

ABSTRACT

Title of Thesis: DIFFERENTIAL CODEVELOPMENT OF
WORKING ALLIANCE AND SESSION
EVALUATION IN COULSEING DYADS

Shihong Lin, Master of Arts, 2023

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Education

We examined session quality measured by the session evaluation scale (SES) and the working alliance measured by WAI-SR using the DSEM model, and reported similarities and differences in the codevelopment of the working alliance and session evaluation. In addition, we examined how the dynamic patterns of codevelopment for working alliance and session evaluation are associated with counseling outcomes. Major findings include: 1) there are significant actor effects for both working alliance and session evaluation; 2) In our study, there is no difference between therapist partner effects and client partner effects, for both working alliance and session evaluation; 3) The paths for session-to-session carryover effects (actor and partner effects) were stronger for working alliance than they are for session evaluation; 4) the therapist partner effects for session quality was statistically significantly associated with therapy outcome measure by the Outcome Questionnaire 45.2. Clinical implications of those findings were discussed.

CODEVELOPMENT OF WORKING ALLIANCE AND SESSION EVALUATION IN
COULSEING DYADS

by

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Thesis submitted to the Faculty of the Graduate School of the
University of Maryland, College Park, in partial fulfillment
of the requirements for the degree of
Master of Arts
2023

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Introduction

Working alliance

The concept of relationship and alliance in psychotherapy originated in psychoanalytic theory (Freud, 1966/1961, p. 27; Zetzel, 1956; Greenson, 1965; Greenson, 1967). Based on those early conceptions of therapeutic alliance and relationship, especially on Zetzel and Greenson's contributions, Bordin (1979) defined working alliance as including the three components: 1) the quality of emotional bond in the therapeutic dyad, 2) agreement between client and therapist on therapeutic goals, and 3) consensus on the tasks in the therapy process. The working alliance inventory (WAI; Horvath & Greenberg, 1986, 1989) and shortly after that a short form of the WAI (WAI-S; Tracey and Kokotovic, 1989) were developed to assess Bordin's (1979) pantheoretical model of the working alliance. Hatcher & Gillaspy (2006) developed a revised version of the WAI-S (WAI-SR). The WAI-SR and its previous versions have been widely used in measuring alliance in therapy.

Theoretically, major psychotherapy approaches besides psychodynamic theory, like Adlerian therapy, existential therapy, and person-centered therapy, all stress the central or critical role of working alliance/relationship in the psychotherapy process (Corey, 2021; Rogers & Wood, 1974). In psychotherapy research, since the idea of common factors was proposed by S. Rosenzweig (1936) and popularized by J. Frank (1961, 1973, 1991), working alliance has become the most examined common factor in psychotherapy, with hundreds of independent studies and multiple meta-analyses published since the 1970s. The meta-analyses consistently found a moderate but robust relationship between, mostly cross-sectional measures of the alliance and treatment outcome (Horvath & Symonds, 1991; Martin et al., 2000; Horvath et al., 2011; Flückiger, 2018). For instance, the most recent meta-analysis (Flückiger, 2018) of the

alliance, which included 295 independent studies (published between 1978 and 2017) involving more than 30,000 patients, found an overall alliance-outcome association of 0.28 (the equivalent of Cohen's d of 0.58).

Most of those previous studies focused on the association between single snapshots of working alliance, measured at one early session, and therapy outcome (Zilcha-Mano & Errázuriz, 2017). Some researchers moved beyond only exploring this simple association and investigated how developmental patterns of working alliance, in the first few sessions, are related to outcome. For instance, Kivlighan (2000) studied the client-perceived working alliance development pattern across the first four sessions and found that a quadratic alliance development (decrease and then increase) was associated with greater improvement on measures of counseling benefit, compared to other patterns of alliance development. In 2007, Zilcha-Mano and Errázuriz studied the early development pattern of working alliance and they found that the early development patterns predict treatment length, dropout, subsequent alliance development, and treatment outcome in this study. Moreover, they concluded that early alliance development is predicted by the Interpersonal Relationship subscale score of Outcome Questionnaire (OQ; Lambert, Vermeersch, & Brown, 2004) during client intake. The research on early development patterns of working alliance was a big step forward from studies looking at only one single snapshot of the working alliance. However, the early development pattern is still limiting in informing researchers and therapists of the psychotherapy process because working alliance and therapy process do not stay static after the first few sessions.

In recent years, researchers have gathered more intensive longitudinal data and applied more advanced statistical models and more complex theories in examining the working alliance and the psychotherapy process. For instance, one line of studies investigated the working alliance

using the Actor-Partner Interdependence Model (Gelso et al. 2012; Kivlighan, 2007; Kivlighan et al. 2014; Li et al., 2021; Markin et al., 2014). Brossart et al. in 1998 used a time-series model to investigate therapist and client's perception of the working alliance across sessions, and they found that a counselor's perception of the working alliance may have lasting effects that carry over from session to session on client's perception of the working alliance. Li and Kivlighan in 2019 used the Ordinary Differential Equations (ODE) model in a multilevel framework to investigate working alliance and found that the dynamics between therapist and client in perceiving working alliance was associated with the client's session evaluation.

There are several important common strengths of the new lines of studies mentioned in the above paragraph compared to early working alliance research. First, all those studies included both client and therapist perception of working alliance which allows investigation of how the working alliance codevelops between therapist and client in their interaction. Second, with data available for most or all therapy sessions, these studies were able to look not only at the contemporaneous interaction between the client and the therapist but also at the lasting effects in the form of session-to-session effects. With longitudinal data for both clients and therapists, and new statistic models/tools, researchers are now able to study the codevelopment of working alliance (e.g, how client and therapist perceptions of the alliance temporally relate).

Codevelopment of the Working Alliance

The client's perception of a psychotherapy process and the therapist's perception of the same process are not independent perspectives. Instead, the client perception of the psychotherapy process and the therapist perception of the psychotherapy process "codevelop" because clients and therapists interact and respond to each other. The concept of codevelopment, which was first introduced in research in couple relationships (e.g., romantic partners), was

defined as development in the same (similar) directions (Orth et al., 2018), which refers to (within a dyad) the development of a phenomenon in two individuals' perceptions or experiences converging into similar directions. The inclusion of longitudinal data for both therapist and client allows investigation of such codevelopment paths.

Individual psychotherapy is carried out almost exclusively in a session-to-session framework, except for inpatients who need more intensive and complex treatment. Discussion on the reasons for the dominance of this format and whether this may or should change in the future is out of the scope of this research, but it is clear that the session-to-session format of delivering therapy will remain as the main format of individual psychotherapy for a significant number of years.

Ideally, psychotherapy will have long-lasting effects rather than just providing some transient relief of psychological stress and symptoms or a short boost of positive mood and energy. In other words, we want the effect/outcome of one session to carry over into the future time, including the next therapy session. Given the above reasons, it is important for researchers to assess how what happened in the previous session predicts/is related to the process or outcome of the current session.

How can a client's or therapist's perception of the alliance affect the other party's perception of the alliance? Therapists and clients, like people in general, base their perceptions of each other on behavioral observation. For example, the client may be providing superficial responses because they are unsure if the therapist really cares about them (weak emotional bond), the therapist observes this avoidance, which contributes to the therapist's view of the alliance. Upon reflection on the observation, the therapist will hopefully use skills/interventions in the next session in order to strengthen the working alliance.

What is Missing in Previous Studies?

Association of carryover effects with therapy outcome. While some previous studies have investigated the carryover effects (from one session to the following session) between client perception of working alliance and therapist perception of working alliance, most previous studies did not investigate how those effects are associated with therapy outcome. One recent study (Escudero, et al., 2022) that did examine the association of actor and partner effects with treatment outcome was conducted on a sample of maltreated adolescents who received Alliance Empowerment Therapy (AET), a manualized team-based approach. In their study, Escudero and his colleagues (2022) found that client partner effects were stronger in cases with better outcomes. In other words, in more effective cases, therapists were more responsive and increased their alliance ratings when the youth had stronger alliance ratings in the previous session and decreased their alliance ratings when the youth had weaker alliance ratings in the previous session. This suggests that therapists were appropriately responsive to their clients' alliance. Given that the clients in Escudero et al.'s study were in a particular developmental stage and had recently been abused and neglected, the therapeutic interactions and alliance development between clients and therapists might be different from alliance development in therapy with other clientele. Moreover, the team-based AET might also create unique development dynamics for the working alliance. In this study, we studied how the session-to-session carryover effects from therapist and client to themselves and to their partners (actor effects and partner effects) are associated with therapy outcome, with adult clients and therapists who were trained in psychodynamic/interpersonal therapy. Therapy outcome was assessed by the Outcome Questionnaire 45.2 (OQ-45.2; Lambert, Gregersen, & Burlingame, 2004).

What working alliance does not tell. Some researchers suggest that there has been an overemphasis on the alliance, which is an important factor in psychotherapy, but relative neglect of other important therapeutic processes (Wampold, 2015). The small association between working alliance and therapy outcome found in meta-analyses (e.g., Flückiger et al., 2018) suggests that there are other factors, besides working alliance, that contribute to therapy outcome. Therefore, it is important to include some of these other factors in psychotherapy-process studies examining the working alliance.

Session Evaluation Scale

The Session Evaluation Scale (SES) is a measurement that could serve the purpose of complementing working alliance in depicting the psychotherapy process. Working alliance measures the quality of emotional bond and the level of collaboration between the therapist and client (Bordin, 1979; Hatcher & Gillaspay, 2006). The Session Evaluation Scale, on the other hand, was designed to measure the quality of a session (Hill & Kellems, 2002). SES is an outcome measurement when it applies to a single session. However, if put in the whole psychotherapy process, it could function as a comprehensive process measurement that evaluates incremental movement toward long-term outcomes. As a process measurement, session evaluation is more transient because it is focused on a specific session whereas a relationship as seen in the working alliance has more stability over time.

The evaluation of experiences is a ubiquitous human process and it is not surprising that clients and therapists evaluate their sessions. Hill and Kellems (2002) developed the Session Evaluation Scale to understand how clients and therapists evaluated their sessions. Showing the importance of session evaluation, Hill and Kellems (2002) found that helping skills contribute to client session quality, above and beyond the contribution of the working alliance. Therefore the

session evaluation captures elements that are not included in the working alliance. Despite common sense and the initial finding in Hill & Kellems' (2002) study that working alliance is an important but not the only factor contributing to the differences client outcome, research on the psychotherapy process has still been disproportionally focused only on working alliance. This might be due to the complexity of psychotherapy process research and the limitations discussed in Hill and Kellems' (2002) study. In Hill and Kellems' study, the participants are volunteering clients and beginning helpers (undergraduate students) with very limited experience, and the sessions were 20-minute-long short practice sessions. Moreover, only client perception of measures (SES, WAI-SR, etc) was examined in their study.

To further investigate how working alliance and session evaluation can complement each other and to address the limitations seen in the Hill and Kellems' (2002) study, in this study, we examined session quality measured by the session evaluation scale (SES) and the working alliance measured by WAI-SR using the DSEM model, and reported similarities and differences in the codevelopment of the working alliance and session evaluation. In addition, we examined how the dynamic patterns of codevelopment for working alliance and session evaluation are associated with counseling outcomes.

Aims and Hypothesis

The first aim of our study was to examine the similarities and differences in the codevelopment paths (in the sense of session-to-session carryover effects) of working alliance and session evaluation. There are four types of session-to-session carryover effects for each variable perceived by both client and therapist. Figure 1 depicts these effects with working alliance as an example.

Client auto regression effect (CAuto): the effect of client perception of working alliance (or session evaluation) at session n on client perception of working alliance (or session evaluation) at session n+1, calculated by regressing client rated score at session n+1 on client rated score at session n.

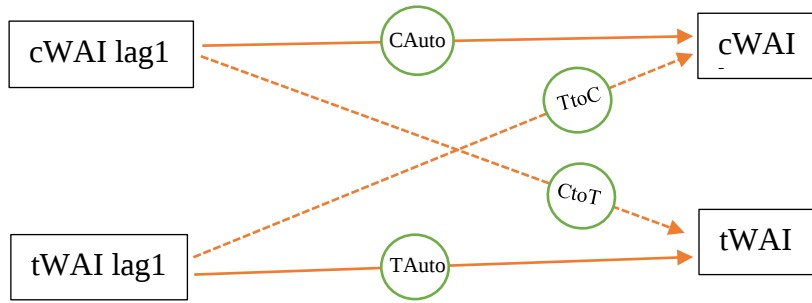
Therapist to client effect (TtoC): the effect of therapist perception of working alliance (or session quality) at session n on client perception of working alliance (or session quality) at session n+1, which is calculated by regressing client perception of working alliance (or session quality) at session n+1 on therapist perception of working alliance (or session quality) at session n.

Therapist auto regression effect (TAuto): the effect of therapist perception of working alliance (or session evaluation) at session n on therapist perception of working alliance (or session evaluation) at session n+1, calculated by regressing therapist perception of working alliance (or session quality) at session n+1 on therapist perception of working alliance (or session quality) at session n.

Client to Therapist effect (CtoT): the effect of client perception of working alliance (or session evaluation) at session n on therapist perception of working alliance (or session evaluation) at session n+1, which is calculated by regressing therapist perception of working alliance (or session evaluation) at session n+1 on client perception of working alliance (or session evaluation) at session n.

In the following sections of this manuscript, the four types of carryover effects will also be referred to as client actor effects (CAuto), client partner effects (CtoT), therapist actor effects (TAuto), and therapist partner effects (TtoC)

Figure 1. Longitudinal actor partner interdependence model of working alliance codevelopment.



cWAI: client-perceived working alliance

tWAI: therapist-perceived working alliance

lag1: variable rating from the previous session

Solid line: lag effects (actor effects: CAuto and TAuto)

Dashed line: cross lag effects (partner effects: CtoT and TtoC)

Another purpose of this study was to investigate whether the session-to-session carryover effects (actor and partner effects) between client and therapist for both working alliance and session quality are associated with therapy outcomes. We had several hypotheses for this study.

Hypothesis 1. For both working alliance and session quality, *Client auto regression effect* (CAuto) and *Therapist auto regression effect* (Tauto) would be significant. In other words, client perception of working alliance at one session would predict client perception of working alliance at the next session, and therapist perception of working alliance at one session would predict therapist perception of working alliance at the next session. Similarly, client perception of session evaluation at one session would predict client perception of session evaluation at the next session, and therapist perception of session quality at one session would predict therapist perception of session quality at the next session. There are theoretical rationales for significant

autocorrelations. According to Sadler & Woods (2003), people have the tendency to judge their own interpersonal behavior in accordance with their general self-image and have a bias toward maintaining a consistent self-image. This consistency bias would result in therapists and clients having a consistent perception of psychotherapy processes. Therefore, we expected significant auto correlations in client's and therapist's perceptions of interpersonal experiences like working alliance and session quality. Moreover, different rater biases (e.g., the strictness bias and the leniency bias, the halo effect and the horn effect) would also result in significant correlations for ratings of the alliance or session quality in adjacent sessions. Other than the consistency bias and the rater biases, each therapist and client dyad may also maintain working alliance and session quality within a range particular to their dyad because of therapist competency and the interaction patterns of the therapists and the client.

We expect a moderate size correlation because a large correlation would indicate rigidity in clients'/therapists' perception of the alliance/session evaluation. On the other hand, a non-significant small client auto correlation would indicate a lack of consistency in perceiving the alliance or session.

Hypothesis 2. For both working alliance and session evaluation, TtoC (therapist perception predict client perception: client perception at session $n+1$ was regressed on therapist perception at session n) would be stronger than CtoT. In other words, therapist perception at one session would better predict client perception at the next session than client perception would predict therapist perception.

In attachment theory, Bowlby's (1982; 1988) specified three provisions of an attachment figure: 1) being targets of proximity maintenance; 2) providing a physical and emotional safe haven; and 3) providing a secure base from which people can explore and learn about the world

and develop their own capacities and personality. According to Bowlby (1988), therapist **can** fulfill the three provisions and function as an attachment figure. Mikulincer et al. (2013) also conceptualized the therapist-client relationship as involving an attachment bond. Ideally, therapists will have relatively high attachment security in the therapeutic relationship and provide clients a safe haven and secure base to explore and learn about themselves. Bowlby (1988) proposed that favorable therapeutic outcomes depend on the extent to which clients' insecurities are identified, revised, and transformed.

In therapeutic relationship, the therapist, if functioning as a secure attachment figure, would be responsive and attend to client's needs and feelings. Therefore, if a therapist perceived a change in working alliance or session quality, they would respond accordingly to rectify the weaker alliance or poor session quality, or to use the strong alliance to facilitate therapeutic change. More specifically, if by the end of the session the therapist reflected on the session and rated working alliance and session quality, they would use this information in the next session and ideally this would influence client's experience and perception in the next session. In addition to the attachment perspective, the therapist as a healthcare professional, has been trained and is obligated to facilitate good-quality sessions and maintain the foundation of productive therapeutic work, and a good working alliance. The client, on the other hand, does not have the obligation to correct the session process. As attachment figures and healthcare professionals, therapists would use their perception of working alliance or session quality as a source of information and work to improve or maintain the working alliance or session quality in future sessions. This is consistent with Brossart et al.'s (1998) findings. We expected to get the same or similar results for working alliance as what Brossart et al. found with a time series model (Brossart et al., 1998).

Hypothesis 3. Our third hypothesis was that the paths for session-to-session carryover effects would be stronger for working alliance than they are for session quality. In other words, working alliance has larger carryover effects from session to session as compared to session quality. The working alliance, including the "bond" element, accumulates over time (Hatcher & Gillaspay, 2006). Session evaluation, on the other hand, only assesses what happens in each individual session (Hill & Kellems, 2002). By definition, relationships develop over time and are a cumulative process. This gradually building relationship, in the form of the working alliance, would be expected to have some significant stability from week to week. On the other hand, evaluation with a particular session is not necessarily related to evaluation with the previous session. For this reason, session quality is most likely more independent from session to session than working alliance.

Hypothesis 4. We hypothesized that TtoC carryover effects (therapist perception predict client perception), in both working alliance and session quality would be correlated with therapy outcome (assessed by OQ 45 in this study).

According to attachment theory, new experiences with sensitive and supportive relationship partners can help an insecure person move toward a more secure pattern of relating (Shaver & Mikulincer, 2008). Psychotherapy, as a corrective attachment experience, can also move clients away from insecure and toward secure attachment pattern, and that movement indicates effective treatment (Mikulincer et al., 2013). Moreover, research has found a positive association between therapist's attachment security and a stronger therapeutic alliance/relationship (Rozov, 2002; Berry et al., 2008). A secure therapist is more likely to focus on clients' concerns, remain open to new information, and maintain compassion and empathy (Mikulincer et al., 2013). If a secure therapist perceives a rupture in the relationship or poor

session quality (therapist perceives low WAI or SES), they are most likely to attend to and fix the issue in the next session, rather than being overwhelmed or distanced by it. This effective attend-and-fix process initiated by therapist will then influence the client's experience in the next session. Thus, the TtoC path is built in an effective psychotherapy process. Therefore, we reached our hypothesis that the TtoC effect will be associated with a positive therapy outcome.

Moreover, according to social influence theory (Dorn, 1984; Strong, 1968) client must perceive the therapist as expert, trustworthy, and socially attractive for psychotherapy interventions to take effect. Although social influence is a two-way exchange, therapists possess some unique power bases (Dorn, 1984) such as legitimate power (social role), expert power (training, etc.), informational power, and ecological power (eg. therapist's suggestions for change in client's personal environment). Therapists' unique social power could be represented in the codevelopment path as TtoC carryover effects (therapist partner effects).

Escudero et al. found in their study (2022) that CtoT carryover effect (client partner effect) was associated with therapy outcome (Children's global function). We predicted our result to be different because in Escudero et al.'s study there were special interventions in the therapy process that could influence the feedback loop. In the AET team approach applied in Escudero et al.'s study, team members observed the session and discussed with the primary therapist toward the end of each session about a concluding intervention that would be delivered to the client when they close the session. Furthermore, the special client population of maltreated adolescents might also contribute to the dynamics in different ways than our community adult clients.

Method

Design.

The data was collected in the Maryland Psychotherapy Clinic and Research Lab, where low-fee psychotherapy services were provided for clients from the local community. The study was designed under the framework of the Dynamic Structure Equation Model (DSEM: Asparouhov et al., 2018), which could be used to analyze longitudinal data and study the evolution of observed and latent variables as well as the structural equation models over time. The observed variables in this study included client perception of working alliance (measured by WAI-SR), therapist perception of working alliance (measured by WAI-SR), client perception of session quality (measured by SES), therapist perception of session quality, therapy length (total number of sessions), and therapy outcome (measured by OQ-45). The carryover effects, which are Actor (CAuto & TAuto) and Partner (CtoT and TtoC) effects, were calculated within the DSEM model for working alliance and session quality, and then examined for possible moderation by treatment length and therapy outcome.

Participants.

Clients. 236 adult clients from 18 to 75 years old ($M=32.11$, $SD=11.76$) were included in this study. Among those clients, 131 were female (55.5%), 88 were male (37.3%), three were transgender male (1.3%), two were gender non-conforming (0.8%), and 12 were other or not reported (5.1%). In terms of race, 117 identified as White (49.6%), 43 identified as Black (18.2%), 18 identified as International (7.6%), 13 identified as Asian/Pacific Islander (5.5%), 12 identified as multiethnic (5.1%), 12 identified as Hispanic/Latinx (5.1%), three identified as Middle Eastern (1.3%), and 19 identified as other or not reported (7.6%). Clients' presenting concerns included relationship issues, anxiety, depression, issues in meaning in life, grief and loss, or career concerns. Clients had 9 to 182 sessions ($M=45.5$, $SD=32.9$) including the intake

session. The minimum sample size for DSEM models is not fixed. For the model we used in this study, some recommended sample sizes were $N=150$ & $T=10$ (150 subjects with 10 time points), $N=100$ & $T=25$, and $N=50$ & $T=50$ (Schultzberg & Muthén, 2018).

Therapists. 45 therapists worked with the clients in this study. The therapists' age ranged from 25 to 67 years old ($M=30.53$, $SD=7.36$). 31 therapists were female (68.9%), 13 were male (28.9%), and one was transgender male (2.2%). In terms of race, 24 were white (53.3%), 10 were Asian/Pacific Islander (22.2%), seven were international (15.6%), three were black (6.7%), and one was Latinx (2.2%). Therapist completed the Therapist Orientation Profile Scale-Revised (TOPS, Worthington & Dillon, 20003) and they rated highest on Psychodynamic-interpersonal, Humanistic-existential, multicultural, and feminist approaches. More specifically, 35 therapists reported highest endorsement ratings on psychodynamic-interpersonal approach (77.8%), seven reported highest ratings on humanistic-existential approach (15.6%), two reported highest ratings on multicultural orientation (4.4%), and one reported highest ratings on feminist theories (2.2%). 44 therapists in this study were psychology externs who had two to five years of counseling experience, and one was a psychologist with more than 20 years of experience. Psychology externs participated in weekly individual and bi-weekly group supervision with licensed psychodynamically-oriented psychologists.

Measures.

The Working Alliance Inventory-Short Revised (WAI-SR; Hatcher & Gillaspy, 2006) was used to assess the perceived strengths of the working alliance between the therapist and the client. The therapist version and client version of the scale (Hatcher & Gillaspy, 2006) were rated separately in this study by therapists and clients. The WAI-SR is a 12-item measure that assesses tasks, goals, and bond dimensions of the working alliance on a 5-point scale that ranges

from 1 (seldom) to 5 (always). A higher WAI-SR score represents a stronger perceived overall working alliance between the therapist and the client. Hatcher and Gillaspay (2006) reported internal consistency of 0.90, and Kivlighan, Hill, Gelso, and Baumann (2016) reported internal consistency alphas from .93 to .99. In this study, the internal consistency Cronbach's alphas for WAI-SR were 0.98 for the clients, and 0.94 for the therapists.

The Session Evaluation Scale (SES; Hill & Kellems, 2002) was designed to assess client and therapist perceptions of the session quality. A five-item version of the SES (Lent et al., 2006) was used in this study, with each item rated on a 5-point Likert scale ranging from 1 (strongly disagree) to 5 (strongly agree). A higher total score indicates a perceived better quality of the session. Hill and Kellems (2002) reported high internal consistency (Cronbach's alpha = .91) for the original client-rated four-item SES. For the current five-item version of SES, Kivlighan et al. (2016) reported good internal consistency (Cronbach's alpha: .91 for therapists and .99 for clients). In this study, the internal consistency Cronbach's alphas of SES were 0.97 for the clients, and 0.91 for the therapists.

The Outcome Questionnaire 45.2 (OQ-45.2; Lambert, Gregersen, & Burlingame, 2004) is a 45-item self-report inventory designed to measure psychotherapy progress and outcome in adults. The OQ-45.2 contains three subscales: symptom distress, interpersonal relations, and social role performance. Each item is rated on a 5-point scale from 0 (never) to 4 (always). A total score of 64 or more reflects increased distress related to experiencing a high number of symptoms, and a difference of 14 or more points between the baseline and follow-up OQ-45.2 scores reflects a reliable change (Lambert, Gregersen, & Burlingame, 2004). Boswell et al (2013) studied the validity and reliability of OQ-45.2 and reported a high internal consistency (Cronbach's alpha of .94) and moderate correlations with presenting concerns like anxiety,

depression, and stress. In this study, the internal consistency Cronbach's alphas of OQ-45.2 was 0.95. We used the difference between the last and first OQ-45.2 scores to calculate reliable change. Following Lambert (2015) clients with decreases of 14 or more points from intake to post-therapy were classified as having reliably improved.

Procedure.

Individuals interested in receiving open-ended psychotherapy from the clinic initiated the contact by phone or email. A therapist then conducted an initial screening over the phone. The screening process assessed several criteria for the appropriateness of the clinic's service for the client. Individuals eligible to receive treatment at the clinic must: 1) be 18 years or older; 2) be seeking individual, open-ended psychodynamic psychotherapy with presenting concerns related to relationship problems, depression, anxiety, grief and loss, or existential concerns (meaning in life, etc); 3) not be currently in psychotherapy from another provider; 4) if potential clients are having a psychotic disorder or on psychotropic medications, they must have been on medication for a least 2 months and/or be stabilized under the care of a psychiatrist. Individuals who did not meet those criteria were referred to other providers with different specializations. Those who met the criteria were put on the waitlist or scheduled for an intake appointment based on availability.

At intake, clients were provided a detailed consent form describing the nature of the research, confidentiality and the limits of confidentiality, and the procedures for screening, intake, measurement, and post-treatment interviews. Clients were informed that if they choose to participate in research and receive service, they can withdraw at any time should they no longer wish to participate. For the current study, Working Alliance Inventory – Short Revised version (WAI-SR) and Session Evaluation Scale (SES) were rated by both clients and therapists after every session including the intake session. The Outcome Questionnaire 45.2 was rated by clients

after the intake session and after every 8th session. Client and therapist demographic information was collected when they first participated in the study.

The procedures for this study, as part of the ongoing research of the Maryland Psychotherapy Clinic and Research Lab, were reviewed and approved by the Institutional Review Board of the University of Maryland. All data were de-identified before delivery to researchers.

Data Analysis and Results

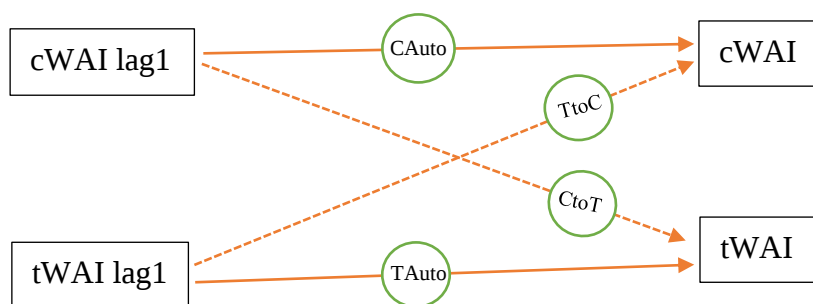
Data Analysis.

Since OQ 45.2 scores were collected at the intake session and every eighth session, clients who had eight or more sessions after the intake session were included in this study. The total number of sessions was mean-centered for the analysis. Reliable OQ changes were coded as 1, 0, and -1 which represent OQ score decreases 14 or more, changes between 13 and -13, and increases 14 or more separately from intake to termination. If the intake OQ score was missing, it was replaced by the next available OQ score. If the OQ score was missing at the termination, the previous OQ score would replace as the final available OQ score.

The Dynamic Structural Equation Model (DSEM) in Mplus was used to analyze the data (Asparouhov et al., 2018). Dynamic Structural Equation Modeling (DSEM) in Mplus Version 8 integrates the strengths of three different approaches (Asparouhov et al., 2018), which are: (1) *time-series analysis*, which allows for modeling the lagged relation in single-subject data with a large number of repeated measures over time; (2) *multilevel modeling*, which can facilitate modeling data of multiple individuals while allowing for individual differences in the parameters; and (3) *Structure equation modeling*, which accommodate multiple outcome variables, latent variables, and mediation effects.

In the DSEM model, the client ID was used to identify the between (client) level and the within (client) level. According to Falkenström, Solomonov, and Rubel (2020), modeling therapist effects when studying mechanisms of change on a within-client level could reduce model performance and increase bias, especially when there are only a small number of therapists. Therefore, differences at the therapist level were not analyzed in this study. Actor effects and partner effects for the client perceptions of working alliance and session quality and the therapist perceptions of working alliance and session quality were analyzed on the within (client) level. On the between-client level, the actor effects and partner effects were regressed on the reliable OQ change. Treatments that only lasted 8 sessions are likely different from treatments with more than 100 sessions. Therefore, the actor and partner effects may differ depending on treatment length (total number of sessions). Therefore, as a sensitivity test, we examined if the total number of sessions would influence the model results, by running the model regressing the actor partner effects on both the OQ reliable change and the total number of sessions on the between level. See Figure 1 and Figure 2 for the main analysis paths in Mplus for working alliance. The same paths apply for session quality measured by Session Evaluation Scale (SES). Intercepts and error terms for dependent variables are not drawn out in these two figures.

Figure 1. Within Level Paths in the DSEM model



cWAI: client-perceived working alliance

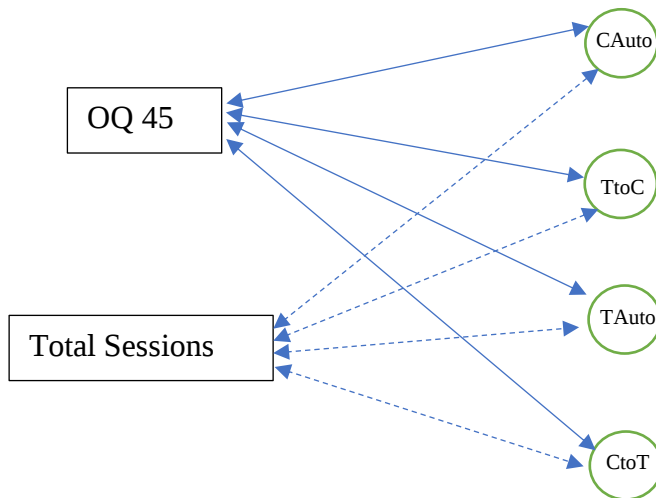
tWAI: therapist-perceived working alliance

lag1: variable rating from the previous session

Solid line: lag effects (actor effects)

Dashed line: cross lag effects (partner effects)

Figure 2. Between level Paths in the DSEM Model



Result

Descriptive Statistics. Descriptive statistics of all investigated variables (therapist and client-rated working alliance and session evaluation, and reliable OQ change), are presented in Table 1, including mean, standard deviation, minimum value, and maximum value. Simple bivariate correlations were also reported in Table 1 for therapist-and client-rated working alliance and session evaluation. It is important to note that the correlations reported in Table 1 are zero-order Pearson correlations across all clients and sessions.

Table 1. Descriptive Statistics and Correlations for Investigated Variables

Variables	Mean	SD	Min.	Max.	Client WA	Therapist WA	Client SE
Client WAI	4.138	0.694	1.000	5.000	—		
Therapist WAI	3.819	0.595	1.000	5.000	0.188	—	
Client SES	4.530	0.627	1.000	5.000	0.411	0.181	—
Therapist SES	4.005	0.626	1.000	5.000	0.184	0.603	0.246
OQ Reliable Change	0.300 ^a	NA	0	1			

Note. WA = working alliance; SE = session evaluation; Min. = minimum value; Max. = maximum value.

^a0.300 here means 30% of clients have OQ score decreases of at least 14, which indicates significant improvements in clinical symptoms. The missing data were 2.5% for client WAI, 0.6% for client SES, 8.1% for therapist WAI, and 6.3% for therapist SES.

The correlations reported here are Pearson correlation coefficients across all clients and sessions.

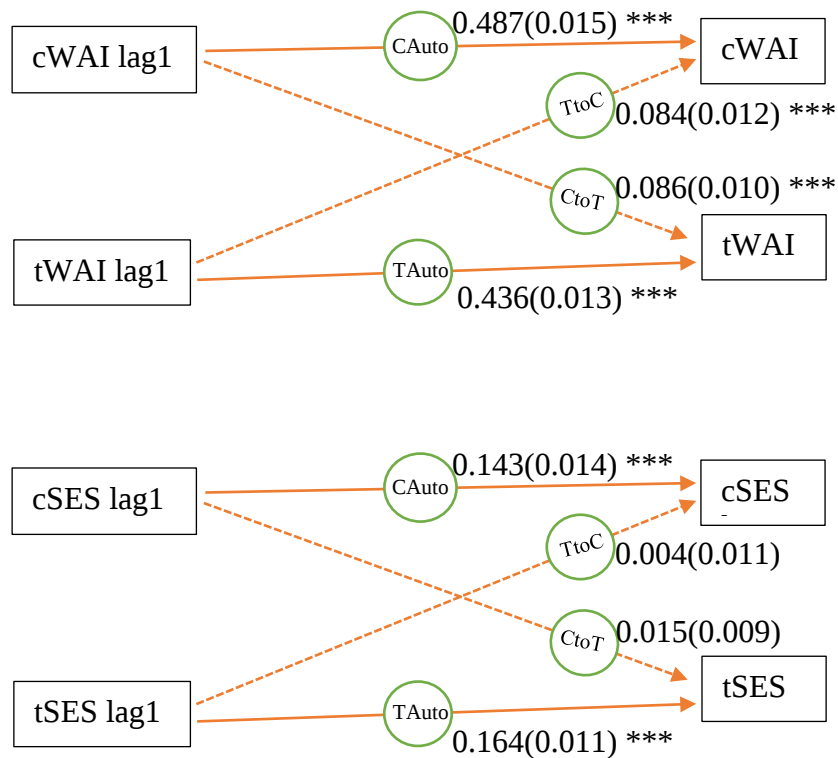
Significant Actor (Auto-regression) Effects. For working alliance, the average standardized estimate of client auto regression effect (WCAuto) was 0.487 (SD=0.015, $p<0.001$; see table 2); the average standardized estimate of therapist auto regression effect (WTAuto) was 0.436 (SD=0.013, $p<0.001$). For session evaluation, the auto-regression effects for both clients and therapists are also significant: the average standardized estimate of client auto-regression effect (SCAuto) is 0.143 (SD=0.014, $p<0.001$); the average standardized estimate of therapist auto-regression effect (STAuto) is 0.164 (SD=0.011, $p<0.001$). This is consistent with hypothesis 1 that the client perception of working alliance or session evaluation at one session would significantly predict client perception of working alliance or session evaluation at the next session, and therapist perception of working alliance or session evaluation at one session would significantly predict therapist perception of working alliance or session evaluation at the next session.

Table 2. Average Within-client Standardized Carryover Effect

Effects	M (SD)	P Value	95% CI
WCAuto ^a	0.487 (0.015)	<0.001	[0.458, 0.510]
WTAuto ^b	0.436 (0.013)	<0.001	[0.411, 0.459]
SCAuto ^c	0.143 (0.014)	<0.001	[0.116, 0.169]
STAuto ^d	0.164 (0.011)	<0.001	[0.143, 0.185]

Note. WCAuto: working-alliance client auto regression coefficient. WTAuto: working-alliance therapist auto regression coefficient. SCAuto: session-evaluation client auto regression coefficient. STAuto: session-evaluation therapist auto regression coefficient.

Figure 2. Average Within-client Standardized Carryover Effect



Note: cWAI/cSES: client-perceived working alliance or session evaluation; tWAI/tSES: therapist-perceived working alliance or session evaluation; lag1: variable rating from the previous session; Solid line: lag effects (actor effects); Dashed line: cross lag effects (partner effects); * p < .05. ** p < .01. *** p < .001. No asterisk means nonsignificant estimates.

Therapist Influence/Prediction. For working alliance, there is no difference between the TtoC (therapist perception predicting client perception) and the CtoT (client perception predicting therapist perception) effects (See the upper section of Table 3). The mean difference between the TtoC path coefficient and CtoT coefficient is -0.017 ($p = 0.192$). This is different than the hypothesis 2 that therapist perception at one session would better predict client perception at the next session than client perception would predict therapist perception. Similarly, for session evaluation, there is no difference between the TtoC and CtoT effects. The mean difference between the TtoC path coefficient and CtoT path coefficient is -0.009 ($p = 0.329$). Therefore, therapist responsiveness to clients was equivalent to client responsiveness to therapists.

Table 3. Paths Comparison

Paths Compared		Difference	SD	P Value
Between-level TtoC and CtoT	WTtoC - WCtoT	-0.017	0.020	0.192
	STtoC - SCtoT	0.009	0.019	0.329
Between-Level Working Alliance and Session Evaluation	WCAuto - SCAuto	0.353	0.029	<0.001
	WTtoC - STtoC	0.052	0.018	0.004
	WTAuto - STAUTO	0.279	0.023	<0.001
	WCtoT - SCtoT	0.062	0.018	<0.001

Working Alliance Paths VS. Session Evaluation Paths. The paths for session-to-session carryover effects (actor and partner effects) were stronger for working alliance than they are for session evaluation (See lower section of Table 3). This is consistent with hypothesis 3. Specifically, for CAuto (client auto regression effect: client perception predicting client

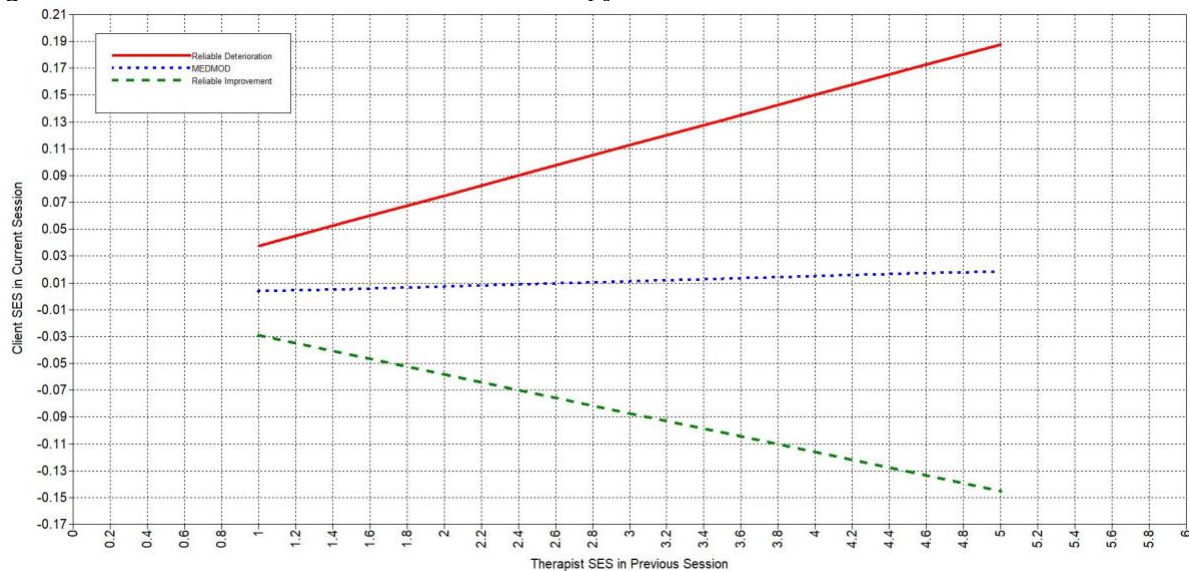
perception), the difference between the working alliance path and the session quality path coefficients is 0.353 (SD=0.029, $p<0.001$); for TtoC (therapist perception predicting client perception) effect, the difference is 0.052 (SD=0.018, $p=0.004$); for TAuto (therapist auto regression effect), the difference is 0.279 (SD=0.023, $p<0.001$); for CtoT (client perception predicting therapist perception) effect, the difference is 0.062 (SD=0.018, $p<0.001$). In their effect size guidelines for cross-lagged effects, Orth and his colleagues proposed to use .03 (small effect), .07 (medium effect), and .12 (large effect) as benchmark values when interpreting the size of cross-lagged effects. Therefore, even the small differences between cross-lag paths are meaningful. In conclusion, there is significantly more session-to-session consistency in working alliance than in session evaluation.

Carryover Effects Association with Therapy Outcome. For the TtoC carryover effects (therapist perception predicting client perception), the STtoC (TtoC carryover effects for session quality) was statistically significantly associated with therapy outcome. The standardized regression coefficient for STtoC (on OQ reliable change) was -0.250 (SD=0.126, $p=0.014$). This was consistent with hypothesis 4. However, the WTtoC (TtoC for working alliance) was not statistically significantly associated with therapy outcome, which was not consistent with hypothesis 4. Other carryover effects (CtoT, CAuto, TAuto) were also not significantly associated with therapy outcome.

As shown in the simple interaction slope for STtoC and therapy outcome (See Figure 3), how previous-session therapist SES predicted subsequent-session client SES (i.e., the temporal influence of therapist's perception of session quality on client's perception) differed across dyads with reliable OQ improvement versus dyads with OQ deterioration or dyads with no OQ change. Simple slope analysis showed that, in dyads with reliable OQ deterioration, previous therapist

perception of session quality positively predicted subsequent client perception ($b = 0.038$, $SD=0.020$, $p = 0.032$). This means that therapist perception of session quality temporally drove subsequent client perception in the same direction in cases where clients reliably showed worsening distress. In dyads with reliable OQ improvement, previous therapist SES does not predict subsequent client SES (simple slope $b= -0.029$, $SD= 0.019$, $p = 0.062$.) In dyads with no reliable OQ change, previous therapist SES also does not predict subsequent client SES ($b=0.004$, $SD=0.010$, $p= 0.349$).

Figure 3. Interaction between STtoC and Therapy outcome



From the model results, we also found that the average (across all session) client-perceived working alliance (CWAI) and the average client-perceived session quality (CSES) were significantly associated with the therapy outcome. The standardized regression coefficient for CWAI (on OQ reliable change) was 0.167 ($SD=0.066$, $p=0.005$). The standardized regression coefficient for CSES (on OQ reliable change) was 0.132 ($SD=0.066$, $p=0.017$). Therapist perception of working alliance, and therapist perception of session quality were not statistically significantly associated with therapy outcome.

We also analyzed the data including both the therapy outcome (the OQ reliable change) and the total number of sessions in the model (see figure 2), the results reported above related to therapy outcome were consistent across the two models.

Discussion

In this study, we compared the co-development paths of working alliance and session quality by examining and comparing the actor and partner effects of both working alliance and session quality in the same DSEM model. We found that the auto-regressive (actor) and cross-regressive (partner) paths for working alliance are significantly stronger than the counterpart paths for session quality. Moreover, we tested the association between the carryover effects (actor and partner effects of working alliance and session quality) and the therapy outcome. The STtoC effect (therapist-rated session evaluation predicting client-rated session evaluation) was found to be correlated with the therapy outcome. Specifically, clients' OQ symptoms deteriorated (OQ score increased) when their ratings of session evaluation increased in response to higher therapists' ratings of session evaluation in the previous session. In addition, we compared the therapist-to-client and client-to-therapist paths from one session to the next and found no difference between the paths for both working alliance and session quality.

Working Alliance Carryover Effects Stronger than Session Quality Carryover Effects.

In this study, the actor and partner effects for working alliance were found to be stronger than the actor and partner effects for session evaluation. This difference in path strengths could be at least partially explained by the concepts and measurements themselves. On a conceptual level, session evaluation is a more transient construct compared to a working relationship, which is more enduring. Session evaluation (with items like "I thought that this session was helpful", and "I did not think that this session was valuable") are specific to the effectiveness/quality of

individual sessions (Hill & Kellems, 2020), which could be transient from session to session. Working alliance, on the other hand, evaluates both the bonding between two parties and how well the therapist collaborates with the client on therapy goals and tasks (Bordin, 1979; Hatcher & Gillaspy, 2006). Although the working alliance data was collected every session, the working alliance measurement items did not specify that they apply to the single sessions. Moreover, the bonding factor in the working alliance builds up and carries over from session to session.

The differences in carryover effects have important ramifications in research and clinical practice. If we examine the therapy process from the perspectives of working alliance or session evaluation, we will see different (although partially overlapping) pictures. Although previous working alliance studies and common factor studies all support the essential role of working alliance in the psychotherapy process, working alliance by itself is unlikely able to depict the complexity of therapy progress. Hill and Kellems (2002) found that helping skills contribute to client session quality, above and beyond the contribution of the working alliance, and this finding also suggests that working alliance does not capture the whole picture of the therapy process. Session evaluation, measured by Session Evaluation Scale (SES), could function as a comprehensive process measurement that evaluates single session quality beyond the contribution of working alliance. Therefore, it is important for researchers and practitioners to track session quality besides working alliance in their research and practice.

Therapist-to-Client and Client-to-Therapist Paths.

Contrary to our hypothesis, there is no difference between the therapist-to-client and the client-to-therapist cross-session carryover effects. We hypothesized that the therapist-to-client carryover effect is stronger because therapist might act as an attachment figure and therapist as a healthcare worker has the obligation to maintain strong working alliances and achieve

therapeutic goals. Looking at it retrospectively, there are a few factors that might shift the dynamics in the therapist-client dyad. First, in the community counseling setting, clients in some ways are like customers seeking a service. In this model of care/service, the dynamics between therapist and client are different from the doctor-patient relationship in the traditional medical model. Second, more and more therapists incorporated a humanistic approach in their practice, which further changed the power dynamics in therapy (House, Kalisch, & Maidman, 2018). For example, Constantino et al. (2021) argue that in certain contexts, like client resistance, CBT should alter their directive approach to be more **responsive** and “client-centered”. Furthermore, different schools of counseling all show evidence of valuing client motivation, an important factor in effective psychotherapy processes (Ryan, Lynch, Vansteenkiste, & Deci, 2011). Probably for those reasons, there was no significant difference between the therapist-to-client and the client-to-therapist carryover effects.

What Relational Dynamics Influence Therapy Outcome?

In the deterioration group with a reliable increase of OQ 45 (Outcome Questionnaire 45.2) score of 14 or more, the therapist’s session evaluation at one session positively predicted the client’s session evaluation at the next session. This positive prediction did not hold for the improvement and no-change group. The positive prediction could only happen while both of the following two pathways are open. First, the therapist does bring their preconception into the current session, either in explicit or more subtle ways. Second, the client is highly susceptible to the influence of the therapist’s preconception, no matter how that is presented. We will discuss how interventions are possible on both pathways here.

For the first pathway, although therapists cannot undo what has happened and block their preconception, it is possible to reframe and reconceptualize the significant events in the last

session, and thus adjust the preconception of the therapy process. For instance, if there was a rupture in the working relationship in the previous session, the therapist could still feel nervous in the current session about what happened in the previous session. The therapist could even feel upset or angry about what happened without addressing it. However, the therapist could use this as an opportunity to teach the client they can amend the relationship. If the therapist perceives a session as having poor quality, the therapist is supposed to respond -- review, research and/or consult to come up with a strategy to improve the session quality for the next session. In doing so, the poor quality of one session perceived by the therapist is more likely to lead to improved session quality for the client in the next session, and thus the poor quality has smaller or no carryover effects (as in the improvement group). This **responsiveness** of therapists is consistent with Constantino, Boswell, Bernecker, and Castonguay's proposal of context-responsive psychotherapy movement (2013). Context-responsiveness includes therapists' responses to patients' or clients' personal characteristics and emerging clinical scenarios with context-relevant, evidence-based therapeutic strategies (Constantino,2013).

The second pathway is complete when the client is susceptible or overly sensitive to the therapist's preconception. When clients pay too much attention on therapists' psychological process, they would not be able to focus on processing their own thoughts and feelings. To address this potential issue and make clients feel comfortable to be present with their own experience, therapist could try different strategies. On the long run, a therapist can strive to create a safe therapeutic space, in which clients can focus on themselves and not get preoccupied with therapist's presence. At the current moment, a therapist can help clients shift their attention back to themselves by interventions such as asking questions or using immediacy skills.

In our study, the same pattern was not found in working alliance, and this was probably because it takes more time to change working alliance since working alliance not only measures session-to-session efficiency but also a relationship built up over time.

Consistent with previous studies (Flückiger, 2018), we found a significant correlation for between-client working alliances and therapy outcomes in our study. Similarly, we also found a significant correlation between the client-rated session evaluation and therapy outcome. Neither the therapist perception of working alliance nor the therapist perception of session evaluation was significantly correlated with therapy outcome in our study. These results are not surprising because it is up to clients to judge how helpful therapy sessions are. However, the importance of client perceptions and experiences should serve as a reminder for practitioners. Compared to reflecting and reviewing the therapy progress solely by themselves, therapists probably would get more information by asking clients for their feedback on the therapy progress.

Significant Auto Regression Effects

In this study, we found significant auto-regression effects for both the clients' and the therapists' perceptions of working alliances and session quality, which means that both clients' and therapists' perceptions of a therapy-progress variable (either working alliance or session quality) at one session predict their own perceptions of the same variable at the next session. Several reasons might have contributed to this consistency. First, people tend to judge their own interpersonal behaviors in accordance with their general self-image (Sadler & Woods, 2003), even after partialling out the behavioral factor. Behaviorally, therapists and clients may have their own behavioral patterns. Both the cognitive (self-image) and the behavioral presentations are important factors to consider in clinical practice and training. When reviewing the therapy process, it is important for therapists to reflect and examine the self-images and behaviors of

both the therapists and the clients, and intervene accordingly when the self-images and behavioral patterns hinder the therapy process. Furthermore, the rater biases (e.g., the strictness/leniency biases) probably also contribute to the consistency of the client's and the therapist's perceptions. However, those rating biases are less likely to contribute to the interaction dynamics and therapy efficiency.

Limitations

There are a few limitations to consider for this study. In our study, we fit the actor-partner interdependence model (APIM) within the DSEM model, which is a great tool to investigate actor-partner effects and how actor-partner effects correlate with other variables (therapy outcome in this study) with intensive longitudinal data. However, how well APIM model fits with the working alliance and session quality data has to be further studied. The APIM model examines the direct influences between the actor and the partner. For instance, in couple's relationship, partner A's life satisfaction level and partner B's life satisfaction level are two interdependent variables and would fit the APIM model well. But the client's /therapist's perceptions of the working alliance or session quality do not directly or not necessarily influence the other party's perceptions of the same variable. Therefore, the model might not be sensitive to capturing how client perceptions and therapist perceptions influence themselves and each other from one session to the next.

To fit in the DSEM model, reliable OQ changes were coded as 1, 0, and -1 which represent OQ score decreases 14 or more, changes between 13 and -13, and increases 14 or more separately from intake to termination. Given the variability in each category of OQ reliable changes, the real correlations between outcome OQ changes and other variables are likely to be stronger than what the model results show.

The therapists in our study are mostly doctoral trainees, and the codevelopment path of working alliance and session evaluation might be different in counseling dyads when therapists are trainees. For instance, trainee therapists spend more time reviewing their sessions and thus could be more responsive to the dynamics in previous sessions. There are other factors unique for trainee therapists that might influence the codevelopment path (e.g., the level of experience, the quality of the training and supervision, etc.). Since the main purpose of our study is not to investigate how working alliance and session quality codevelop between client and therapist but to examine whether there are differences between the two paths, the unique therapist and psychotherapy orientation factors might not be a major concern.

Furthermore, researchers and practitioners might argue that much of the negotiation process between client's and therapist's perceptions happen in therapy sessions, while the carryover effects of client's and therapist's perceptions only capture the post-session measurements and its development path. Therefore, they could argue that in order to study the therapist-client interactions for working alliance and session quality, the focus should be within sessions rather than cross sessions. While that argument is valid, the post-session measurement timeframe is meaningful in that it helps us examine and understand how the "reviewing, reflection, and supervision/consultation" in between sessions would influence the therapist's intervention in the next session.

Our psychotherapy clinic was known to provide open-ended psychotherapy, so the total sessions clients had in this study varied from nine sessions to more than a hundred sessions. The therapist-client dynamics and the interactions between client perceptions and therapist perceptions of working alliance or session quality might change from the first few sessions to later stages when clients already had dozens of sessions. Therefore, studying the codevelopment

within a similar therapy time frame (similar number of total sessions) might bring more accurate information for dynamics within that time frame.

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