EFFECTS OF CLINICAL VIDEOCONFERENCING ON
THERAPEUTIC ALLIANCE AND TREATMENT OUTCOMES AMONG SUBSTANCE USE
DISORDER TREATMENT POPULATIONS DURING THE COVID-19

A Dissertation

Presented to the Faculty of
Antioch University New England

In partial fulfillment for the degree of

DOCTOR OF PHILOSOPHY

by

Seon W. Kim

ORCID Scholar No. 0009-0006-5271-615X

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This dissertation, by Seon W. Kim, has
been approved by the committee members signed below
who recommend that it be accepted by the faculty of
Antioch University New England
in partial fulfillment of requirements for the degree of

DOCTOR OF PHILOSOPHY

Dissertation Committee:

Denzel L. Jones, PhD, Chairperson

Kevin Lyness, PhD, LMFT

Randall Dwanger, MD

ABSTRACT**THE MODERATING EFFECTS OF CLINICAL VIDEOCONFERENCING ON THERAPEUTIC ALLIANCE AND TREATMENT OUTCOMES AMONG SUBSTANCE USE DISORDER TREATMENT POPULATIONS DURING THE COVID-19**

Seon W. Kim

Antioch University New England

Keene, NH

This study aimed to contribute to understanding the relationship between therapeutic alliance (TA) and treatment outcome (TO) when comparing conventional (in-person treatment, IPT) with clinical videoconference-delivered treatment models in substance use disorder populations (SUD) during a global pandemic. Also, noting the importance of marital and family relationships in the treatment of substance use disorders, this study explored how marital status influenced the interaction of the therapeutic alliance and treatment outcomes. Utilizing the secondary data collected from an outpatient SUD treatment facility, this quantitative study conducted a moderated linear regression and moderated binary logistic regression to analyze the data. The results have confirmed that therapeutic alliance still significantly influences the treatment outcomes of clinical videoconferencing. However, the significant negative association also indicated that the way therapeutic alliance works in clinical videoconferencing may differ from in-person therapy. It showed that the TA-TO interaction was least robust in CV and best when combined with both IPT and CV. Also, the fact impact of the global pandemic must be considered in its influence on the study. Future studies should continue to expand on this finding

to identify how TA-TO in IPT, CV, and both interact in the post-pandemic era. This dissertation is available in open access at AURA (<https://aura.antioch.edu>) and OhioLINK ETD Center (<https://etd.ohiolink.edu>).

Keywords: Therapeutic Alliance, Treatment Outcome, Treatment Completion, Clinical Videoconferencing, Marital Status, Substance Use Disorder, COVID-19

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CHAPTER I: INTRODUCTION

During the COVID-19 crisis, the world faced many problems that require fast, if not immediate, changes and adaptations. As part of the universal quarantine strategy, social distancing drastically increased the need for remote communication in all aspects of our lives, including health care services. The demand for and consumption of technology-mediated service (TMS) modalities (i.e., telehealth and e-therapy) has significantly increased, emerging as the choice of delivery method for various treatment services. Among many different available TMS modalities, a computer-mediated communication (CMC) known as clinical videoconferencing (CV) is identified as the most popular and promising form of treatment medium available to date (Alvandi et al., 2020). In the mental health field, e-therapy is defined as the process of a licensed mental healthcare professional providing mental health services via email, videoconferencing, and virtual reality technology (Sucala et al., 2012).

Although many people have been affected during the turbulence of the pandemic, individuals struggling with substance use disorder (SUD) in particular are perceived to be more vulnerable and at higher risk of infection and/or relapse (Mallet et al., 2021). Considering the recent events of the opioid and other drug-related crises and ongoing accessibility and attrition issues (25% completion rate; Simpson et al., 2020), the combining negative impact of the pandemic can be devastating for those suffering from the condition. In addition, e-therapy and its derivative forms, such as CV, have been used less frequently to provide treatment services to SUD patients than other mental health conditions (Huskamp et al., 2018). Even with the rising need and proven efficacy of e-therapy (Berger, 2017), the uptakes and reception by SUD treatment providers have been relatively slow.

The most prominent understanding of the resistance is the perceived doubts and uncertainties associated with therapeutic viability (Simpson et al., 2020). This concern centers around the concept of the therapeutic alliance (TA), a cooperative working relationship between the client and the provider, part of the common factors (CF) theory (Rosenzweig, 2002), which has been empirically found as one of the core mechanisms driving positive treatment outcomes (Horvath, 2018). Although TA has already established itself as a clinical imperative that most providers adhere to, the disproportionate and scant amount of information available regarding its clinical effectiveness in e-therapy may leave treatment providers seeking more guidance in a dilemma. In addition, the impact of marital relationship status on therapeutic alliance and SUD treatment outcome is another area that lacks understanding. Although the overall association between marital status and mental health has been well established (Salvatore et al., 2019), an understanding of how it influences treatment processes in SUD populations is largely underdeveloped. Thus, the present study aims to understand the relationship between TA and treatment outcomes (TO) in SUD populations. Additionally, this study goes a step further in examining the changes in the relationship between TA and TO when comparing conventional in-person SUD treatment and CV-delivered treatment among married and non-married SUD individuals in treatment. The knowledge gained from this study will assist treatment providers, especially those serving SUD populations, in establishing more pragmatic practice guidelines for CV-oriented services.

CHAPTER II: LITERATURE REVIEW

The main context in which TA should be explicated is through the theoretical frame of CF and its historical dispute with SF in treatment. There is a strong parallel between the evolution of CF and its influence on the empirical materialization and development of TA. From this standpoint the development of TA and its linguistic derivatives (e.g., working relationship, therapeutic, and patient-provider relationships) can be delineated into the pre- and post-CF movement that arose during the 1980s (Mulder et al., 2017). However, ideas surrounding TA have existed longer and independently from the conception of CF, its re-establishment as a modern concept, and a practical empirical measure mainly developed under the proliferation of CF theory.

Common Factors

In therapy, CF refers to generic variables that have similar utility and meaning across different theoretical orientations, which consists of four major domains: a) client factors and extra-therapeutic events, b) relationship factors, c) expectancy and placebo effects, and d) technique/model factors (D’Aniello & Fife, 2020; Sprenkle et al., 2009). Of the four domains, relationship factors are the most studied element of CF (Asay et al., 1999). CF theory began as a mere idea and a perspective dating back to the early 1930s, suggesting a common curative dimension across all theoretical perspectives (Duncan, 2002). Initially, the concept was mostly dismissed as "unscientific" due to the lack of quantitative evidence and difficulties obtaining empirical evidence (Horvath, 2018). The development of research synthesis methods in the 70s solidified the empirical materialization of the CF theory (Laska et al., 2014). It began to draw more attention as several meta-analyses on treatment outcomes found no significant difference in effectiveness among particular therapies or models (de Felice et al., 2019). Such findings

compelled a significant paradigm shift in psychotherapy research from the reductionistic specific factors (SF) driven approach to a more unifying and overarching framework to account for what fosters favorable treatment outcome.

The findings elicited two main contrasting logical interpretations among the treatment outcome researchers. First, it was seen as evidence that CF is what is responsible for positive therapeutic outcomes. The opposing view was disapproval of the meta-analysis, asserting that the method cannot successfully detect and indicate the superiority of some specific therapies or models (Wampold, 2001). This particular response is known to be the core culprit of the field of psychotherapy adopting the medical model seeking to find evidence for an SF that is efficacious in treating specific symptoms (Flückiger et al., 2018). However, this drive for specific treatment alone left no significant advantage in improving mental health treatment, including SUD (Brocato, 2013; Mattson et al., 1998). In contrast, research on CF has demonstrated more robust evidence for positive change in TO over time (Miller & Moyers, 2015).

Therapeutic Alliance

TA is a continually expanding and evolving pan-theoretic concept, broadly defined as an overall bond between the therapist and the client that develops during therapy (Horvath & Bedi, 2001). Since its conception, the concept of TA has gone through multiple changes reflecting the philosophical and scientific *Zeitgeist* of the time. Today, this ideal patient-provider relationship is often referred to as the *alliance*, which first originated from psychodynamic literature (Zetzel, 1956). The concept's more in-depth and formalized treatment is generally credited to Freud and his description of the therapist-client relationship through the conception of *transference* (Lozano et al., 2015). The term transference refers to the influence of the unconscious to impose

the qualities of past experiences onto future relationships (Horvath, 2018). Freud's concept of transference mainly focused on explaining the unconscious aspect of the relationship. Therefore, it excluded more empirically relevant and quantifiable elements of alliance that were more conscious and actionable, such as compassionate attitude, kindness, and empathy. This lack of quantifiable elements did not blend well with the next generation of leading psychotherapy and psychological models of behaviorists who heavily focused more on physical operations and conditions while paying minimal attention to the relational component of therapy (Hofmann & Barlow, 2014).

In the 1970s, the concept of TA began to receive its due attention, with proper placement as the cornerstone of the CF theory. The two prominent psychodynamic-trained researchers, Lester Luborsky and Edward Bordin led the TA's reformulation and establishment (Flückiger et al., 2018). Over time, their ideas and understanding of alliance became widely accepted as "canonical work" and most cited by psychotherapy researchers (Flückiger et al., 2013). However, both of them had a distinctive role and subsequent contribution to the development and reinvention of the concept. Luborsky et al.'s (1986) version of the alliance was called the *helping alliance*, with more emphasis on developing practical measures. Luborsky developed the Core Conflictual Relationship Scale (Luborsky et al., 1986) and the Penn Helping Alliance Scale (Alexander & Luborski 1987), and he focused little on the definition or theoretical aspects of the alliance. Unlike Luborsky, Bordin was interested in the theoretical aspect of alliance; therefore, Bordin focused on explaining his theory on the role of the alliance in the therapy process. Bordin's (1979) version of the alliance was called *working alliance*, and he asserted that it was achieved through collaboration in treatment aiming for three specific goals: a) agreement on

treatment goals, b) agreement on the tasks, and c) patient-client attachments which he labeled "bonds." Through their work, the concept of the alliance became a more empirically accessible, sound, and functional variable, from a concept to a construct to a variable. Through their work, the concept of TA became more empirically accessible for researchers investigating the role of the relationship in diverse kinds of therapies, including the current study.

Therapeutic Alliance and Treatment Outcome

Empirical findings suggest that relationship factors account for about 30% of outcomes (Asay et al., 1999). Among the CF domains, under the relationship factors, TA is the most researched topic (Asay et al., 1999; Knobloch-Fedders et al., 2007). It has also been identified as the most robust CF for predicting TO in adolescents and adults (Flückiger et al., 2018). It continues to be one of the most popular and investigated factors toward positive outcomes, seemingly driven by two well-established facts. First, studies consistently find a moderate but robust relation between the TA and TO across numerous contexts, treatment modalities, patient populations, and problem areas (Lozano et al., 2015). Second, the alliance can be measured in a direct, practical, and empirically sound manner (Martin et al., 2000).

The robustness of TA on TO in in-person treatment settings is well demonstrated in a meta-analysis by Horvath et al. (1991) and multiple follow-up studies (see Horvath et al., 2011; Horvath & Bedi, 2001; Horvath & Symonds, 1991; Martin et al., 2000). Horvath et al. (1991) synthesized the results of 24 studies revealing a moderate but reliable correlation between TA and TO. The sequel studies had a slight change in the strength of the relationship between TA and TO, but no major changes were indicated (Horvath & Bedi, 2002: $r = .21$, $k = 100$; Horvath et al., 2011: $r = .28$, $k = 190$; Horvath & Symonds, 1991: $r = .26$, $k = 26$; Martin et al., 2000: $r = .22$, $k = 79$). Flückiger et al. (2018) synthesized 295 independent studies that were published

between 1978 and 2017, which surveyed more than 30,000 patients. The result of the study was confirmatory of its predecessors ($r = .287$, $k = 295$) with an exceptionally small p-value ($p < .0001$), indicating significance and robustness of positive relationship between TA and TO. Only about 6 studies (2%) of the total studies (295) indicated negative correlations.

Therapeutic Alliance and Substance Use Disorder Treatment Outcomes

Compared to other treatment groups (i.e., anxiety disorder, borderline personality disorder, depression, PTSD, and transdiagnostic samples), studies within the SUD population indicated less robust correlations between TA and TO (Horvath & Bedi, 2001; Knobloch-Fedders et al., 2007). Such finding have been demonstrated since the beginnings of the TA studies on SUD populations (Barber et al., 1999; Florsheim, 2000; Tunis et al., 1995). The smaller effect size was further validated in a meta-analysis study examining the moderating impact of SUD on the TA and TO relationship (Flückiger et al., 2013). The result of Flückiger et al.'s (2018) study identified SUD with smaller effect sizes (ES; $r = .18$) than those of other diagnoses ($r = .28$). In the most recent meta-analysis (Flückiger et al., 2018), the results repeated with a weaker association between TA and TO for the SUD group ($r = .14$) compared to those of other diagnoses ($r = .28$). These findings are somewhat conflicting with the common belief that social support, bonding, and connection is crucial in SUD treatment. For example, results from recent SUD outcome studies further emphasize that the nature and quality of the social network are fundamental for positive behavior change, and social relationships in treatment settings can both encourage and inhibit recovery (Pettersen et al., 2019). There are a few different takes regarding this discrepancy. The most prominent perspective in the literature is that the use of substances may damage the neuro-biological system required to regulate and optimize relational

capacity, inhibiting the constructive use of the TA (Gidhagen et al., 2021). Another perspective is based on the criticism against the research designs studying the TA-TO relationship, which are seen as not sophisticated enough to reflect the complex interactions in the therapeutic process, let alone the added intricacies embedded in the specialized treatment populations (Flückiger et al., 2013). This view focuses on distinguishing the difference between the TA-TO association of between-patients and within-patients comparison (Gidhagen et al., 2021). The proponents of the study model criticism claim that the within-patient comparison of TA score more accurately portrays the rupture/repair component, a feature that is unavailable when the alliance is measured between patients (Zilcha-Mano et al., 2016).

Despite the weaker association compared to the non-SUD population, CF-oriented research and its methods' tendency to demonstrate more robust change in outcome prevails and maintains (Miller & Moyers, 2015). Even with some notions of doubt and dismissal, most of the studies explored in the review encouraged the expansion of understanding through a more comprehensive view of the matter leading to a more integrative research approach (de Felice et al., 2019). For instance, many studies suggest the need to end the long-lasting competition between the CF and SF camps (Ardito & Rabellino, 2011; de Felice et al., 2019; Miller & Moyers, 2015; Tschacher et al., 2014). The collective consensus is that in order to account for the complexities involved in the treatment process accurately, and especially around these particular circumstances (like SUD), we need to utilize both SF and CF, narrowing the historical split and the existing gap between the controlled research studies and real-world practice. Some researchers further state that the CF and the SF are not essentially independent; therefore, keeping them separate is underestimating and oversimplifying the treatment process (de Felice et

al., 2019). The recommendation for the future implications of these studies focuses on expanding the knowledge of these specialized areas (i.e., specialized treatment populations and treatment methods such as e-therapy) and working toward some ground rules to evaluate the relevance of different outcome modifiers in both real-world and research settings (Mulder et al., 2017; Tschacher et al., 2014).

Computer-Mediated Communication

Technology-mediated therapy and related counseling forms have been almost as long as the modern computer (Imel et al., 2017). For example, ELIZA, a computer chat program that simulated a Rogerian psychotherapist, was developed by Joseph Weizenbaum, a German computer scientist at the Massachusetts Institute of Technology, as early as 1966 (Zarr, 1984). However, in comparison to many other service disciplines (e.g., aviation, medical, and psychiatry), reliance on technology by mental health providers (e.g., clinicians and psychotherapists) has been significantly lower (Baldwin et al., 2007). During the late 1980s and early 1990s, the proliferation of telemedicine slowly began to infiltrate the mental health field, and by 2004, there were over fifty telepsychiatry programs in the United States (Rees & Haythornthwaite, 2004). There has been an even faster increase in the trends in the last decade in response to the unprecedented technological advancement and changes in the distance communication medium (Fernández-Álvarez & Fernández-Álvarez, 2021).

Most technology-mediated modalities in healthcare today take place through CMC. According to Grondin et al. (2019), CMC is "characterized by the use of a digital communication medium, including text-based messaging (instant messaging, forums, social networking, SMS, etc.), audio communication, and videoconferencing, to rapidly reach individuals at a distance" (p. 3). These different types of digital mediums can be categorized on a continuum based on the

concept of verbal and nonverbal information richness consisting of a) the capacity for language variety by using a large pool of symbols to communicate, b) personalness, derived from the perceived warmth, sociability, and sensitiveness when using a given medium, and c) the transmission of a variety of verbal and nonverbal cues (Grondin et al., 2019). This framework maintains that mediums at the higher end of this continuum will provide more bandwidth for fuller sensory input/information (both verbal and nonverbal), hence generating higher levels of empathy and presence, which are few of the fundamental elements of treatment experience. According to this logic, augmented- or virtual-reality-oriented mediums would offer the most viable simulation for the physical presence. However, application-wise, there are logistical barriers and limitations to consider. Not only are virtual and augmented reality modalities more costly, but they also have larger margins for technological errors and interruptions. These factors make it more challenging for clients to access and maintain the service (Alvandi et al., 2020). Today, CV is considered the most reliable, feasible, and available form of CMC (Alvandi et al., 2020).

Clinical Videoconferencing

The application of CV in routine practice has been progressive and supported by pragmatic reasons, such as bridging geographical barriers, decreasing treatment-seeking stigma, and increasing flexibility in scheduling sessions (Jerome & Zaylor, 2000). Even psychotherapy, which traditionally has a strong emphasis on an in-person shared space, is slowly but gradually incorporating more use of CV (Fernández-Álvarez & Fernández-Álvarez, 2021). Concurrently, CV research has also increased in the past two decades, and the efficacy of CV is well documented in the literature. Several studies demonstrate comparable TOs between CV and face-

to-face therapy, indicating a substantial reduction in symptoms and an increase in functionalities in CV mediums (e.g., Aafjes-van Doorn et al., 2021; Lozano et al., 2015). Studies also show comparable client satisfaction in CV treatment modalities to conventional face-to-face therapy, indicating that CV is an efficacious delivery method (de Boer et al., 2021; Rushton et al., 2020). Nevertheless, the providers did not share the same satisfaction reported by the clients. At best, literature indicates mixed feelings from the providers on satisfaction with this modality (Eppler, 2021). Although Eppler's (2021) study indicated hope as the providers later indicated the ability to remain resilient and reframe the negative experiences, the essential and initial responses were overall negative. Current literature primarily demonstrates provider dissatisfactions, doubts, and concerns about using these alternative treatment mediums. However, despite these findings, CV is still thought to be the most credible substitute for face-to-face therapy in situations where access is unlikely to be feasible (Lin et al., 2019; e.g., treatment through social distancing during a pandemic).

Chronic Issues and Slow Uptake of Clinical Videoconferencing

Although CV's benefits and usefulness in treatment have already been recognized and discussed at length (de Boer et al., 2021; Huskamp et al., 2018; Lin et al., 2019), the onset of COVID-19 set the stage for further assessment and examination of CV's viability and practicality toward its establishment as the new treatment norm (Berwick, 2020). As treatment providers made swift adjustments to sudden, unexpected, and forced shifts toward alternative treatment mediums, the reality of the situation set in rather quickly to reveal several discerning issues and subsequent limitations in its practice (de Boer et al., 2021). Out of several different challenges identified, the issues of cost, accessibility, and therapeutic viability (i.e., TA) have

been identified as the most frequently reported concerns (Simpson et al., 2020). The onset and spread of COVID-19 exacerbated these pre-existing problems, with many unprepared providers rushing through a last-minute scramble to switch to CV (Fernández-Álvarez & Fernández-Álvarez, 2021).

Despite the positive and clinically comparative results to conventional in-person treatment, the uptake of CV has been historically slow, especially in SUD treatment (Simpson & Reid, 2014). The recurrent issues of the cost, accessibility, and questions around its therapeutic viability have been identified as some of the most frequent themes discussed, resulting in hesitancy (Simpson, 2009). Additionally, past federal and state policies limited insurance coverage and reimbursement issues were barriers to CV's adoption (Kleykamp et al., 2020). Some of these barriers were already being addressed pre-pandemic; if not, they were expedited and lifted during the pandemic. In response to COVID-19, most states, regulatory boards, and insurance companies modified their restrictions and stipulations on the practice guidelines while strengthening the reimbursement process. These entities also allowed emergency cross-state licenses to expand the coverage regions for the providers supporting the use of CV.

However, despite these swift changes and interventions, the general uptake rate continues to be slow (Simpson et al., 2020). Although there was a rapid initial uptake following the onset of the pandemic, there continue to be doubts and skepticism around the sustainability of the surge (Sammons et al., 2020). Despite the strong evidence for CV's efficacy (non-inferior in symptom reduction and client satisfaction), the treatment experience remains a concern of many providers because of inadequate research investigating its elements of therapeutic viability and process (Alvandi et al., 2020). The emerging implication and practice issues presented during the

outbreak and immediately following the COVID-19 onset suggest that empirical support alone does not automatically qualify as clinical preparedness, given the apparent gap between the established efficacies of CV and its clinical application in practice.

Although the use of CV is considered empirically and conceptually ideal, its application in routine practice has not been widespread, with almost all therapists having little to no experience (Fernández-Álvarez & Fernández-Álvarez, 2021). Compared to the comprehensive studies done in a controlled setting (RCTs), many fewer (naturalistic) studies are done examining its applicability in real-life day-to-day practice. In addition, with limited access to research for typical providers (as they do not often have that research available) and little to no clear, applicable practice guidelines, providers remain uncertain, skeptical, and resistant to CV.

The transfer of evidenced-based findings to clinical practice has been a chronic challenge for the field of mental health (Bahadori et al., 2016; Hodgson et al., 2005; Sprenkle, 2003). Likewise, the most notable root of this issue is identified as the provider's preparedness, hesitation, and resistance (Alvandi et al., 2020; Burgoyne & Cohn, 2020; Lozano et al., 2015) toward nontraditional treatment mediums. Research shows that the providers continue to question the therapeutic viability of CV and expect inferior therapeutic rapport and consequent outcomes (Simpson et al., 2020). For instance, McClellan et al. (2020) surveyed providers' attitudes on telehealth (including CV), and findings indicate that TA is one of the critical factors influencing providers' attitudes about CV. The participants of this study expressed concerns about potential technical and ethical problems unique to CV (i.e., less intimacy due to the absence of physical presence, interruptions due to technological errors, software failures, and equipment usability, and ensuring privacy) that may compromise the therapeutic relationship.

Uscher-Pines (2020) found similar results exploring clinicians' experience switching to CV during COVID-19. The results revealed increased difficulties gauging and establishing a connection with their clients. These findings may potentially underscore the differences between in-person and CV that may impact how TA is developed in treatment.

SUD Treatment and Clinical Videoconferencing

Over the last several decades, there has been a steep increase in SUDs and negative consequences. The opioid epidemic caused 42,000 overdose deaths in 2016 alone (Lin et al., 2019). Additionally, there has been an increase in overdoses involving cocaine use and an approximately 50% increase in alcohol use disorder over the past decade (Connors et al., 2006; Samuels et al., 2020). The statistics on the negative impact of SUD are staggering. Not only have over 700,000 people died from an overdose in the US since 2000, but economically, the federal budget was set at 35 billion dollars for drug control in 2020 (National Center for Drug Abuse Statistics, 2020). During the pandemic, the National Institute on Drug Abuse (NIDA; 2020) reported that people with SUD at any time in their lives were 1.5 more likely to contract COVID-19.

Despite the negative impacts of SUDs, utilization of effective treatment remains low (Lipari & Park-Lee, 2019). Of all age groups, youth under 26 (ages 16 – 25) seem to be most impacted as most of the treatment attention in opioid use disorder is focused on mature adults (Hogue et al., 2022). Over 300,000 youth under the age of 25 met the criteria for opioid use disorder alone (Lipari & Park-Lee, 2019). A significant factor contributing to low utilization rates is access, especially to evidence-based medication and psychotherapy treatments for SUDs (Cummings et al., 2014). Individuals struggling with SUDs are frequently prone to these constraints leading to low treatment compliance, completion, and subsequent treatment success

rate (Lin et al., 2019). The compounding factor of the COVID-19 crisis only worsened matters for this group. There is growing evidence that vulnerable subpopulations (e.g., racial or ethnic minority groups, people living with HIV, homeless populations, and prison populations) in the US are disproportionately affected by the pandemic and SUDs (Center for Disease Control and Prevention, 2020). These groups (including SUD populations) were also found to be at higher risk for severe COVID-19 symptoms and complications (Kleykamp et al., 2020). The unique stressors specific to the pandemic (i.e., extra-therapeutic factors; social isolation, job loss or job insecurity, transitions to remote work and remote schooling, and uncertainty/anxiety around issues of health, access to healthcare, safety, and the future) directly affects the mental health and substance use of clients, leaving them even less likely to engage or maintain in treatment (Kleykamp et al., 2020).

CV has been previously and presently identified as a potential solution for the accessibility issues in mental health and SUD treatment services (Thomas et al., 2009; Uscher-Pines et al., 2020). CV is best known as a synchronous technology that allows real-time video and audio communication between the client and the provider while overcoming prevalent treatment barriers such as travel costs, mobility challenges, socioeconomic status, and patient engagement issues (Casey et al., 2013). Several studies propose CV as the way to raise the provision of mental health treatments for those struggling with accessing services due to financial and geographical constraints (Simpson et al., 2020; Thomas et al., 2009). However, the transition and adoption of remote study designs and data collection have been particularly slow in the SUD field compared to other fields of medicine (Huskamp et al., 2018). As other studies have found that utilizing CV in treating obsessive-compulsive disorders (Fitt & Rees, 2012),

anxiety disorders (Rees & Maclaine, 2015), and posttraumatic stress disorders (PTSD) in clinical settings, SUD treatment may also benefit from a clinically significant reduction in their symptoms and improved quality of life. King et al. (2014) compared CV with face-to-face sessions and found that opioid-dependent individuals responded well to treatment over the 12-week study and the two modes were equivalently effective. Overall evidence suggests that CV is comparable to in-person mental health care (Chakrabarti, 2015).

Therapeutic Alliance, SUD Treatment, and Clinical Videoconferencing

Despite the increasing inquiries and attention to how TA is different in a CV in substance use disorder treatment compared to other mental health disorders (i.e., anxiety, depression), the understanding of TA and its impact on outcomes in alternative mediums, such as CV, especially around specialized treatment populations, are limited (Alvandi et al., 2020). Over the past two-decade, TA has established itself as a core mechanism for change and one of the most reliable predictors of outcome and attrition (Baldwin et al., 2007; Horvath et al., 2011). The literature indicates that providers are remaining loyal to the conventional idea, which insinuates that the face-to-face services will facilitate better alliance (Rushton et al., 2020)

Concurrently, studies show how many treatment providers, including for SUD, worry that switching the treatment medium may hinder this widespread clinical imperative. For example, McClellan et al. (2020) asserts that negative clinician attitudes toward telehealth is a critical barrier to its acceptance and implementation. In the McClellan et al. (2020) study, clinicians identified concerns specific to building rapport, and results demonstrated that increased knowledge predicted positive opinions overcoming the existing stigma. Other researchers have also expressed concerns about the general CMC-based models (Sucala et al., 2012). Wells et al. (2007) surveyed 2,098 social workers, psychologists, and other professionals on their perceptions

of online mental health treatment. Findings suggest that most mental health providers are unlikely to provide services due to specific concerns around confidentiality and liability issues (Wells et al., 2007). In reviewing the literature, it is clear that the concerns regarding nonverbal communication and subsequent disparities in treatment are repeating themes.

Given that physicality is a fundamental source of information processing in all humans, the concerns associated with the diminished physical process and its potential consequences on TA are reasonable (Fernández-Álvarez & Fernández-Álvarez, 2021). For example, some vital rapport managing interactions such as direct eye contact, tone of voice, posturing, body movement, synchrony, and attunement in in-person treatment can be inhibited in CV. Some of the experts on TA assert that these paralinguistic, non-verbal, and prosodic components of therapy are potentially more challenging to manage in a non-shared space like CV (Grodin, 2019). In addition, some of the inevitable challenges with technology-mediated modalities (e.g., internet disconnection and service interruptions) may further interrupt and interfere with the sessions' rhythm and flow (Caramazza et al., 2014). The most recent studies on this matter show that the provider's concerns have not been resolved and that it needs to be addressed to maintain the sustainability of CV practice throughout and beyond the pandemic (Riper et al., 2018; S. Simpson et al., 2020). Nevertheless, current knowledge on CV's therapeutic process and the providers' training and support are lacking (McClellan et al., 2020).

Feedback Informed Treatment

Despite the fact that some of the providers' concerns are valid, it is also known that their assessment and perception of TA and TO can be inaccurate or, at best, vastly different from the client's perspectives (Duncan et al., 2003). For example, besides the common self-assessment bias involved, the studies show that therapists often overestimate their effectiveness in treatment

progress and outcome (Walfish et al., 2012). These findings further substantiated and added to the idea of ongoing monitoring and communication through client feedback integral to fostering positive alliance and treatment outcomes (Campbell & Hemsley, 2009).

As the importance of ongoing monitoring and feedback became more evident and gained its ground as an integral part of fostering alliance and positive outcomes, various tools for evaluating the alliance were developed. However, most measures were designed primarily for research purposes and not for practical day-to-day clinical use. The assessments' complexity and length often burdened and prevented providers from using the measures (Duncan et al., 2002). In response, some of the leading researchers in the field and organizations like the International Center for Clinical Excellence (ICCE) developed programs like Feedback Informed Treatment (FIT), utilizing more brief and clinically oriented measures like the Session Rating Scale (SRS) and Outcome Rating Scale (ORS).

There are several benefits to these models, like FIT. However, all of it sums down to one primary key ingredient- TA driven by one key mechanism- feedback. Regular feedback on relational connection and treatment outcomes allows client empowerment, which increases their engagement. It also allows early identification of the issues and subsequent customization of the treatment plans following the client's specific needs and preferences. These benefits further reinforce the basic three tenets of TA mentioned earlier: a) agreement on treatment goals, b) agreement on the tasks, and c) patient-client attachments.

SRS and ORS

The SRS and the ORS are an 'ultra-brief' alliance and outcome measure specifically designed to be practical and measure the *working* alliance between the provider and the client from session to session. These focus on practicality and feasibility aligned with the purpose of

this study, examining practical issues involved with TA and TO in different clinical settings. Despite SRSs' brevity and clinically focused orientation as a measure, its psychometric properties were comparable to other lengthier research-oriented measures (like HAQ II). For example, for its reliability, the coefficient alpha ($N = 420$) was .88 for SRS over only 4 items compared to .90 (HAQ II) over 10 items in HAQ II. ORS performed similarly to SRS in its reliability with ($N = 336$) coefficient alpha of .93. In both cases, the reliability and validity were reduced but were compensated in its feasibility showing compliance up to 96% for SRS and 86% for ORS (Duncan et al, 2003; Miller et al., 2000).

Moderating Effects of Treatment Medium

Given the robust relationship between TA and TO and the need to expand the understanding of CV's therapeutic process on therapeutic interactions, research must explore how CV moderates the relationship between TA and TO in SUD populations. Flückiger et al. (2018) conducted a meta-analysis of 295 independent studies that covered more than 30,000 patients with a different mental health-related diagnoses for face-to-face and e-therapy and found heterogeneity in their results, indicating evidence for potential moderators. The researchers noticed patterns of great variability in effect sizes among these studies ($Q(294) 1017.6, p < .0001; I^2 70.8; 95\% CI [61.9, 73.1]$). They speculated several factors (alone or in combination) moderating the TA and TO relationship. This investigation revealed that certain factors such as duration of treatment, alliance measure, or type of treatment demonstrated little to no influence on the relationship. In contrast, factors such as patient diagnosis, outcome measure, and outcome specificity indicated a larger influence.

The efforts to increase the knowledge of the TA and TO relationship naturally prompted questions and curiosity toward other potential moderating factors that are not yet accounted for, such as CV. However, the lack of studies outside of conventional in-person settings is evident in the literature, with the majority of studies taking place in in-person settings. For example, Flückiger et al. (2018) considered e-therapy a potential moderator; however, only 18 studies utilized e-therapy compared to 306 conventional in-person studies. In another example, in a study reviewing 840 e-therapy studies, only 11 (1.3%) investigated TA (Sucala et al., 2012). Out of the 11, no study covered the SUD population nor pursued designs that can speak to the effectiveness of practical and implementational issues like moderation. Of the 11 studies, eight were RCTs, three were nonequivalent groups design, and no naturalistic studies were identified. The result of the study was inconclusive, with some indication that TA in e-therapy is at least equivalent to face-to-face therapy. The literature currently has few to no studies that directly test for the moderating effect of CV or its derivatives on TA and TO, specifically for SUD populations.

Marital Status and Mental Health

In addition to diverse treatment delivery groups (in-person treatment [IPT], CV, or both), the influence of marital status (relational context of the patient) on mental health cannot be disregarded. The overall association between marital status and mental health has been well-established in the literature. The earlier and majority of subsequent studies show significant mental health disparities among different marital status groups; previously married and never married (Williams et al., 2009). Research in this area suggests married individuals report lower average levels of depression, psychological distress, and psychiatric disorder and higher levels of life satisfaction and subjective well-being (Williams et al., 2009).

In addition, the engagement rate with outpatient and admission to psychiatric facilities and suicide rates were lower for married individuals compared to non-married individuals (Kessler et al., 2005). The consistency and significance of the observed difference, along with its persistence across time and in various countries, led to the conclusion that marriage improves mental health for most individuals (Mastekaasa, 1994; Stack & Eshleman, 1998). However, there were some exceptions where marriage contributed to a higher risk of poor mental health found in stressful, dysfunctional, or abusive marriages (Choi & Marks, 2008). Different perspectives are established to explain these mixed results on marital status and mental health disparities. The two leading explanations are the causation vs. selection debate between the relative advantages of being married (causation) and the de-selection of potentially unhealthy partners (selection; Wu et al., 2012). The causation-selection debate focuses on whether marriage increases positive mental health outcomes (i.e., causation), if experiencing mental health challenges decreases the chances of marrying and remaining married (i.e., selection), or if marital and mental health correlations are a combination of both.

The social causation perspective asserts that the mental health advantages found in marriage are due to its inherent characteristics and subsequent resources, such as having access to reliable social support along with the psychological and emotional benefits of an intimate relationship. For example, Kessler and Essex (1982) have long before concluded that the benefits associated with intimate relationships (conjugal unions) represent potent resources for decreasing the health-damaging effects of stress. Proponents of this perspective also argue that unhealthier individuals have a lower probability of becoming married while having a higher chance of separation and divorce (Wu et al., 2012). They believe these individual predispositions account

for most of the disparities observed. Historically, the causation perspective was considered the more salient explanation (Wu et al., 2012). For example, Horwitz et al. (1996) found that married individuals have a lower level of depression and alcoholism than never-married individuals, even after the pre-marital level for both conditions was accounted for; demonstrating compelling evidence for the causal effect. Their finding further indicates the benefits of marriage that contributed to reducing depressive symptoms and alcohol-related problems. The hallmark of this study was its robust demonstration of marriage benefits over the pre-existing conditions (selection), which directly challenges its legitimacy as an explanation.

However, more recent studies suggest more nuanced perspectives in beliefs about the importance of marriage for mental health. These studies focus on the influence of established cultural norms heralded by news and media that reinforces marriage as the panacea for mental health illness. Longitudinal research that followed individuals over time revealed that the generalized benefits of marriage and the cost of marriage dissolution depend highly on individual and contextual factors such as marital duration and living arrangement (first married, remarried, cohabiting; Williams et al., 2009). Also, the relationship changes between marital status and its benefits, depending on which groups are being compared (divorced, widowed, never married) and how marital status and living arrangements (first married, remarried, cohabiting), are defined (Williams et al., 2009). Nevertheless, again, most marriages appear to decrease general stress and mitigate the adverse health effects of stress (Wu et al., 2012).

Marital status and Substance Use Disorder

Despite the popularity of marital status and mental health research, few studies directly examine the association between marital status and SUD treatment outcomes. However, based on the current available literature, the positive association between marital status and mental health

conditions is also consistent in SUD research. Salvatore et al. (2020) found that marriage was associated with a substantial reduction in substance use compared to groups categorized as not married. Wu et al. (2012) assessed the relationship between marital status and treatment duration, often considered a gold standard for treatment outcomes in SUD, and findings suggest that not-married individuals were prone to longer duration of treatment compared to married individuals. Additionally, individuals with an SUD diagnosis had the shortest duration of successful treatment compared to individuals with other mental health diagnoses (i.e., delirium, psychoses, mood, anxiety, adjustment disorders, dementia, and other conditions; Wu et al., 2012) which may suggest the importance of family relationships, especially in SUD treatment.

The Present Study

The purpose of the present study is to understand the relationship between TA and TO when comparing IPT and CV therapeutic delivery models in SUD populations during a global pandemic. Specifically, this study aims to expand fundamental and pragmatic knowledge about CV and its clinical viability as a practice model applicable to therapy service providers, especially those serving in the SUD population. Also, considering the importance of marital and family relationships in the treatment of SUD, the current study explores how marital status influences the interaction of TA and SUD treatment outcome. The knowledge gained will be used to build more confidence for the providers who are hesitant about using CVs. This study asks the following related research questions:

- 1) What is the association between TA and TO in SUD treatment?
- 2) What is the moderating effect of the treatment medium on the association between TA and TO?

- 3) What is the moderating effect of the marital status on the association between TA and TO?
- 4) What is the association between TA and treatment completion in SUD treatment?
- 5) What is the moderating effect of treatment medium on the association between TA and completion in SUD treatment?
- 6) What is the moderating effect of marital status on the association between TA and completion in SUD treatment?

Considering the vast amount of literature on the relationship between TA and TO, the present study includes several control variables. First is patients' co-morbid diagnosis, as previous research identified different effect sizes among different diagnoses. For example, SUD and eating disorder diagnoses demonstrated a smaller effect size, while SUD and borderline personality disorder showed a more significant effect size (Flückiger et al., 2013, 2018). Even though all of the participants in the present study have the primary diagnosis of SUD, most of these participants are likely to have the secondary diagnosis of other co-occurring disorders. Of many different diagnoses, anxiety and depression are known to co-occur with the highest frequency (Mohamed et al., 2020). The participants' readiness for change was also considered. Participant's readiness for treatment is reflected throughout stages of change (Prochaska et al., 1992), and high levels of readiness for change is associated with positive treatment outcomes, especially in SUD treatment (Krebs et al., 2018). Program intensity (i.e., Intensive Outpatient Program (IOP), Recovery Maintenance Group (RMG), and Individual Therapy (IT) Program) is controlled for each level of care has different levels of symptom and functionality involved. In addition to diagnosis-specific control variables, age was also included. As a demographic

variable, age is known to influence substance use patterns and treatment outcomes (Bergen & Lape, 2013).

CHAPTER III: METHOD

Data Collection

Initially, the data for this research were collected as a part of a clinical outcome research initiative for a local SUD treatment program. The purpose of the project was to enhance client experience as well as raise retention and treatment qualities by adopting the concept of CF in treatment and outcome rating scales (ORS; Duncan et al., 2003) and session rating scales (SRS; Duncan et al., 2003). On 3/15/2020, due to the COVID-19 outbreak and quarantine mandate, the program naturally transitioned and converted to a clinical video conferencing program using Microsoft Teams (Microsoft, 2017-2023). Data collection continued without interruption as surveys were already computerized and easy to conduct even with the clinical videoconferencing treatment delivery.

All of the necessary data for the research were kept and managed through password-protected data processing software and the Electronic Health Record system that the facility utilizes. Initially, the data were collected as a clinical outcome research initiative of the program to enhance the client experience and raise retention and treatment qualities. The corresponding outcome measures were built into the program as part of interventions such as symptom assessments and progress monitoring. IRB approval was obtained through and under the program's institution treatment policy and procedure. Informed consent was created and designed to fit the need of the policy procedure guidelines of the corresponding program, approved by the quality and compliance officer.

Each participating client received informed consent from their assigned clinicians, reviewing the purpose, eligibility, procedure, and anticipated risks and discomforts/benefits with the extent of confidentiality. It was assured to the participants that the results from the survey

and other collateral data would be kept and managed through password-protected data processing software and an electronic health record system utilized at the facility. The clinicians providing the services were also notified of the potential use of the data for research purposes. Before conducting the measure for each session, each client was introduced to the idea of feedback-informed services and the benefits of having their input on therapeutic support and treatment outcome and discussing it with their primary clinicians. Additionally, clinicians and clients were informed that data collection was being used only as a survey tool for data collection and not as a clinical intervention at the time. There were no specific exclusionary criteria for the study if they were currently registered and involved in the above-mentioned level of care at the facility. Data collection continued without interruption as surveys were already computerized and easy to conduct, even with the clinical videoconferencing option.

Sample

The present study utilizes secondary data collected from the electronic medical records of patients at an outpatient (OP) service provider at a local substance use disorder/addiction treatment facility in the New England region. All participants in the current study were registered patients of these OP services with SUD-related primary diagnoses from September 2019 to October 2020. The OP services in this particular facility consist of three levels of care: IOP, RMG, and IT programs. The IOP program is the most intensive service, including a minimum of 12-hour weekly group and biweekly 1-hour individual therapy (weekly urine toxicology screen) for 12 weeks. The following typical step-down program is the RMG program with a minimum of 1.5-hour weekly group and weekly 1-hour individual therapy (weekly urine toxicology screen) for ten weeks. Last, the IT level of care involves a minimum of 1-hour individual (weekly urine

toxicology screen) and more as clinically warranted. All levels of care involved psychiatric and medication management once a month.

The original sample consists of 130 participants. Out of 130 total participants, 5 clients did not engage in specific measures (i.e., SRS and ORS) required for this study and were therefore excluded from the sample. The final sample consists of 124 participants who received treatment at the facility during 2019 and 2020. Among the 124 clients, 754 pairs of ORS and SRS surveys were completed throughout treatment. The average age of participants in the final sample was 34.4 years old ($SD = 12.71$), and 83.2% of the participants identified as Caucasian, 69.6 % of the sample identified as male, and 81.6% were single. Table 1 provides descriptive information on participants included in the study.

Measures

Therapeutic Alliance

The Session Rating Scale (SRS; Miller & Duncan, 2000) is a Visual analogue scale (VAS) designed to measure TA by translating a client's perception on four domains: a) shared goals, b) consensus on means, methods, or tasks of treatment, c) emotional bond, and d) overall sense of the session quality, on a 10-cm (or 100 mm) visual analog scale which can be completed both digitally or on paper. The digital adaptation was completed through Survey Monkey (<http://www.surveymonkey.com>) so it can be used on a touch screen tablet that clients were provided at the times of administration. The scale was provided digitally at the end of each session as a part of ongoing feedback and dialogue regarding the therapeutic relationship with their primary clinician. Clients were instructed to place a hash mark on the screen display with a line with negative responses depicted on the left and positive responses indicated on the right (see Appendix C). In any instance where technology was unavailable, paper options were

provided. The SRS was scored by summing the marks made by the client measured to the nearest millimeter on each of the four domains. Based on a total score of 40, any score lower than 36 overall, or 9 on any scale, was considered a potential source of concern (Miller, 2012). For the present study used the overall rating subscale of SRS to reflect general TA. Present study used the average of the 4 domains to assess general TA. Each domain was 1– 10 cm, reflecting an average score between 1– 10. For the purpose of this study the SRS scores from the first 4 sessions were used. Although the SRS was measured repeatedly and had multiple data points, considering the parsimony and the literature and other studies clearly indicate the importance of the first 3 – 4 sessions.

Treatment Outcome

The Outcome Rating Scale (ORS; Miller & Duncan, 2000) is a VAS, designed to measure treatment outcome by translating a client's perception of their functionality on four domains of overall, individual, interpersonal, and social wellness, on a 10-cm (or 100 mm) visual analog scale which can be completed both digitally and on a paper. The digital adaptation was completed through Survey Monkey so it can be used on a touch screen tablet that clients were provided at the times of administration. The scale was provided at the beginning of each session as a part of ongoing feedback and dialogue regarding treatment progress and outcome with their primary clinician. Clients were instructed to place a hash mark on the screen display with a line with negative responses depicted on the left and positive responses indicated on the right (see Appendix C). In any instance where technology was unavailable, paper options were provided. The ORS was scored by summing the marks made by the client measured to the nearest centimeter on each of the four domains. A low ORS score reflected a poor sense of well-being

(or a high level of distress). The average ORS intake score in outpatient mental health settings was between 18 and 19 (Miller, 2012).

The present study used the overall rating subscale of ORS to reflect the general sense of well-being as TO. The present study used the average of the 4 domains to assess general TA. Each domain was 1 – 10 cm, reflecting an average score between 1 – 10. It is important to note that in this study although the TO was measured repeatedly and had multiple data points, the ORS from fourth session was selected for data analysis. The average drop-out length of stay was marked around day 30 for this group which corresponded with ORS trial 4 as it was conducted weekly from the day of initial session. Also, literature and other studies clearly indicate the importance of the first 3 – 4 sessions. SRS and ORS studies also indicate the importance of the initial couple of sessions.

Treatment Completion

Treatment completion was measured by the completion status for each participant in the corresponding levels of care. The data on retention were all tracked, monitored, and recorded in the EMR. An aggregate report on the corresponding patient was collected to indicate if they have successfully completed treatment instead of dropping out of service mid-treatment where 0 = *incomplete* and 1 = *completed*. This measure was used as the universal and objective marker for outcome in treatment in comparison to balance the more subjective and client-oriented ORS Scale.

The initial data on the treatment completion collected from the program's EMR was categorized into three different discharge status: a) client discontinued treatment, b) therapeutic transfer, and c) recovery plan completed. The program defined client discontinued services as

those clients either dropped or discontinued from the program engagement without fulfilling the initial treatment agreement and obligations as designed by the program. Therapeutically transferred status referred to those individuals who for clinical reasons were deemed inappropriate or no longer able to pursue treatment safely or successfully at the given program. Recovery plan completed status were assigned to those clients who discharged with meeting all the treatment agreement terms including but not limited to duration, goals, and attendance. Therefore, client discontinued services and therapeutic transfer were combined and recoded as *incomplete* as in both cases the clients were unable to complete the program while meeting the treatment terms as well as agreed on definition of the successful completion. All participating clients in the program were explained the definition of successful treatment completion in terms of the program requirements.

Treatment Delivery

Three different treatment delivery groups were established for this study. The first group was the in-person-treatment group (IPT), the second group was the CV (clinical video conference) group, and the third group was those who transferred from IPT to CV during the pandemic, called both (transition group).

Marital Status

The marital status of the participants was measured by the demographic data collected upon the OP program admission. An aggregate report on the corresponding patient was collected to indicate if the participants were married or no married (0 = not married, 1 = married).

Control Variables

All the control variables involved in the study were collected during the intake. The diagnosis for each client was established and documented by the primary clinician based on the clinical impression, assessment based on DSM-V criteria, and previous treatment history. A diagnosis of co-occurring disorders is coded as 0 = *no secondary diagnosis*, 1 = *anxiety-related co-occurring disorder*, 2 = *depression-related co-occurring disorders*, and 3 = *both anxiety and depression*. Anxiety was assessed using the 7-item General Anxiety disorder Scale (GAD-7; (Spitzer et al., 2006), and depressive symptoms were assessed using the 9-item Patient Health Questionnaire scale (PHQ-9; Kroenke et al., 2001); both coded as 0 = *mild symptoms*, 1 = *moderate symptoms*, and 2 = *severe symptoms*. Readiness for change, which indicates patient's motivation for recovery and treatment, is coded as 0 = *precontemplation*, 1 = *contemplation*, 2 = *preparation*, 3 = *action*, 4 = *maintenance*. Each client's level of care entering the OP program was controlled to account for the disparities between different programs (0 = *IOP*, 1 = *OP (RMG)*, 2 = *IT*). Additionally, participants' age was demographic variables used as control variables.

Data Analysis Plan

The purpose of this study was three-fold: a) to explore and establish the baseline association between TA and TO in terms of subjective client measures (ORS) and a more objective outcome measure (treatment completion) in order to b) understand the relationship between TA and TO when comparing conventional IPT and CV therapeutic delivery models in SUD populations, and also c) to understand the influence of marital status on the relationship between TA and TO. Data were analyzed using SPSS-IBM 28 (IBM, 2020) and *Mplus 8* (Muthén & Muthén, 1998 – 2017) structural equation modeling (SEM; Ullman, 2006) software.

The model controlled for age, comorbid diagnosis, anxiety severity, depression severity, program intensity, and readiness for change.

Treatment Outcomes

Within the SEM model, a moderated linear regression (Fields, 2014) was conducted using *Mplus* 8 to assess the association between TA and TO (RQ1), the moderating effect of the treatment delivery model (RQ2), and the moderating effect of marital status (RQ3). The relationship between SRS and ORS was assessed to determine statistical significance at p -values less than .05, indicating a statistically significant relationship between TA and TO. The moderating effect of the treatment delivery and marital status on the relationship between TA and TO was assessed to determine if a statistically significant interaction was observed at p -value less than .05.

Treatment Completion

Within the SEM model, a moderated binary logistic regression (Fields, 2014) was conducted using *Mplus* 8 to assess the association between TA and treatment completion (RQ4), the moderating effect of the treatment delivery model (RQ5), and the moderating effect of marital status (RQ6). The relationship between SRS and treatment completion was assessed to determine statistical significance at p -values less than .05, indicating a statistically significant relationship between TA and treatment completion. The moderating effect of the treatment delivery and marital status on the relationship between TA and treatment completion was assessed to determine if a statistically significant interaction was observed at p -values less than .05.

CHAPTER IV: RESULTS

A SEM model (including path analysis, moderated linear regression, and moderated binary logistic regression; Fields, 2014) was used to simultaneously assess the relationship between participant's perceived therapeutic alliance, treatment outcomes, and treatment completion while examining the moderating effects of treatment delivery medium and marital status. Missing data were handled with multiple imputation methods which "aims to allow for the uncertainty about the missing data by creating several different plausible imputed data sets and appropriately combining results obtained from each of them" (Sterne et al., 2009, p. 2). Lastly, all of the variables (age, anxiety severity, depression severity, readiness for change) except co-occurring disorder and program intensity, were removed from the final model for parsimony due to non-significant association with TO and treatment completion. See Figure 1 for model diagram of the association between therapeutic alliance across time and treatment outcome and treatment completion moderated by treatment modality and marital status.

Therapeutic Alliance Across Time

A path analysis examined the null hypothesis that there is a non-significant relationship between TA across multiple time points (i.e., SRS1, SRS2, SRS3, and SRS4). In the preliminary path analysis, there was a significant positive association between SRS1 and SRS2 ($b = .39, p < .001$) and there was a non-significant association between SRS2 and SRS3 ($b = .27, p > .001$). Lastly, there was a significant positive association between SRS3 and SRS4 ($b = .30, p < .001$). Results indicate TA improved between sessions 1 and 2, remained similar between sessions 2 and 3, and improved again between sessions 3 and 4.

Therapeutic Alliance and Treatment Outcome

A moderated linear regression examined the moderating effects of treatment delivery and marital status on the relationship between TA and TO. Results of the moderated linear regression indicate a significant positive association between TA and TO ($b = .25, p < .001$). Also, the main effect between CV and TO ($b = .03, p < .61$) indicated nonsignificant association. When treatment delivery moderation was introduced, there was a significant negative association between the interaction of TA and CV and TO ($b = -.24, p < .001$); indicating participants who only received CV TO scores decreased compared to participants who only received IPT while taking into account positive TA (Figure 2). The main effect between Both (CV and IPT) and TO ($b = .06, p < .12$) indicated nonsignificant association. However, there was a significant positive association between the interaction of TA and both and TO ($b = .12, p < .001$); indicating participants who received both IPT and CV TO scores increased compared to participants who only received IPT while taking into account positive TA (Figure 3). Additionally, when moderation of marital status was introduced, there was a significant negative association between the interaction of TA and marital status and TO ($b = -.16, p < .001$); indicating married participants' TO scores decreased compared to non-married participants' while taking into account positive TA (Figure 4). Table 4 provides the unstandardized, standardized, and significance values, of the model.

Therapeutic Alliance and Treatment Completion

A moderated binary logistic regression examined the moderating effect of treatment delivery on the relationship between TA and treatment completion. Results of the moderated binary logistic regression indicate a significant negative association between TA and treatment completion ($b = -.57, p < .001, OR = .91$); indicating a one-unit increase in TA was associated with an 91% decrease in odds of completing treatment compared to not completing treatment.

Also, the main effect between CV and TC ($b = -.01, p = .98, OR = 0.99$) demonstrated significance, as one-unit increase in TA was associate with a 99% increase in odds of completing treatment. When treatment delivery moderation was introduced, there was a non-significant association between the interaction of TA and CV and treatment completion ($b = .06, p > .05$) as well as a non-significant association between the interaction of TA and both and treatment completion ($b = -.23, p = .05$).; approaching significance in differences in odds of treatment completion with regardless of treatment group (i.e., IPT, CV, and both). The main effect of both and TC indicated non-significant association ($b = .14, p = .23, OR = 1.49$). Additionally, when marital status moderation was introduced, there was a non-significant association between the interaction of TA and marital status and treatment completion ($b = -.09, p > .61$); indicating non-significant differences in odds of treatment completion regardless of if participants were married or not married. Table 5 provides the unstandardized, standardized, significance values, and odds ratios of the model.

Summary of Results by Each Research Questions

The first 3 research questions examined moderating effects of treatment delivery and marital status on TA and TO. RQ 1 exploring the association between TA and TO indicated significant positive association. RQ 2 exploring moderating effect of the treatment medium on the association between TA and TO indicated significant negative association, demonstrating lower TO for CV-only participants. However, there was a significant positive association between TA and both (IPT and CV) groups, demonstrating higher TO for participants receiving both treatment mediums. RQ 3 exploring moderating effect of marital status showed significant negative association demonstrating that married individuals had low TO. The results from the

first 3 research questions indicated significance in both main effect (TA-TO) and interactional effect (treatment delivery and marital status).

The remaining 3 research questions examined moderating effects of treatment delivery and marital status on TA and TC. RQ 4 exploring the main effect between TA and TC indicated significant negative associations. RQ 5 exploring the interactional effect of treatment delivery on TA and TC main effect indicated no significance. RQ 6 exploring the interactional effect of marital status on TA-TC main effect also indicated no significant differences. The results from the last 3 research questions indicated significance in only in main effect of TA-TC and no significant interactional effect (treatment delivery and marital status)

CHAPTER V: DISCUSSION

The Discussion chapter begins here. Although TA is one of the most significant factors in SUD treatment outcomes, previous research studies primarily focused on traditional in-person therapy (Flückiger et al., 2018). In addition, despite TA being one of the main contributing factors for the slow uptake of CV (Simpson & Reid, 2014) in a time of need, the related studies do not directly address the practical questions at hand: a) how does TA compare in a CV to traditional in-person therapy, and b) how does marital status impact the TA-TO interaction? Although there have been findings about the impact of marital status on mental health, there have not been studies that specifically aimed at seeing how it impacts the TA and TO interactions. Grounded in the CF theory, with a specific emphasis on therapeutic alliance and marital status, the present study aims to understand how treatment delivery method and marital status impact the interaction between TA and treatment outcomes. The knowledge gained from this study will assist treatment providers, especially those serving SUD populations, in establishing more practical guidelines for CV-oriented treatment services.

Therapeutic Alliance across Time

Findings from the present study demonstrates an overall increase in TA as the sessions progressed in treatment. This is consistent with existing literature supporting the robust nature of alliance formation, especially during the earlier stages of treatment (Meier et al., 2006). Some studies exclusively focus on the first session, emphasizing it as the most important moment for establishing proper therapeutic relationship (Hauber et al., 2020). In comparison, some studies indicated that the alliance was a significant predictor of success (i.e., sobriety) even at an 11-year follow-up shows that alliance is important beyond just the first session (Connors et al., 1997). Although there was a substantial positive change as TA between client and clinician was

established and built upon between sessions 1 and 2 and sessions 3 and 4, there was not much difference in TA between sessions 2 and 3. This plateau interval may be understood in two divergent ways depending on context: a) stagnation or b) maintenance.

Stagnation can be reflective of the changes in session contents and style, meaning that specific sessions are more focused on administrative and logistical aspects of the treatment. For example, most therapists understand that the initial session and joining process are imperative in treatment outcome and program success. Therefore, most therapists tend to focus on rapport-building (i.e., joining) during the initial session (Hauber et al., 2020). This clinical emphasis inevitably might have pushed more of the focus on the administrative and document-related tasks toward the third sessions. In addition, the program's third-party payor mandated policy procedure for reimbursement remands all the client required documents (including treatment plan reviews) to be completed within the first two sessions of the treatment engagement.

Maintenance can be reflective of the natural progression of the alliance formation in terms of rupture and repair. As the first few sessions are considered assessment phase of the treatment, it's only logical to assume that the clients also spend time assessing, grounding, and attaching to the provider during the earlier stages of treatment. Lavik et al. (2022) recently conducted a study that focused on rupture and repair in the therapeutic relationship. The study identified some of client's feelings of fear and shame during the earlier phase of treatment. This study found how the repairing process of such ruptures in the therapeutic relationship impacted the treatment outcome. The results showed that how successfully these emotions are accommodated predicted positive alliance with subsequent positive treatment outcome, reflecting transitory and transformative nature of TA. Likewise, in the current study, it makes sense for the

TA to manifest more sequentially and for each stage to have different corresponding levels of alliance warranted.

At the very least, TA between the client and clinician remains consistently positive throughout early phases of SUD treatment. Given that TA is not only related to client retention and positive outcomes but also high client satisfaction (Knuuttila et al., 2012), keeping client's perspective on TA would be a great insight for the providers.

Relationship between Therapeutic Alliance and Treatment Outcome

Findings from the present study suggest that increased TA between clients and clinicians positively influences clients' TOs related to relationships and well-being. These results align with existing literature and support the understanding that a stronger alliance between clients and clinicians improves treatment outcomes (Norwood et al., 2018). However, it is essential to note that when compared to other treatment groups (i.e., anxiety disorder, borderline personality disorder, depression, PTSD, and transdiagnostic samples), SUD demonstrated a less robust association between TA and TO (Horvath & Bedi, 2001; Knobloch-Fedders et al., 2007). These differences indicate the subtle but clear differences in TA-TO interaction specific to the SUD population, hinting at the need to consider contextualizing these findings within the broader purview of the existing literature.

For instance, most of the empirical work in the literature predates the onset of the COVID-19 pandemic. In contrast, the present study is based on data collected after the onset of the pandemic. Within the framework of common factors (CF) theory, it is well-established that client-specific and extra-therapeutic factors collectively account for a substantial proportion of the variance—estimated to be around 80% to 87%—in determining treatment outcomes (Wampold, 2001). These encompass an array of variables, encompassing readiness for change,

personal strengths, resource availability, functional capacity, social support systems, socioeconomic status, personal motivation, and the influence of significant life events (Duncan et al., 2010).

From the vantage point of CF theory, it becomes evident that many clients confronted pronounced challenges stemming from these extra-therapeutic factors during the initial phases of the COVID-19 pandemic. Notably, the pandemic ushered in a period during which individuals, including participants in this study, experienced heightened psychological distress, typified by elevated levels of anxiety and depression, in response to the stringent measures of social isolation implemented as a response to the pandemic's exigencies (Epifani et al., 2021).

It is noteworthy that while this particular study was not expressly designed to interrogate the ramifications of the global pandemic on treatment outcomes, the unwavering consistency in the findings underscores the formidable influence of the therapeutic alliance in engendering favorable treatment outcomes, even in the face of formidable external disruptions, such as those precipitated by the COVID-19 pandemic.

Treatment Delivery Method Effect

Taking into account generally positive TA, with treatment delivery moderation, study results suggest that clients who only receive CV TO scores were significantly lower compared to clients who only received IPT. These findings are consistent with past studies indicating the importance of TA's influence on CV's treatment outcome (Simpson et al., 2020). However, it contrasts some of the studies that assert that TA is less important in its influence on CV in comparison to IPT (Norwood et al., 2018). Also, the lower TO scores of the CV group compared to the IPT group may be explained by the idea that the function of alliance changes or impacts

treatment outcome differently depending on the context of the circumstances. For instance, CV is known to associate with increased sense of personal space and perception of control suggesting that it may be well suited for client with higher level of shame and need for control (Lozano et al., 2015). From this perspective, the primary context that needs to be considered is that the data in this study was collected at the early onset of the global pandemic with immense amount of uncertainty the world has not faced in recent years. Such uncertainty seems to have created more susceptibility for an epistemic distrust for many clients as well as the providers. According to Fisher et al. (2020), epistemic trust can be reciprocal and interdependent with therapeutic rapport and engagement with epistemically mistrusting patient can be ineffective. This low epistemic trust may also explain the lack of trust in CV resulting in its slow uptake found in the literature.

Additionally, the transition group (clients who received both IPT and CV) TO scores were significantly higher compared to participants who only received IPT. In addition to the COVID context, this can be indicative of the fact that clients who only received CV were individuals who all began treatment during the pandemic in comparison to IPT and transition group who were all already in treatment when the pandemic began. However, considering the complicating influence of the pandemic, it's important to approach this perspective, or any other viewpoint on the matter, with a degree of caution. Overall, results showed that clients reported better treatment outcome when there was some form of IPT involved in overall treatment vs CV alone.

Lastly, there could have been a fundamental difference in the alliance quality that was being formed throughout the pandemic. Considering the provider hesitation, resistance and confidence issues mentioned in the literature, in combination with mandated change forced on

many providers by the pandemic might have impacted way they related to new clients and therefore impact the client outcome (Uscher-Pines, 2020). Also, this could possibly explain the gap between the “both” group and CV that the both group already have a sense of established rapport in understanding as they transitioned into the CV space, allowing for more grace, openness, and transparency in the process with more established clients. Most of all, the transition group may have had better outcomes than IPT due to the “shared/group experience (resonance which leads to connection between client and the provider over the shared experience)” which is considered a crucial component of some of the core SUD interventions (12-step, recovery peer coaching and etc.; Flores, 2001). From this perspective, opportunities for healthy relationship building through bonding and connecting (rupture and repair) is deemed an important part of healing process. The clients in the transition group witnessed their clinicians going above and beyond trying to do their best during the turbulent and immense time of need. This may have also provided more time and space for the rupture and repair to occur in their relationships to build relational resiliency (Safran, et al., 2014).

Marital Status Effect

Results from the present study indicate that married clients experience lower TOs compared to clients who are not married; contradicting current literature that suggests marriage generally has positive influence on TOs (Sinha, 2018). Considering the major stressor of a global pandemic, such association can be explained by the previous studies that marriage can have negative influence on the treatment outcome when under significant stressors (Wu et al., 2012). For example, Epifani et al. (2021) conducted a systemic review on marital distress and satisfaction during the COVID-19 and found that marital tension, conflict, and even DV

increased during the pandemic. Choi and Marks (2008) conducted a national survey and found that marital conflict directly leads to an increase in depression and functional impairment. In another study that examined both the supportive and the problematic influence of marriage on mental health, the results indicated that the strains of parenthood and financial need predicted problems in marriage which had far more impact on mental health than positive and supportive influence of marriage (Horwitz et al., 2008). Social isolation and movement restrictions such as stay-at-home order have increased married and couples to spend significantly more time with each other either working or caring for children (Balzarini et al., 2023). These conditions were found to be challenging to maintain high quality romantic relationships and unhealthy for the couple/marital romance and relationship. This marital tension, conflict, and DV increase inevitably yielded other consequences in couple lives, including use of substances. For instance, in one study examining moderating impact of partner conflict, it clearly demonstrated higher marital conflict led to higher levels of problems in their alcohol use (Windle & Windle, 2019).

Relationship between Therapeutic Alliance and Treatment Completion

The present study's findings suggest that stronger TA is associated with a lower likelihood of completing treatment, which is inconsistent with the findings of the current literature regarding this topic. For example, Sharf et al. (2010) conducted a meta-analysis demonstrating a moderately strong positive relationship between TA and treatment dropout. Findings from this study indicate that patients with lower TA are more likely to drop out of treatment. However, this meta-analysis also indicates that when clients attend more therapy sessions over time, their TA increases, and dropout rates decrease compared to clients who attend fewer therapy sessions. These findings are even more relevant in the field of SUD, especially due to chronic retention problems and dropout rates (Meier et al., 2006). Also, client

retention and longer treatment duration are well known factors and considered the gold standard for positive outcome measure in SUD treatment (Proctor & Herschman, 2014). For any psychotherapy treatment (not just SUD), the client needs to remain in treatment long enough for it to have a chance to have an impact.

In addition, the treatment completion is highly sensitive to external circumstances. Therefore, the presence of COVID-19 must be considered in understanding the disparity in the result of this study. Many clients faced client/extra therapeutic factors (readiness for change, strengths, resources, level of functioning, social support systems, socioeconomic status, personal motivation, and life events; Duncan et al., 2010) complications during the COVID-19 pandemic, especially during its initial phase.

At the onset of the pandemic, the participants in this study had to choose to either remain or drop from the program when it shifted to an all-virtual treatment due to the social distancing mandate. When deciding, the clients with stronger TA may have been more open and honest with their communication (Bordin, 1979), feeling more comfortable and decisive in disengaging or dropping from the treatment. Considering the shame and guilt that generally exists in the earlier stages of therapy until proper TA is established (Lavik et al., 2022), the clients with weaker TA may have been more avoidant of potential relational ruptures (afraid of displeasing or creating discomfort in the relationship), making it more difficult for them to leave treatment.

Treatment Delivery Method Effect

The present study suggests there are no significant differences in clients' decision to stay in treatment or discontinue treatment regardless of treatment modality. Only a few studies in the literature directly explored TA and TC interaction in CV. Although not directly addressing the

issues, Day and Schneiders' (2002) study on brief CBT via CV indicated that audio and CV groups have higher drop-out rates than the IPT group. However, in another study by Ruskin et al. (2004), results indicated that drop-out rates were equal for both CV and IPT groups. In general, there was no consensus on the issue, and there are mixed results from different studies. The represent study, in particular, aligns with previous studies that indicate that treatment delivery methods (IPT or CV) did not directly influence TA-TC interaction.

From the CF perspective, the significance of the relationship between TA and TC and the non-significance in treatment delivery effect is consistent with the theory's treatment outcome variation. According to Wampold (2001), the treatment factor only accounts for about 13 – 20% of the overall outcome. Even that small percentage further breaks into several different components (alliance 5 – 8%, model/technique 1%, Expectancy, placebo and allegiance 4%, therapist effects 4 – 9%). The COVID-19 pandemic was a significant life event that impacted almost all aspects of identified extra-therapeutic factors (Duncan et al., 2010). For instance, the sharp increase in mental health symptoms such as anxiety and depression during the pandemic shows the change in premorbid functioning. Most of all, the required social distancing and subsequent isolation completely changed the landscape of resources and social interactions. Many lost their jobs and left businesses; impacting their socioeconomic status. The change in social support may have been one of the most challenging aspects of adjustment for those struggling with SUDs. The importance of social support in treating the SUD population and its outcome has been well-established in the literature (Jarnecke et al., 2022). Therefore, amid all these extra factors weighing down, changing the CV service may have been less impactful or influential for most of the clients.

Marital Status Effect

Examining the association between marital status and the TA-TC relationship revealed that marital status did not exert a significant influence. These findings contribute to the ongoing discourse surrounding the impact of marital status on treatment completion, a subject characterized by divergent findings in the literature. The present study's results align with prior research underscoring that marital status does not significantly impact treatment retention. For instance, findings of the current study echo those of Tate et al. (2011), who explored predictors of treatment retention among individuals with co-occurring conditions and substance use disorders (SUD). Their investigation found no substantial association between marital status and the successful completion of treatment. However, it is crucial to acknowledge that more recent studies present an alternative perspective, emphasizing the significance of marital status in treatment completion. For example, Orocio-Contreras and Nieto-Carveos (2022) examined retention rates in outpatient SUD treatment and found marital status to influence treatment retention significantly.

A critical consideration when interpreting these divergent results is the broader context, particularly the temporal variability of data collection spanning from before to after the emergence of the COVID-19 pandemic. The pandemic introduced unique challenges and circumstances that likely affected treatment outcomes and may have altered the role of marital status in treatment completion. Despite these insights, current findings do not fully elucidate the factors responsible for the observed disparities. Further research is warranted to delve deeper into the intricate interplay between marital status, the therapeutic alliance, and treatment completion,

especially in the context of evolving societal and healthcare landscapes influenced by events such as the COVID-19 pandemic.

This evolving landscape underscores that while marital status plays a role in influencing treatment completion, it is not a standalone predictor. SUD treatment outcomes are not shaped by a single factor but rather by a multifaceted interplay of biological, psychological, social, and environmental elements (Wu et al., 2012). The current study's results show that marital status is just one component that can impact an individual's capacity to complete treatment successfully. The incongruity found in the results can be explained by considering the stress and disruption caused by significant events, such as a global pandemic, and the ensuing distress that might adversely affect marital relationships and treatment outcomes.

Further exploration and consideration of unexamined factors or variables are warranted to understand this complex relationship better. For instance, Sinha (2018) proposed in a review that marital status may be a proxy for other moderating or mediating factors. Rather than viewing marriage as the sole determinant, some studies have taken a broader perspective, acknowledging marriage as a component of the larger social structure and a resource essential for all individuals (Tate et al., 2011). Moreover, the mental health implications of events like the COVID-19 pandemic and the resulting social isolation have been extensively documented, including their association with increased anxiety and loneliness (Tull et al., 2020). Nevertheless, their full implications for mental health, particularly in the context of SUD treatment, remain largely unexplored (Marroquín et al., 2020).

In conclusion, while marital status undoubtedly plays a role in SUD treatment completion, it is only one piece of the intricate puzzle. Understanding its interactions with other

factors and variables, particularly during heightened stress and disruption, is essential for comprehending its nuanced impact on treatment completion.

Clinical Implications

Cultivating Rapport Building Skills

In the existing literature, two formidable barriers hindering the widespread adoption of CV therapy emerge. First, there is an inherent reluctance regarding concerns over preserving and operating TA within the context of CV. Second, limited literature provides actionable guidelines for practitioners to effectively navigate these concerns and establish a nuanced understanding of TA within the CV framework.

The empirical findings of this study underscore the paramount significance of TA in the CV milieu, comparable in importance to its role in IPT. It is, however, imperative to acknowledge that TA may manifest differently, particularly under the heightened stressors accompanying situations such as the COVID-19 pandemic (when there are significant change and impact on extra therapeutic factors). Considering these findings, an imperative is proposed: providers engaged in CV therapy should engage in rigorous training centered on cultivating TA skills. This recommendation aligns seamlessly with the current literature emphasizing the necessity of comprehensive guidelines to aid practitioners in adapting to CV (Fisher et al., 2020).

In this endeavor, the initial step entails the development of a CV-specific supervisory and training program with a TA focus. These guidelines should embody simplicity and practicality, avoiding excessive complexity, being a concise list of salient reminders and principles that can be easily imparted, endorsed, and upheld during regular supervisory sessions. Flückiger et al.'s (2018) therapeutic practice list is an exemplary model of such principle-based guidelines. For instance, Flückiger et al. recommend the routine evaluation of the client's perspective regarding

the strength and quality of the therapeutic alliance. This practice can be actualized by incorporating ORS and SRS into daily practice. In addition, FIT (Miller et al., 2016), an evidence-based quality improvement methodology registered on the Substance Abuse and Mental Health Services Administration's National Registry of Evidence-Based Programs and Practices (SAMHSA), offers a valuable instrument for structured training and practice. Such implementation of regular TA assessment is highly recommended as a general practice regardless of treatment delivery format.

CV Environments

In addition to the general practice guidelines discussed, there arises a pressing need for specific directives tailored to the unique characteristics of CV. Foremost among the challenges intrinsic to CV is the attenuation of nonverbal communication, a fundamental element in rapport establishment and maintenance. This attenuation encompasses vital aspects such as direct eye contact, tone of voice, posturing, body movement, synchrony, and attunement, which assume pronounced significance in in-person therapeutic encounters (Grodin et al., 2019).

Therefore, one of the first recommendations is the extensive practice of nonverbal cues in CV interactions. The literature suggests that compensating for the diminished nonverbal component by employing exaggerated cues can effectively preserve TA (Fisher et al., 2020). This entails heightened expressivity in facial gestures, such as raising eyebrows to convey marked surprise, leaning forward to engender engagement, sustained eye contact to maintain connection, amplified voice intonation to convey emotion, and pronounced tonal variations to underscore key points. Such engagement enhances the client's trust in the CV process, a phenomenon akin to the allegiance effect within the context of CF. An ancillary recommendation

closely tied to this entails proactive management of technological challenges that may arise. Indeed, unexpected disruptions in internet connectivity or service interruptions can critically impact the therapeutic process. Therefore, prudent preemptive measures and prompt resolutions for these technological exigencies are priorities.

When it comes to challenges specific to SUD, conducting urine toxicology can be unique to SUD treatment. Traditionally, supervised urine toxicology is considered integral to maintaining client accountability and truthfulness regarding substance use while receiving treatment. However, the COVID-19 pandemic disrupted this process significantly, necessitating a substantial recalibration of the client-therapist relationship in response to this specific issue. While this challenge may recede as the world returns to normalcy, it remains a consideration for providers and programs offering comprehensive CV services. Some programs advocate discontinuing urine toxicology altogether, which introduces intricate complications related to third-party reimbursement and compliance with their requirements. In cases where these circumstances prove inevitable, best practices may be an early and explicit conversation with the client, integrating it as an element of the therapeutic alliance and safety plan. When thoughtfully incorporated alongside robust TA, this approach emerges as a potent tool, empowering clients to monitor and regulate their behavior autonomously, surpassing the effectiveness of conventional monitoring techniques.

Ultimately, to optimize therapeutic outcomes, systematic implementation of routine assessments, encompassing measures such as SRS, ORS, or FIT is recommended, all while maintaining strict adherence to CV-specific guidelines. These endeavors collectively serve to enhance the quality and efficacy of CV.

Individual vs Systemic Treatment Orientations

Various findings and themes emerging from the current study underscore the imperative for a systemic treatment orientation. Both explored moderating factors inherently involve relational variables, indicating their significance in fostering positive treatment outcomes. While recognizing that no single factor exclusively shapes outcomes in SUD treatment, the study emphasizes the importance of a systemic treatment approach (such as couple, family therapy), particularly acknowledging the pivotal role of relational and social components.

Illustratively, the present study's results highlight the relevance of marital status in treatment results and how it impacts outcomes. Existing literature supports the effectiveness of family and couple work (systemic orientation) in treating SUD clients and their families. Notably, involving family members in routine treatment serves two critical purposes. First, it addresses the interconnection between addiction and family function, disrupting the cyclical nature of addiction as a family disease (Copello et al., 2005). Secondly, studies indicate family involvement enhances treatment motivation (entry and completion) and other treatment outcomes (Edwards & Steinglass, 1995). However, family involvement often diminishes in SUD treatment services due to insufficient reimbursement standards for family work. Advocating for additional family work in the program, primarily through cost-effective approaches like couples' and family therapy, may address this gap. As the literature and current study affirmed, marital relationships significantly impact a person's treatment outcomes, suggesting that a more comprehensive systemic approach, such as through CV, may be most effective in treating the SUD population.

Nevertheless, the finding that married couples exhibit lower treatment outcomes prompts consideration of the essence of the result, emphasizing the importance of close relationships and their quality. The implication is that marital status may be less critical than the qualities of relationships surrounding the client. Marital status, while identified as one of the factors influencing treatment completion in SUD treatment, is not a standalone predictor. SUD treatment outcomes result from a complex interplay of biological, psychological, social, and environmental factors. Marital status is just one of many social factors affecting an individual's ability to complete treatment successfully. Considering this understanding, it is recommended that a significant person in the client's life, whether it is a married partner or another systemic family member, should be at least considered during SUD treatment. This consideration can start by conducting a more comprehensive exploration and understanding of the client's family dynamics and their significance. For instance, engaging clients in meaningful discussions about genograms can be a valuable approach to delve into and learn about the client's family history and context, thus expanding our understanding.

Following this initial exploration, attention should be given to how the identified family or social member functions and how they influence the client's substance use and recovery process. A treatment plan should then be developed based on this understanding, with a focus on properly involving the identified person in the treatment process.

Research examining the link between marital status and SUD treatment outcomes has produced mixed results, with the impact of marital status dependent on individual circumstances and the type of treatment provided. Thus, it is essential to recognize that SUD treatment is highly individualized, and the effectiveness of interventions varies. When developing a treatment plan,

treatment providers should consider a person's entire life context, including marital status. While marital status plays a role in SUD treatment outcomes, it constitutes only one facet of a comprehensive assessment of an individual's unique circumstances, including their social support network. This consideration is particularly crucial in the current societal context, where the definition of conventional marriage and intimate partnerships continues to evolve, expand and therefore, requires more inclusion.

Limitations

The present study's findings should be viewed alongside a few limitations to the data. First, it is crucial to acknowledge that data collection occurred before and during the onset of the COVID-19 pandemic, potentially influencing participants' perspectives and treatment experiences. To mitigate this impact, the study incorporated the measure of TC as a more standardized and objective indicator. Likewise, despite the positive association between TA and TO, the choice of measures that can be utilized for this study was limited. One of the most significant limitations was that the available measures were not designed for repeated day-to-day measures. Most measures identified were long, comprehensive pre-/post-test, which did not help to observe how the TA-TO interacted throughout treatment. Also, because they were long and complicated, it was deemed impractical and challenging for the therapist to take part in regularly using the measure. Considering the already existing slow uptake and stigma of CV, for this study to be successful, the easiness and practicality of the use had to be prioritized.

Global Pandemic Factors

One of the biggest outstanding variables that makes this study valuable but limited at the same time is the presence of the global pandemic throughout the study. According to CF, client/extra therapeutic factors make up for about make up about 80% – 87% of changes seen in the

treatment outcome (Wampold, 2001). Some of these external factors consist of readiness for change, strengths, resources, level of functioning, social support systems, socioeconomic status, personal motivation, and life events (Duncan et al., 2010), and these factors are also influenced by the pandemic (Marroquín and Morgan, 2020). Therefore, it is important to consider the degree of impact from these client/extra therapeutic factors over the treatment outcome reported in this study.

Sampling and Data Analysis

Substance Use Specific Treatment Outcomes. This study used TC to cover the SUD-specific treatment outcomes, often considered the gold standard for SUD treatment research (Proctor & Herschman, 2014). However, the absence of another critical measure, length of sobriety, represents a limitation. Length of sobriety and length of stay are considered fundamental in capturing symptom attenuation specific to SUD. Future studies should integrate general and subjective well-being measures with SUD-specific and objective indicators to comprehensively assess outcomes. However, it is essential to strike a balance, as overly extensive measures may impede client compliance and potentially hinder the therapeutic process. Therefore, developing and implementing a practical scale like ORS and SRS specific to SUD would be another important task for future improvement.

Individual Client Reports. This study only utilized the client's perception as the main source of information for TA and TO. TA is a bi-lateral relationship between client and clinician. As Flückiger et al. (2018) suggested, future research should aim for a comprehensive understanding by measuring TA and TO from both clients' and therapists' perspectives. A systemic perspective may even warrant family member input to enhance the overall

comprehension of the client-clinician relationship. Future studies might consider surveying clinicians' perceptions of TA and employing dyadic data analyses for a more holistic view.

Missing Data. Despite best efforts, due to the clinical nature of the data collection, there was large amount of missing data. This meant the current study had limited statistical strength as it required controlling for large amount of missing data. Considering the participation in the completion of questionnaires were largely up to the clients who were participating in treatment while struggling with multitude of problems in the face of a global pandemic. Multiple imputation was used for handling missing data, offering several key strengths. It retains the original sample size, preserving statistical power, and mitigates bias by generating multiple complete datasets with imputed values (Miller & Johnson, 2014). This approach incorporates imputation uncertainty, yielding valid confidence intervals and p -values. Researchers can flexibly choose imputation models tailored to their data. The process involves data preparation, imputation model selection, creating multiple imputations, separate dataset analysis, result pooling, and valid statistical inference. Overall, multiple imputation is a powerful tool for producing unbiased and efficient parameter estimates while addressing the challenges posed by missing data.

Future Directions

Post-Quarantine Replication

Considering the unique circumstances surrounding the global pandemic during the study, a valuable avenue for future research involves replicating the investigation post-pandemic. This approach would enhance the study's generalizability and deepen the comprehension of how TA and TO would interact in the absence of pandemic-related disruptions. Such replication can contribute to our preparedness for unforeseen global events and natural disasters. Developing

practical and provider-friendly SUD-specific alliance and outcome measures akin to the ease of administration seen with ORS and SRS may substantially improve the validity of outcome assessments. Identifying the gap between the client's subjective view of outcomes and the gold standard of TC underscores the need for further exploration of unified and standardized outcome measures.

Apart from replication studies across different global timelines, there is a need to expand on the findings highlighting the robust interaction between alliance and outcome in CV. Future studies should delve into elucidating the mechanisms of how TA operates, emphasizing scientific details that can enhance provider confidence and motivation to adopt an alliance-oriented approach. As suggested in the implications section, investigating a specific hybrid design delivery method (combining IPT and CV) tailored to SUD treatment programs holds promise for advancing therapeutic strategies.

Clinical Guideline Research

Continued efforts in data collection and research are imperative as practical guidelines evolve. Implementing TA-oriented programs, such as FIT, can empower providers with real-time data on TA, enabling them to tailor sessions around TA and TO scores. Furthermore, engaging in clinical case studies and ongoing exploration of practice outcome data remains crucial. This ongoing research should address pertinent questions, such as defining parameters for practice boundaries, maximizing client privacy in the context of CV, and establishing protocols for addressing safety concerns in virtual meetings. These challenges warrant further in-depth studies and a comprehensive understanding to inform the development of clinical guidelines in the evolving landscape of mental health practices.

Clinician Populations

According to CF, therapist effect factors make up for about make up about 4 – 9% of the 13 – 20% total treatment effects. From this perspective the aforementioned resistance or hesitation by the providers can be a huge factor in terms of therapeutic components in outcome variance. Future research should focus on the clinician and client relationship utilizing dyadic data analysis to more fully capture the TA in SUD context in diverse treatment modalities. Another approach that would be useful would be having a study focus on clinician's perspective alone.

Individual vs Systemic Orientations

In addition to having family members participate in treatment, collecting families' perspective may be valuable. Future studies should have data reflecting partners as source of support or stress and partner and family data to depict a more comprehensive view of different rapports in client's life. Even from CF perspective, considering that client/extra therapeutic factors takes majority of the outcome variance, it seems only logical to measure relationships/ rapport in client's daily lives.

Conclusion

Despite the increasing needs, the literature on the TA-TO interaction in SUD treatment CV is limited. The recent COVID-19 has further excelled the need for a CV in mental health treatment. However, its uptake has been consistently slow as scholars have identified provider resistance as one of the most significant reasons behind this challenge. The fear of CV alliance being less and inferior to IPT has been the driving factor, while the experts are calling for studies to support debunking this negative perception or at least bring more clarity for certainty. The

study has confirmed that therapeutic alliance still has a significant influence on CV's treatment outcomes. However, the significant negative association also indicated that the way TA-TO works in CV is different. It showed that the TA-TO interaction was least robust in CV and best when combined with both IPT and CV. Also, the fact impact of global pandemic cannot be disregarded in its influence on TA-TO. Future studies should continue to expand further on this studies finding toward identifying how TA-TO in IPT, CV and both interact in the post-pandemic era.

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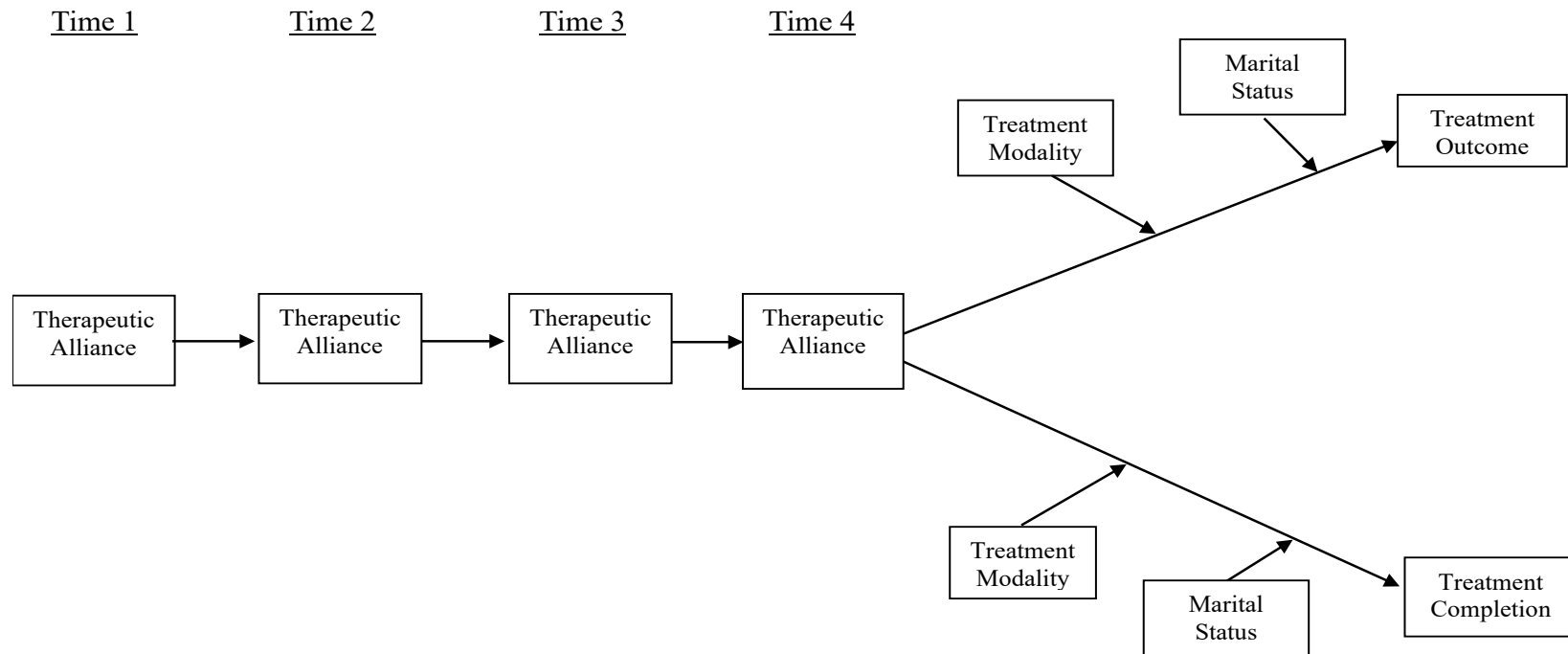
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Appendix A – Figures

Figure 1. Model Diagram of the association between Therapeutic Alliance across time and Treatment Outcome and Treatment Completion moderated by Treatment Modality and Marital Status



Note: Covariates are co-occurring diagnosis, readiness for change, program intensity, and generalized anxiety

Figure 2. Significant two-way interaction effects for Therapeutic Alliance and Clinical Videoconferencing on Treatment Outcome

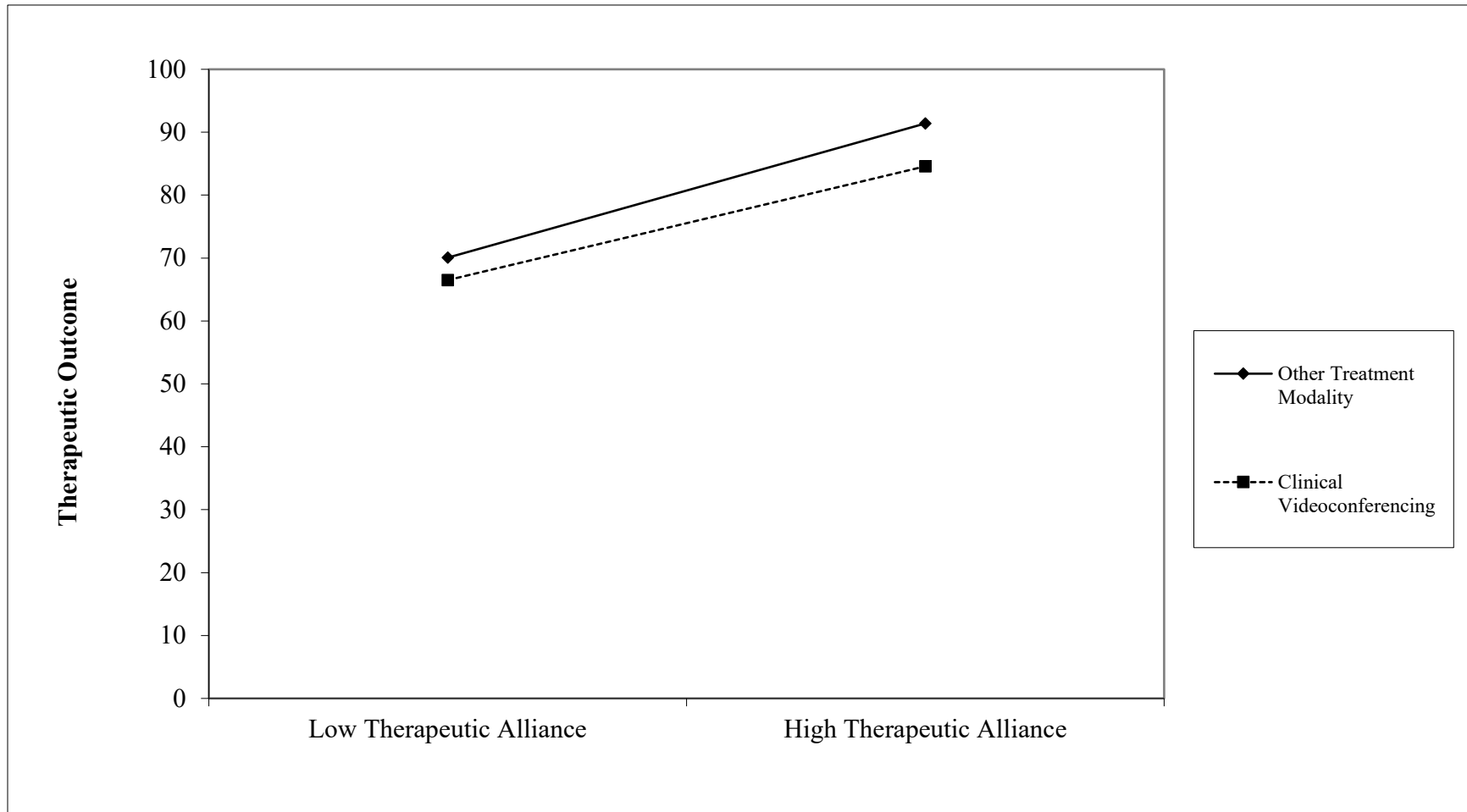


Figure 3. Significant two-way interaction effects for Therapeutic Alliance and In-person Therapy to Clinical Videoconferencing on Treatment Outcome

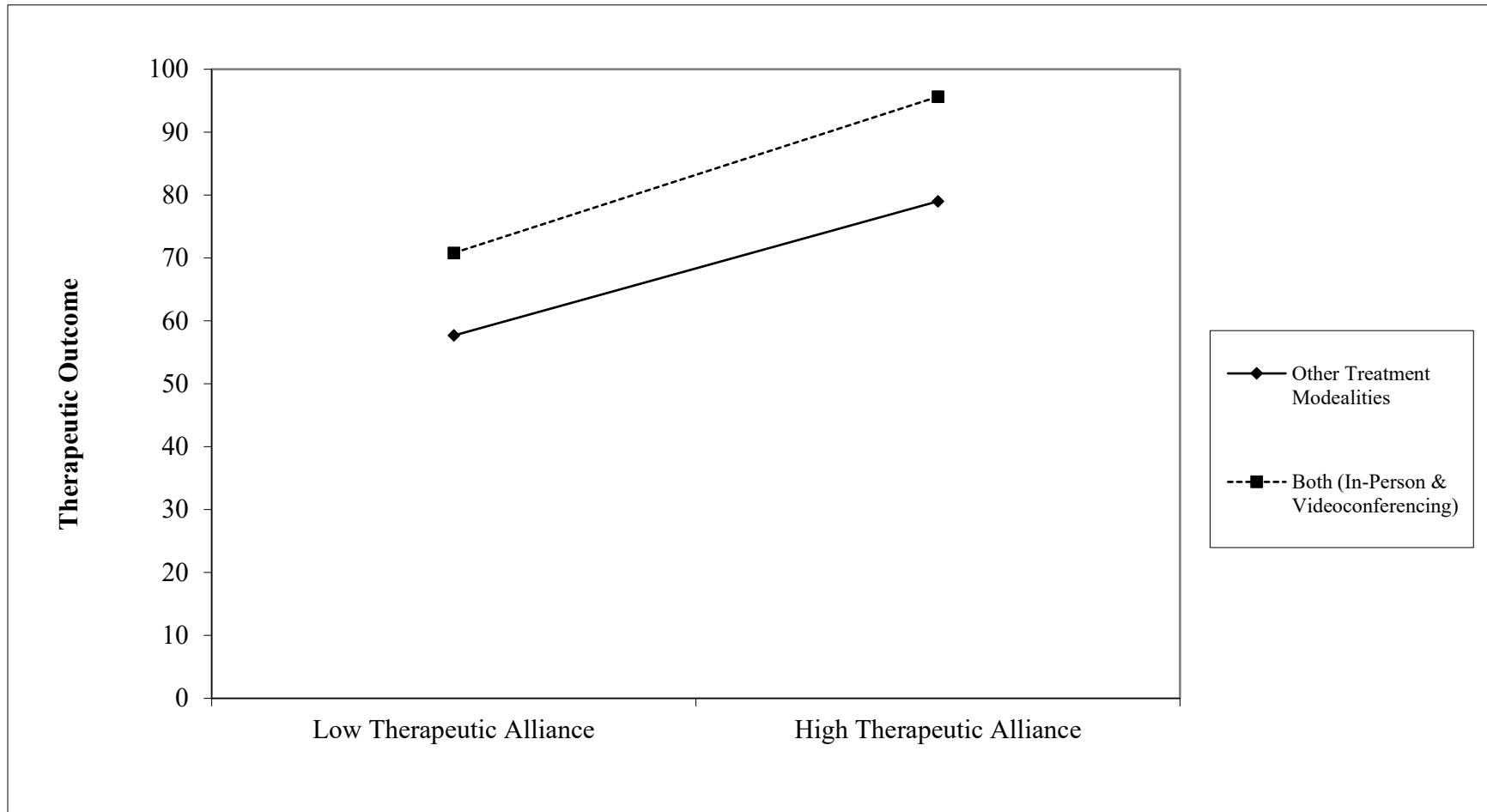
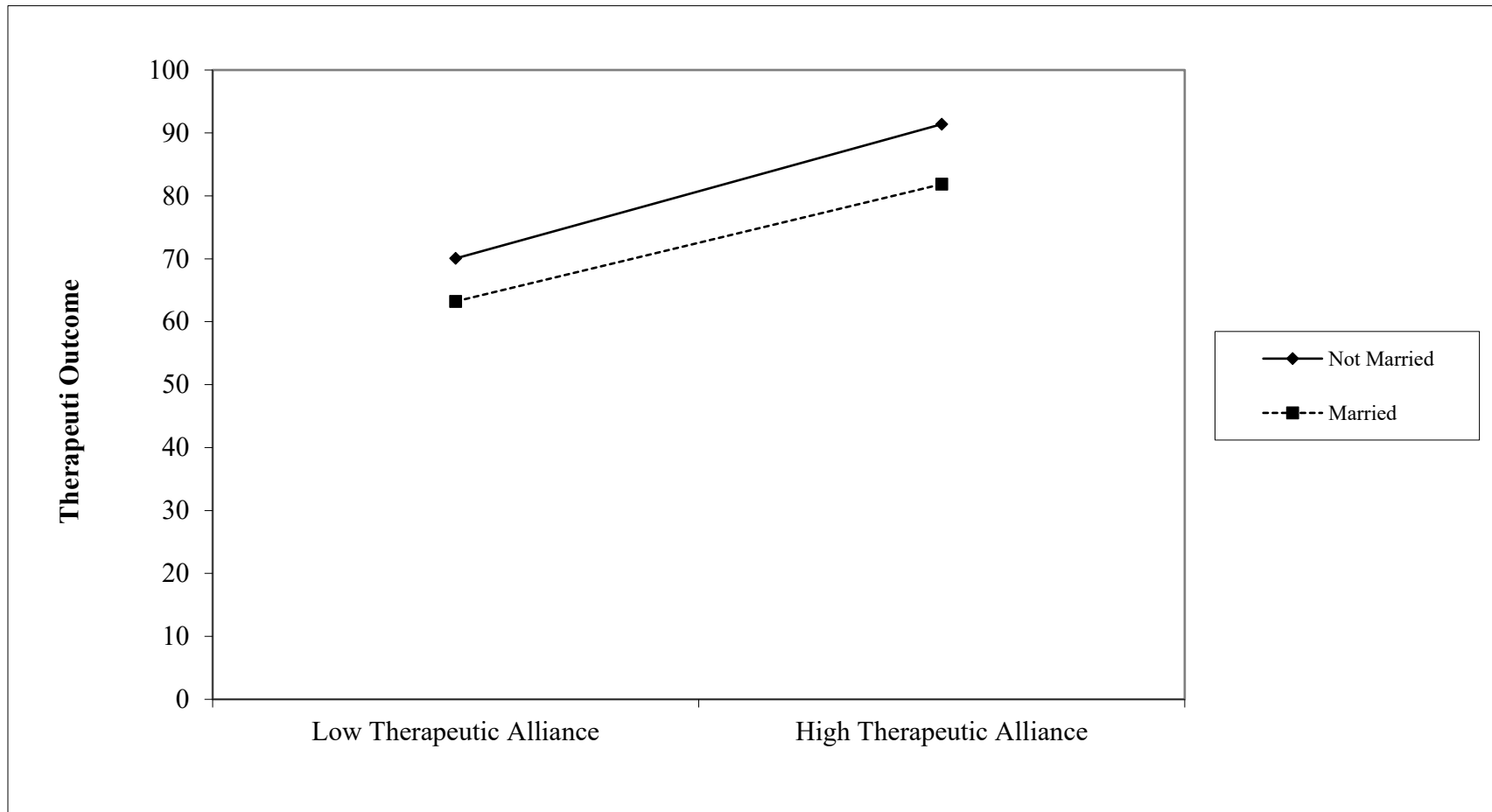


Figure 4. Significant two-way interaction effects for Therapeutic Alliance and Marital Status on Treatment Outcome



APPENDIX B – TABLES

Table 1. Participants’ Demographic Statistics (*N* = 124)

Variables	M or %	<i>SD</i>	Range
Age	33.19	12.64	17 – 70
Gender			
Male	69.4%		
Female	30.6%		
Ethnic-Racial Background			
Caucasian/ White	83.2%		
African American	0.8%		
Asian	0.8%		
Unknown	14.4%		
Marital Status			
Married	81.6%		
Single	15.2%		
Self-Employed	4.1%		
Unknown	3.2%		
Student - Unemployed	10.5%		
Treatment Completion ^a	50%	.50	0 – 1
Treatment Modality			
In-person-therapy (IPT)	69.4%		
Clinical Video Conferencing (CV)	20.2%		
Both IPT and CV	10.5%		
Co-Occurring Diagnosis			
Substance Use Disorders (SUD) Only	12.9%		
SUD Cooccurring with Anxiety Related Disorders	25.8%		
SUD Cooccurring with Depression Related Disorders	13.7%		
SUD Cooccurring with Anxiety and Depression	47.6%		
Stage of Change (Readiness)			
Precontemplation	0.8%		
Contemplation	16.9%		
Preparation	30.6%		

Action	2%
Missing Response	50%
Program Intensity	
Intensive Outpatient	36.3%
Recovery Maintenance	45.2%
Individual Therapy	18.5%
GAD	
Mild	40.3%
Moderate	27.4%
Severe	8.9%
Missing Response	22.6%
PHQ-9	
Mild	41.1%
Moderate	31.5%
Severe	4.8%
Missing Response	22.6%

Note: ^aProgram Completion: 0 = Treatment Incomplete, 1 = Treatment Complete.

Table 2. Average, Mean, Standard Deviation between Test Groups

Variables	N	M or %	SD
IPT			
TA Average Scores	46	94.93	7.81
TO Average Scores	86	73.27	19.98
TC Average Scores	86	49 %	.50
CV			
TA Average Scores	13	96.96	4.41
TO Average Scores	25	70.81	19.71
TC Average Scores	25	56%	.51
IPT & CV (Both)			
TC Average Scores	3	97.42	4.26
TO Average Scores	13	78.80	16.35
TC Average Scores	13	46%	.52
Total			
TC Average Scores	62	95.48	7.09
TO Average Scores	124	73.35	19.55
TC Average Scores	124	50%	.50

Table 3. Correlation Table

<i>Variable</i>	<i>TA x2</i>	<i>TA x3</i>	<i>TA x4</i>	<i>TO x4</i>	<i>TA x1</i>
TA x2	1				
TA x3	0.267	1			
TA x4	0.279	0.306	1		
TO x4	0.288	0.145	0.213	1	
TA x1	0.39	0.126	0.444	0.342	1
MS	-0.046	0.066	0.005	-0.055	-0.038
CV	0.03	0.104	0.101	-0.106	0.041
IPT & CV	0.004	0.044	0.045	0.175	-0.059
TA x MS	-0.09	0.072	0.067	-0.034	-0.1
TA x CV	-0.014	0.11	0.15	-0.139	-0.018
TA x IPT & CV	-0.064	0.06	0.065	0.174	-0.024
Anxiety Dx	0.088	0.124	0.008	0.169	-0.072
Depression Dx	-0.001	-0.02	0.063	-0.209	0.051
Anxiety & Depression Dx	0.01	-0.11	-0.06	-0.085	0.055
RMG	-0.008	0.075	0.175	0.154	0.131
IT	-0.008	-0.04	0.022	-0.101	0.044

<i>Variable</i>	<i>MS</i>	<i>CV</i>	<i>IPT & CV</i>	<i>TA x MS</i>	<i>TA x CV</i>
MS	1				
CV	0.023	1			
TA x IPT & CV	0.011	-0.16	1		
TA x MS	0.775	0.023	0.01	1	
TA x CV	0.022	0.77	-0.12	0.099	1
TA x IPT & CV	0.084	-0.09	0.54	0.151	-0.067
Anxiety Dx	0.172	0.025	-0.02	0.289	-0.009
Depression Dx	0.008	-0.04	-0.06	-0.107	-0.13
Anxiety & Depression Dx	-0.182	-0.08	0.106	-0.229	-0.035
RMG	0.156	-0.07	0.059	0.213	0.024
IT	-0.087	-0.18	-0.15	-0.133	-0.168

<i>Variable</i>	<i>TA x IPT & CV</i>	<i>Anxiety Dx</i>	<i>Depression Dx</i>	<i>Anxiety & Depression Dx</i>	<i>RMG</i>
TA x IPT & CV	1				
Anxiety Dx	0.026	1			
Depression Dx	-0.065	-0.24	1		
Anxiety & Depression Dx	0.07	-0.55	-0.37	1	
RMG	0.073	0.169	-0.14	-0.152	1
IT	-0.082	-0.18	0.134	0.019	-0.422

Table 4. Unstandardized, Standardized, and Significance Values for the Moderated Logistic Regression with Therapeutic Alliance, Treatment Outcome, Treatment Modality, and Marital Status at Time 4 ($N = 124$)

<i>Parameter Estimate</i>	<i>Unstandardized</i>	<i>Standardized</i>	<i>p</i>
Treatment Outcomes →			
Therapeutic Alliance	.79	.25	.00***
Therapeutic Alliance x Clinical Videoconference	-.14	-.24	.00***
Therapeutic Alliance x In-person & Videoconference	.14	.12	.00**
Therapeutic Alliance x Marital Status	-.01	-.16	.00**
Clinical Videoconference	1.20	.03	.61
In-person & Videoconference	3.63	.06	.12
Marital Status	.48	.01	.86
Anxiety Diagnosis	-2.66	-.07	.18
Depression Diagnosis	-18.14	-.40	.00***
Anxiety and Depression Diagnosis	-10.40	-.30	.00***
RMG	.36	.01	.80
IT	-4.19	-.09	.02

Note: * $p < .05$, ** $p < .01$, *** $p < .001$ (two-tailed). Covariates are *co-occurring diagnosis* and *program intensity*.

Table 5. Unstandardized, Standardized, Significance Values, and Odds Ratios for the Moderated Binary Logistic Regression with Therapeutic Alliance, Treatment Completion, Treatment Modality, and Marital Status at Time 4 ($N = 124$)

<i>Parameter Estimate</i>	<i>Unstandardized</i>	<i>Standardized</i>	<i>p</i>	<i>Odds Ratio</i>
Treatment Completion →				
Therapeutic Alliance	-.09	-.60	.00***	.91
Therapeutic Alliance x Clinical Videoconference	.00	.06	.71	1.00
Therapeutic Alliance x In-person & Videoconference	-.01	-.229	.05	.99
Therapeutic Alliance x Marital Status	-.00	-.085	.61	.99
Clinical Videoconference	-.01	-.005	.98	.99
In-person & Videoconference	.40	.14	.23	1.49
Marital Status	.25	.10	.51	1.28
Anxiety Diagnosis	1.53	.78	.00	4.60
Depression Diagnosis	1.31	.52	.00	3.71
Anxiety and Depression Diagnosis	2.14	1.23	.00	8.50
RMG	.00	.001	.996	1.00
IT	.07	.03	.784	1.10

Note: * $p < .05$, ** $p < .01$, *** $p < .001$ (two-tailed). Covariates are *co-occurring diagnosis and program intensity*.

