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Therapist-Level Moderation of Within- and Between-Therapist Process-Outcome Associations

Alice E. Coyne
University of Massachusetts Amherst

Therapist-Level Moderation of Within- and Between-Therapist Process-Outcome Associations

A Dissertation Presented

by

ALICE E. COYNE

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Approved as to style and content by:

_____
Michael J. Constantino, Chair

_____
Holly B. Laws, Member

_____
Christopher R. Martell, Member

_____
Linda M. Isbell, Member

_____
Sarah A. Fefer, Member

_____
Caren M. Rotello, Department Chair
Department of Psychological and Brain Sciences

DEDICATION

In loving memory of my grandfather, Thomas Glenn Coyne, Sr., who first told me that I would

get a PhD (or two) when I was 5 years old

to Dr. Christopher Martell whose guidance and supervision helped me develop my own voice as a clinician and scientist-practitioner.

I am also grateful to the many people who helped me to complete this project. I would like to thank Drs. Michael Constantino, James Boswell, and David Kraus for allowing this study to be a small part of the larger Match System trial. I would also like to thank the project coordinator, Felicia Romano, for her endless hours of work in helping to collect these data. Additionally, I would like to thank my dissertation committee members, Drs. Holly Laws, Christopher Martell, Linda Isbell, and Sarah Fefer, for your helpful feedback and willingness to serve in this role.

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ABSTRACT

THERAPIST-LEVEL MODERATION OF WITHIN- AND BETWEEN-THERAPIST

PROCESS-OUTCOME ASSOCIATIONS

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ALICE E. COYNE, B.A., ALBION COLLEGE

M.S., UNIVERSITY OF MASSACHUSETTS AMHERST

Ph.D., UNIVERSITY OF MASSACHUSETTS AMHERST

Directed by: Professor Michael J. Constantino

Objective: Although higher-quality patient-therapist alliance and more positive patient outcome expectation (OE) consistently predict improvement in psychotherapy, most research has failed to capture the inherent nuance in these process-outcome relations by parsing them into *within-therapist* (i.e., differences between patients treated by the same therapist) and *between-therapist* (i.e., differences between therapists' average process/outcome ratings across all patients in their caseloads) components. Moreover, the few studies that have done so have produced mixed results, suggesting the possibility of systematic variability in these associations (i.e., moderators). One potential source of such variability could be providers themselves; that is, different therapists could use these processes to differing therapeutic benefit. In this vein, the present study had three primary aims. First, I tested the alliance- and OE-outcome associations at both the within- and between-therapist levels. Second, I examined whether the within-therapist alliance- and OE-outcome associations varied among therapists. Third, I explored therapist-level moderators (i.e., theoretical orientation, self-perceived alliance- and OE-strategy usage, and self-perceived alliance- and OE-fostering effectiveness) of the within- and between-therapist alliance- and OE-outcome associations. Finally, as an ancillary question, I explored whether the two components of the process-outcomes associations interacted to predict treatment outcomes; namely, does the extent to which patient-level variability in alliance and OE correlates with improvement (within-

therapist component) differ as a function of therapists' general abilities (across all patients) to

foster positive alliances and OE (between-therapist component)? ***Method:*** Data derived from 212

adult outpatients treated naturalistically by 42 psychotherapists as part of a randomized trial that

compared different case assignment methods. Patients completed measures of alliance, OE, and

outcome repeatedly throughout treatment, and therapist rated their characteristics at baseline. I

used multilevel structural equation models to test the primary and ancillary research questions.

Results: Regarding aim 1, higher-quality between-therapist alliance was associated with greater

caseload-level improvement (0.62, $SD = 0.29$; 95% credible interval [CI] = 0.003, 1.10), whereas

within-therapist alliance was unrelated to patient-level improvement (0.38, $SD = 0.20$; 95% CI = -

0.07, 0.75). Although between-therapist OE was unrelated to caseload-level improvement (2.64,

$SD = 1.69$; 95% CI = -0.67, 6.20), more optimistic OE was associated with greater patient-level

improvement (0.84, $SD = 0.35$; 95% CI = 0.15, 1.53). Regarding aim 2, both within-therapist

process-outcome associations varied significantly among therapists. Regarding aim 3, therapists'

self-perceived alliance-fostering effectiveness moderated the within-therapist alliance-outcome

association (-0.76, $SD = 0.24$; 95% CI = -1.18, -0.28), whereas identification with a cognitive

behavioral orientation moderated the between-therapist alliance-outcome association (-0.46, $SD =$

0.23; 95% CI = -0.96, -0.004). Taken together, the alliance may have stronger within-therapist

associations with improvement in the hands of therapists who are humbler in assessing their own

alliance-fostering abilities, and stronger between-therapist associations with improvement for

therapists who do not identify strongly with a cognitive behavioral orientation. Finally, regarding

the ancillary aim, the within- and between-therapist process components did not have a

significant interactive effect on treatment outcomes. ***Conclusions.*** Results indicate that different

therapists use theory-common treatment processes to differing therapeutic benefit, which can

inform more personalized clinical practices and trainings.

Keywords: within- and between-therapist effects, multilevel process-outcome

associations, therapeutic alliance, outcome expectation, therapist-level moderation

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CHAPTER 1

INTRODUCTION

Although psychotherapy is *generally* efficacious (e.g., Lambert, 2013), it remains that a substantial number of patients do not benefit. More specifically, evidence indicates that over 40% of psychotherapy patients do not experience clinically significant improvement across treatment, whereas another 10-15% reliably deteriorate in their symptoms and functioning (Kraus et al., 2011; Lambert, 2010). Given these sobering no-change and deterioration rates, researchers have increasingly attempted to uncover factors that can associate with, and thereby help enhance, the reach and consistency of psychotherapy's effectiveness.

To date, the most consistent predictors of positive psychotherapy outcomes have been process variables (i.e., relational and participant variables that occur within the confines of a treatment course) that are largely transtheoretical and transdiagnostic, or what have been termed "common" factors (Norcross & Lambert, 2018). Perhaps the quintessential *relational* process factor is the therapeutic alliance, or the emotional and collaborative bond between a patient and therapist (Bordin, 1979). In the most recent meta-analysis of over 30,000 patients from 295 samples, a higher quality alliance was associated with greater patient improvement across different treatments and patient diagnoses ($d = .58$; Flückiger et al., 2018). Similarly, a prominent *patient* process factor is outcome expectation (OE), or the belief about the likelihood that one's therapy will be effective. In the most recent meta-analysis of over 12,000 patients from 81 samples, more positive early treatment OE was associated with greater patient improvement across diverse treatments and patient problems ($d = .36$;[1] Constantino et al., 2018). Although

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[1] Although the aggregate effect size for the alliance-outcome association (Flückiger et al., 2018) appears to be larger than the aggregate OE-outcome association (Constantino et al., 2018), it is worth noting that the OE meta-analysis only included studies that measured OE early in treatment, whereas the alliance meta-analysis included studies that measured it at *any time* during treatment (including late phases when a higher quality alliance may be more confounded with improvement). When the effect size for the early treatment (sessions 1-5) alliance-improvement association ($r = .22$) is compared to the very early treatment (pre-treatment or session 1) OE-improvement association ($r = .18$), they are quite similar in size. Thus, it seems

these findings compellingly demonstrate that alliance and OE bear on psychotherapy outcomes, their *clinical* utility is somewhat limited due to a notable methodological issue. Namely, most research on the alliance and virtually all research on OE has failed to account for the complex structure of most psychotherapy data, whereby single therapists treat multiple patients (Baldwin & Imel, 2013). Put simply, as a result of this nesting, all during-therapy processes can be parsed into *patient* and *therapist* contributions, which can have meaningfully different clinical implications.

The patient component, or what is often termed *within*-therapist variability, reflects differences in a given process (e.g., alliance quality, OE) among different patients working with the *same* therapist. The therapist component, or what is often termed *between*-therapist variability, reflects differences in therapists' average given process (e.g., alliance quality, OE) across all patients in their caseloads. Importantly, if within-therapist differences in psychotherapy processes predict an outcome (e.g., as patients' alliance scores increase relative to their same therapist's average alliance score, it correlates significantly with, say, symptom reduction), it necessarily points to something about the patient or the individual patient-therapist dyad driving this effect, but *not* specifically the person of the therapist who is held constant in this scenario (for a graphical depiction of this scenario, see Figure 1; Baldwin & Imel, 2013). In contrast, if between-therapist differences in processes predict an outcome (e.g., as the average patient OE score that a therapist cultivates across all cases increases, relative to other therapists' average OE scores, it correlates significantly with, say, improved functioning), it necessarily points to something about the therapist (and how they influence all of their therapy relationships) driving this effect, as opposed to the individual patient or dyad (for a graphical depiction of this scenario, see Figure 2; Baldwin & Imel, 2013). Of course, both components could uniquely and

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reasonable to assume that these two variables both explain meaningful variability in treatment outcomes, and both should remain a focus of future inquiry.

simultaneously influence patients' treatment outcomes, and/or these two components could interact to predict outcomes (Baldwin & Imel, 2013). Thus, determining whether process-outcome associations operate at the within-therapist level, between-therapist level, at both levels, or through a complex interaction of the two is necessary for illuminating the precise clinical meaning of these associations and for understanding the utility of different therapeutic processes. Yet, as noted, despite the voluminous literature on process-outcome associations (Constantino et al., in press), relatively few studies have parsed such associations into their patient and therapist contributions.

Of the rare existing studies that have parsed these components, almost all have focused on the alliance construct, with somewhat mixed results. On the one hand, some studies have demonstrated that *both* within- and between-therapist alliance quality correlated significantly with patients' treatment outcomes. For example, in a sample of depressed patients being treated with cognitive behavioral therapy (CBT), interpersonal psychotherapy, or placebo with clinical management, higher quality early treatment within- and between-therapist alliances were associated with faster symptom reduction (Zuroff et al., 2010). Similarly, in a study of CBT for panic disorder with agoraphobia, greater within-therapist alliance quality was associated with more anxiety and panic reduction, and greater between-therapist alliance quality was associated with lower dropout rates (Huppert et al., 2014). Finally, in a sample of adolescents in treatment for substance use, both within- and between-therapist variability in alliance quality were positively associated with improvement, as measured by at least some of the included outcome measures (Marcus et al., 2011).

On the other hand, some studies have demonstrated that only one of the alliance components correlated significantly with patients' treatment outcomes. For example, in a large naturalistic study of varied psychotherapies for diverse presenting problems, greater between-, but not within-, therapist alliance quality was associated with better average outcomes (Baldwin et al., 2007). Similarly, in a study comparing motivational enhancement therapy to counseling-as-

usual for substance use, greater between-, but not within-, therapist alliance quality was associated with changes in substance use (Crits-Christoph et al., 2009). However, the nature of this between-therapist association was somewhat unexpected; that is, patients who saw therapists with very high or very low average alliances across their cases had *worse* outcomes, whereas patients who saw therapists with more moderate average alliances had better outcomes. In a study of cognitive and dynamic therapy for depression, the authors found that greater between-, but not within-, therapist alliance associated with better outcomes (Crits-Christoph et al., 2018). Moreover, this study used an instrumental variable approach that allowed the authors to infer causality in the alliance-outcome link.

In contrast, in a large naturalistic psychotherapy sample, the authors found that greater within-, but not between-, therapist early treatment alliance quality related to subsequent improvement (Falkenström et al., 2014). Similarly, in a sample of patients with substance use disorders receiving various forms of psychotherapy, greater within-, but not between-, therapist very early (week 1) alliance quality was associated with symptom reduction (Crits-Christoph, et al., 2011). Finally, in a sample of patients with generalized anxiety disorder (GAD) receiving various forms of CBT, the authors found that greater within-, but not between-, therapist early alliance quality (averaged across weeks 1 through 4) was associated with worry and distress reduction (Coyne et al., 2021).

Taken together, across the nine studies that have parsed the alliance in this manner, three found evidence for both within- and between-therapist alliance-outcome associations, three found evidence for only between-therapist alliance-outcome associations, and three found evidence for only within-therapist alliance-outcome associations. Thus, although existing research rather evenly supports within- and between-therapist alliance-outcome linkages, the significance of each component (of the total correlation) is quite variable across studies. Such mixed results may suggest systematic variability in the size of these parsed associations; that is, there may be contextual moderators that render one or both of these components more vs. less relevant for

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treatment outcome. Although speculative, it seems plausible that such variability may be due to differences between providers themselves; similar to *patient-level* findings that the alliance is more therapeutic for some patients than others (e.g., Constantino, Coyne et al., 2017; Zack et al., 2015), it may be that the alliance is more therapeutic in the hands of some *therapists* than others. Adding even more complexity, such therapist differences in the alliance-outcome association could theoretically exist at both levels of analysis.

At the within-therapist level, such variability could mean that even if two patients (treated by different therapists) both rated their alliance 5 points higher than their therapist's average alliance (across all patients they treat), this rating might translate into a 4-point improvement (on some hypothetical outcome) for Therapist A's patient and a 10-point improvement for Therapist B's patient. At the between-therapist level, such variability could mean that even if Therapist A and Therapist B both achieved exactly the same average alliance level across all patients in their caseloads (i.e., they achieved similar relational "climates" across their patients), this might translate into an 8-point improvement for Therapist A's average patient's outcome and a 2-point improvement for Therapist B's average patient's outcome. Thus, if such variability exists at either (or both) levels, it could be important to uncover the therapist-level characteristics/practices that set the condition for using the alliance to its fullest therapeutic potential (or, alternatively, for failing to harness the alliance for therapeutic good).

Notably, some preliminary support exists for this type of therapist-level moderation. For example, one study found that the size of the within-therapist alliance-outcome association varied significantly across therapists in a large sample of patients with heterogeneous disorders receiving various forms of inpatient psychotherapy (Dinger et al., 2008). The authors concluded that for some therapists, greater alliance quality for individual patients was strongly associated with improvement for those patients; for other therapists, however, variation in alliance quality was unrelated to their patients' outcomes. However, none of the therapist-level variables the authors investigated (i.e., gender, age, clinical experience) explained for which therapists alliance was

more (or less) therapeutic. Moreover, although the authors treated the alliance as a patient-level (within-therapist) variable, they did not fully disaggregate it into its within- and between-therapist components; that is, alliance quality in this study represented a blend of patient and therapist contributions, leaving it ambiguous as to which alliance component varied across therapists.

In the only other study of which I am aware that tested this question, in a sample of patients receiving variants of CBT for GAD, the authors fully disaggregated the alliance-outcome association and found that the *within-therapist* alliance-outcome association varied significantly among therapists (Coyne et al., 2021). Specifically, therapists who were one standard deviation above the mean had positive alliance-improvement associations that were *more than double* the average alliance-improvement association, whereas therapists one standard deviation below the mean had alliance-improvement associations that were *near zero.* However, similar to the previous study on this topic (Dinger et al., 2008), no therapist-level variables accounted for such between-therapist differences (although in this case, the authors only examined treatment type as the single putative moderator).[2]

Although research parsing *other* (beyond the alliance) process-outcome associations into their within- and between-therapist components is virtually nonexistent, a few studies have descriptively examined whether non-alliance processes, like OE, vary at both the patient (within-therapist) and therapist (between-therapist) levels. For example, three studies have found that therapists account for a significant proportion of the variability in OE (Constantino, Aviram, et al., 2020; Vîslă et al., 2019; Vîslă et al., in press). Thus, research that accounts for such therapist contributions by parsing the OE-outcome association into its within- and between-therapist components is sorely needed. Moreover, as with the alliance construct, it seems plausible that certain therapists vs. others could harness patient OE to greater therapeutic benefit.

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[2] Given the specific focus of the Coyne et al. (2021) study, the authors did not test moderators of the *between*-therapist alliance-outcome association.

Stated differently, in addition to continuing to disaggregate process-outcome associations, it could behoove the psychotherapy research field to search for therapist-level *moderators* of within-therapist, and possibly between-therapist, process-outcome associations. Uncovering such moderators could have meaningful practice and training implications. For example, regarding training, such knowledge could allow for the development of personalized therapist trainings tailored to the processes that each therapist is empirically likely to use to therapeutic effect – a type of "playing to strengths," or the presence of therapist-level facilitative factors (Smith-Hansen, 2016). As an example, if research revealed that a particular therapist tends to use the alliance to achieve positive outcomes (either when the alliance is higher than their own average, or when compared to other providers), that therapist may be best suited to being trained on and delivering relationally oriented interventions. Alternatively, knowledge of therapist-level moderators could direct personalized trainings toward the presence of therapist-level risk factors – a type of remediation strategy – to have therapists improve their use of more common processes to therapeutic benefit. Such personalization, in either form, *could* enhance the effects of clinical training, which, at present, tend to be unrelated to therapist effectiveness (Tracey et al., 2014).

Underscoring the potential utility of this approach, one researcher reflected on the lack of significant effects of an alliance-focused training on patient outcomes by noting that such trainings should be tailored to therapists' unique styles and approaches (Smith-Hansen, 2016). Similarly, another researcher noted that different therapists appeared to be differentially able to benefit from alliance-focused trainings, with some therapists (particularly those who indicated not typically viewing the alliance as a key change mechanism) becoming *less* effective following such training (Crits-Christoph et al., 2010). Thus, research that can aid in personalizing training to the therapist is sorely needed.

In this vein, the first aim of the present study was to test the alliance- and OE-outcome associations at both the within- and between-therapist levels in a sample of therapists delivering naturalistic treatment in a community mental health system. Given the mixed nature of the

existing alliance literature and the novelty of this question for the OE literature, both of these analyses were largely exploratory. However, given the well-established *total correlations* between these processes and treatment outcomes (Constantino, Vîslă, et al., 2018; Flückiger et al., 2018), I expected that the association with outcome for both alliance and OE would be significant for at least one level of analysis. The second aim of this study was to test whether the size of the within-therapist alliance- and OE-outcome associations varied among therapists.[3] Given previous findings on the alliance (Coyne et al., 2021; Dinger et al., 2008), I hypothesized that the within-therapist alliance-outcome association would show significant between-therapist variability. Given the lack of such research on OE, this question was exploratory.

The third aim of this study was to explore whether specific therapist-level variables moderated the within- and between-therapist alliance- and OE-outcome associations. Given the limited (alliance) or nonexistent (OE) research to date, I drew on theory and findings from related research areas to select variables that may be the most likely to moderate these associations. First, although the alliance has been shown to relate to outcome across different treatments, different theoretical orientations propose different roles for the alliance in treatment (Hatcher & Barends, 2006; Zilcha-Mano, 2017). For example, whereas psychodynamic traditions have historically viewed the alliance as a direct mechanism of change, cognitive behavioral traditions have often framed the alliance as a facilitative platform that allows other techniques (which are thought to be the primary mechanisms) to have a greater effect on improvement (Zilcha-Mano, 2017). Thus, it is possible that therapists who identify with different theoretical orientations may use the alliance differently, owing to the framework that guides their practice. Similarly, although less commonly discussed in the literature, with regard to OE, cognitive behavioral approaches arguably place

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[3] Although it was also of interest to know whether the between-therapist alliance-outcome and OE-outcome associations varied among therapists, the nature of multilevel modeling precludes a direct test of this at the highest level of analysis (in this case, the between-therapist level). Thus, the only way to examine whether the therapist-level process-outcome association varied systematically based on other therapist-level variables (i.e., moderation) was to test the significance of specific moderators (which, as discussed next in the third aim, I did in this study).

more emphasis on certain OE-related strategies (e.g., reviewing research support for a given treatment; Constantino et al., 2018) than psychodynamic approaches. Consequently, given that cognitive behavioral and psychodynamic traditions arguably hold the most distinct views of the alliance (and possibly of OE), I focused on these two orientations in the present study.

Second, drawing on the aforementioned comments of researchers who have conducted alliance-focused trainings (Crits-Christoph et al., 2010; Smith-Hansen, 2016), it is also plausible that the degree to which therapists typically use interventions that focus on alliance (or OE) could influence the extent to which these variables relate to those therapists' outcomes. For example, therapists who openly discuss the patient-therapist relationship may be better able to parlay the alliance into symptom change. Similarly, therapists who report typically using OE-fostering strategies (e.g., providing strong rationales for techniques) could be more aware of, and better able to channel, patient OE to achieve better outcomes. Third, it is also possible that therapists are somewhat aware of the extent to which they use the alliance and/or OE to achieve positive outcomes. Thus, therapists' own perceptions of their ability to effectively foster these factors could moderate their associations with outcome. That is, therapists who subjectively believe they are effectively alliance- or belief-centered may have stronger (or perhaps weaker) associations between these process variables and their patients' outcomes.

Finally, as an ancillary aim of this study, I examined the aforementioned possibility that within- and between-therapist variability in alliance and OE could interact to influence treatment outcome. In other words, the extent to which patient-level variability in alliance and OE correlates with improvement could depend on therapists' general abilities to foster positive alliances and expectations across all patients in their caseloads. Although the only study of which I am aware that tested this interaction found it to be nonsignificant (Baldwin et al., 2007), more work is needed to determine if this complex effect exists in certain clinical contexts. Although this interaction was a secondary, exploratory focus in this study, it bears noting that alternative hypotheses are plausible.

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On the one hand, it could be that for generally "good" vs. "poor" alliance therapists (i.e., those with higher vs. lower quality average alliances across all patients in their caseload), patient-level variability around the average has a more potent influence on treatment outcome. When their alliance is higher than the average, it may mean that generally good alliance therapists are better able to capitalize therapeutically on this higher-than-usual relational climate compared to their generally poor alliance counterparts; however, when patients' alliance is lower than the typical quality, it may be more costly for the generally good vs. poor clinician (perhaps as a function of cognitive dissonance from what is interpersonally familiar). On the other hand, it could be that patient-level alliance variability is less strongly correlated with outcome for good vs. poor alliance therapists. This alternate interaction might suggest that the therapists' general skill in fostering positive relationships renders each patient's unique contribution to their alliance less clinically influential, perhaps because the therapist's typically positive contribution to the relational climate establishes an alliance ceiling of sorts. These same possibilities would also apply to the interactive effect of within- and between-therapist OE on outcome.

CHAPTER 2

METHOD

2.1 Dataset Overview

Data derived from a double-masked randomized trial that tested the efficacy of a measurement-based patient-therapist Match System vs. case assignment as usual (CAU; Constantino et al., 2021). Specifically, in the match condition, patients were assigned to therapists who had empirical track records of effectiveness (based on the outcomes of at least 15 historical, pretrial cases for each therapist) in treating the patient's primary mental health problem(s). In the CAU condition, patients were assigned to therapists through usual pragmatic means (e.g., therapist availability or location, therapist self-reported specialty). The trial took place within a community mental health system in Cleveland, Ohio. As case assignment was the only experimental manipulation, subsequent treatment was delivered naturalistically; thus, its length

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and nature varied by patient. For the purposes of the parent trial, "posttreatment" was considered the point at which treatment terminated or after 16 weeks, whichever came sooner. In brief, results indicated that patients in the match condition experienced significantly greater global symptom reduction than patients in the CAU condition ($d = 0.75$). Given this between-group effect, I included assignment condition as a covariate in all of the current analyses.

2.2 Participants

2.2.1 Therapists

Forty-eight therapists provided naturalistic treatment and were crossed between the match and CAU conditions (to control for general between-therapist effects on outcome). Given the present study's focus on within- and between-therapist process-outcome associations, I included the subsample of 42 therapists who treated more than one study patient ($M = 5.05$; range = 2 to 11). Importantly, the excluded therapists did not differ significantly from those in the present subsample on any demographic or professional characteristics discussed next (all $ps > .05$). The subsample therapists were mostly White (81%) and female (71%), and they held various professional degrees: 69% had a master's degree, 29% had a doctoral degree, and 2% had another type of degree. The subsample therapists were on average 49.17 years old ($SD = 13.81$ years) and had an average of 16.10 ($SD = 11.74$) years of post-licensure clinical experience. They endorsed a variety of *primary* theoretical orientations, though 93% identified as at least "somewhat" integrative. Regarding the extent to which therapists' current practice was guided by different theoretical frameworks (on a scale from 0 to 6, with 0 indicating *not at all* and 6 indicating *very much*), subsample therapists identified most strongly with a "cognitive behavioral" orientation ($n = 42, M = 5.12, SD = 1.09$), followed by "interpersonal" ($n = 37, M = 3.92, SD = 1.48$), "humanistic/experiential" ($n = 39, M = 3.31, SD = 1.69$), "systems" ($n = 36, M = 2.86, SD = 1.20$), and "psychoanalytic/psychodynamic" ($n = 37, M = 2.24, SD = 1.77$).

2.2.2 Patients

Two hundred eighteen adults were randomly assigned to either the scientific match ($n =$ 99) or CAU ($n = 119$) condition. Only patients who were *not* the primary decision-maker for their health care were excluded, resulting in a heterogenous sample with varied mental health problems. Given the aforementioned methodological requirement that therapists treat multiple study patients, the present subsample included the 212 patients ($n = 98$ match; $n = 114$ CAU) who were treated by the 42 subsample therapists. The most common primary presenting problems were: quality of life issues (21.2%), depression (19.8%), substance use (17.9%), and panic/anxiety (9.9%). Table 1 shows patient demographic and clinical characteristics by condition. Importantly, the excluded patients did not significantly differ from those in the present subsample on any demographic or clinical characteristic (all ps > .05).

2.3 Treatment

As noted, psychotherapy was administered as usual. The parent trial capped data collection at 16 weeks after the start of treatment, though therapy itself would have continued if clinically indicated. Adjusted for the trial context, treatment lasted an average of 11.43 weeks (*SD* = 6.09), and subsample patients attended an average of 5.67 (*SD* = 3.36) sessions. Finally, 21% of subsample patients ($n = 44$) terminated treatment early (i.e., before session 3).

2.4 Measures

2.4.1 Mental Health

To assess domains of mental health, patients completed the *Treatment Outcome Package* (TOP; Kraus et al., 2005; see Appendix A), a widely used routine outcome assessment tool. The TOP consists of 58 items rated on a 6-point scale (ranging from 1-6) that assess 12 symptom/functioning domains: panic/somatic anxiety, depression, suicidal ideation, violence, work functioning, sexual functioning, social conflict, substance use, sleep, mania, psychosis, and quality of life. Based on a series of confirmatory factor analyses, the TOP has excellent factor structure (Kraus et al., 2005). Moreover, with the exception of mania, the TOP subscales have demonstrated good internal consistency, test-retest reliability, strong convergent validity with

other well-established outcome measures, and sensitivity to clinical change (Kraus et al., 2005, 2011).[4] Additionally, the TOP subscales can be summed to create an index of global psychological distress/impairment (theoretical range of 58-348), with higher scores indicating *better* functioning. Therefore, given this reverse scoring, the TOP total score is hereafter referred to as global psychological well-being/functioning. This total score has demonstrated excellent reliability, convergent validity with other measures of global symptom severity, and sensitivity to clinical change (Kraus et al., 2005; Zack et al., 2015). In the present sample, the TOP total score demonstrated good reliability throughout treatment (average Cronbach's $\alpha = 0.85$).

2.4.2 Alliance Quality

To assess alliance quality, patients completed the *Working Alliance Inventory-Short Form* (WAI-S; Tracey & Kokotovic, 1989; see Appendix B), a widely used measure based on Bordin's (1979) tripartite conceptualization of the alliance as consisting of patient-therapist agreement on treatment goals, agreement on treatment tasks, and emotional bond. The WAI-S consists of 12 items rated on a 7-point scale (ranging from 1-7), with higher total scores reflecting a better alliance (theoretical range of 12-84). The total score for the 36-item original WAI (Horvath & Greenberg, 1989), from which the short-form derived, has excellent psychometric properties (Elvins & Green, 2008). Similarly, most relevant to this study, the WAI-S total score possesses excellent reliability and is highly correlated with the original measure (Tracey & Kokotovic). In the present sample, the WAI-S total score demonstrated excellent reliability throughout treatment (average Cronbach's $\alpha = 0.96$).

2.4.3 OE

To assess OE, patients completed the *Credibility/Expectancy Questionnaire* (CEQ; Devilly & Borkovec, 2000; see Appendix C), a widely used belief measure. The OE subscale of the CEQ consists of three face valid items: "By the end of the therapy period, how much

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[4] Despite the relatively poorer psychometric properties of the mania subscale (alphas ranging from .55 to .70; test-retest ICC = .76), its influence on the psychometrics of the TOP total score is unproblematic.

improvement in your presenting concerns/problems do you think will occur?" "At this point, how much do you really *feel* that therapy will help you to reduce your presenting concerns/problems?" and "By the end of the therapy period, how much improvement in your presenting concerns/problems do you *feel* will occur?" The first and third OE items are measured on an 11-point scale (ranging from 0-100% improvement in 10-point intervals), whereas the second is measured on a 9-point scale (ranging from 1-9). Thus, prior to creating a total score for the OE subscale, these items are rescaled to the same 9-point metric,[5] with higher scores reflecting a more positive outlook. The OE subscale of the CEQ has shown good internal consistency, test-retest reliability, and predictive validity (Devilly & Borkovec). In the present sample, the OE subscale demonstrated excellent reliability throughout treatment (average Cronbach's $\alpha = 0.93$).

2.4.4 Therapist Characteristics

To assess the relevant moderator variables, therapists completed study-specific measures developed for the parent trial (Constantino et al., 2021). Specifically, therapists provided information about their personal and professional characteristics via the *Provider Characteristics Form* (PCF; see Appendix D). As reported previously, therapists rated the degree to which various theoretical orientations influenced their practice (see Orlinsky & Rønnestad, 2005), and my focus here was specifically on the psychoanalytic/psychodynamic (PA/PD) and cognitive behavioral (CB) orientations. To assess therapists' use of alliance- or OE-focused interventions, I drew on items from an augmented version of the *Comparative Psychotherapy Process Scale* (CPPS; Hilsenroth et al., 2005) for which therapists rated, from 0 (*not at all*) to 6 (*very much*), "how characteristic" different interventions were of their "typical therapy practice." For alliance-focused interventions, I used the following CPPS item: "Focus discussion on the relationship between the clinician and client." For OE-focused interventions, I used the following CPPS item: "Explain the rationale behind your technique or approach to treatment."

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[5] Importantly, despite this transformation, the original and rescaled items remain perfectly correlated.

Therapists also completed the study-specific *Therapist Perceived Strengths* (TPS) measure (see Appendix E). Relevant to this study, I drew on single items assessing therapists' perceptions of their ability to effectively foster and maintain positive alliances and to cultivate positive OE in their patients. Specifically, on a scale ranging from 1 (*always more ineffective*) to 7 (*always more effective*), therapists answered the following alliance/OE question: "Compared to other clinicians, in establishing and maintaining a positive working alliance [instilling positive outcomes expectations] with my clients, I would say that I am."

2.5 Procedure

Therapists within the community mental health system were informed that the study would examine various referral processes, but were kept unaware of the specific referral manipulation. Consenting therapists completed a baseline survey packet that included the PCS and TPS. Patients were recruited following naturalistic mental health care referrals. They were informed that the study was examining various referral processes, and that both they and their therapists would be unaware of the specific referral manipulation. Consenting patients completed baseline study measures (including demographic and clinical information) and were then randomized to condition (match vs. CAU).

Relevant to the present study, patients completed the TOP at baseline, after every odd numbered week, and at posttreatment (as noted, either their actual final session or week 16 if they remained in longer-term care). Patients also completed the WAI-S and CEQ after every even-numbered week. Given previous research suggesting that at least 4 occasions are required to reliably assess a process variable (Crits-Christoph et al., 2011), I used the WAI-S and CEQ scores across the first four measurement occasions as my primary predictor variables. To maintain temporal precedence between the predictor and outcome variables, I used each patient's posttreatment TOP as the criterion variable. A University institutional review board approved the parent trial and secondary analysis of deidentified data.

2.6 Data Analytic Plan

I first examined descriptive statistics for the predictor, moderator, and outcome variables, and transformed any variables that were not acceptably normally distributed (i.e., skewness value of $> +2$ or < -2). Next, to create the primary predictors, I took the average of the first four OE and alliance measurements (typically at weeks 2, 4, 6, and 8).[6] For the primary analyses, I used multilevel structural equation modeling (MSEM; Preacher et al., 2010), as facilitated by the Mplus 8.4 program (Muthén & Muthén, 1998–2017). Relevant to this study, MSEM is advantageous because it automatically parses the predictor (alliance, OE) and outcome (global psychological well-being/functioning) variables into their latent within- and between-therapist components. This latent variable approach adjusts for measurement uncertainty, resulting in unbiased within- and between-therapist estimates (Preacher et al., 2010).

Additionally, given that variance components and interactions (key foci of the present study) are typically not normally distributed, I used the Bayesian estimator to generate 95% credible intervals (CIs), which do not assume normality. Using this approach, 95% CIs that do not contain zero are considered to be statistically significant (Muthén & Asparouhov, 2012). Although this approach allows for the use of priors to inform model estimation, because I was unaware of any previous studies testing therapist-level moderators of within- and between-therapist process-outcome associations, I used non-informative priors (which allowed the model to be estimated based on only the data). Additionally, because model convergence is not guaranteed in Bayesian estimation, to verify the stability of significant results, I conducted post-estimation diagnostics by forcing the relevant models to run longer estimation chains and examining whether (a) the parameter estimates remained stable and (b) the proportional scale

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[6] Although the study measures were distributed to patients at standardized intervals, there was some variability in when patients completed the WAI and CEQ. On average, patients completed their first process rating at 2.58 weeks ($SD = 2.42$), suggesting relatively strong compliance with the expected measurement schedule. Additionally, across the four included measurement occasions, the average time in weeks that patients completed the process measures was 5.11 ($SD = 3.02$), which is squarely in the middle of the expected timeframe (i.e., weeks 2, 4, 6, and 8).

reduction factor (the metric used to judge convergence in the Mplus program) remained low across the additional iterations (i.e., between 1 and 1.1; Muthén, 2010).

All models were fit within a 2-level framework with within-therapist (between-patient) differences at level 1 (i.e., differences between patients seen by the same therapist) and between-therapist differences at level 2 (i.e., differences between therapists across all patients in their caseloads). Additionally, missing data were handled using the Bayesian corollary of full information maximum likelihood estimation. This method retains all participants who provide at least one rating of a study variable, which resulted in all 42 therapists and 212 patients being included in all analyses. Finally, effect sizes represent the average of the standardized associations across clusters for each parameter (Asparouhov & Muthén, 2020).[7] These standardized associations can be interpreted similarly to partial correlation coefficients; that is, the number of *SD*s of expected outcome change for every 1 *SD* change in the relevant predictor, controlling for the effect of all other predictors.

To simultaneously test research aims 1 and 2, I fit two random slopes models (one for each process variable predictor) testing the within- and between-therapist components of the relevant process variable as predictors of within- and between-therapist outcome variance, respectively. To test whether each within-therapist process-outcome association varied across therapists, I allowed the relevant slope to be random and tested its significance. Thus, for each process variable, the model yielded two primary fixed effect associations: (a) the within-therapist process-outcome association (i.e., the extent to which differences in the relevant process among different patients working with the same therapist related to differences in outcome among these different patients working with the same therapist); and (b) the between-therapist process-outcome association (i.e., the extent to which differences in therapists' average process levels

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[7] This form of multilevel standardization is relatively new and has not yet been applied to some MSEM models. Therefore, this form of standardization could not be validly applied to the fully between-therapist interactions. Instead, the size of significant interactions for these models was determined by graphing the relevant associations at different levels of the moderators (i.e., +/- 1 *SD*).

across all patients in their caseloads related to differences in therapists' average outcomes across all patients in their caseloads). Additionally, as noted, each process model also yielded a random effect that quantified the extent to which the within-therapist process-outcome association varied across therapists (aim 2). See Appendix F for the full equation.

For research aim 3, I tested whether each relevant therapist-level variable (i.e., theoretical orientation, self-reported use of alliance- or OE-focused interventions, and self-reported perceptions of effectively using the alliance and OE during treatment) moderated the within-therapist process-outcome association (a cross-level interaction) and/or the between-therapist process-outcome association (a fully therapist-level interaction). To preserve power and parsimony, we fit with within- and between-therapist moderation models separately. However, across both models, I controlled for the effect of the relevant process variable at the other level of analysis (i.e., within or between).

The within-therapist moderation models were fit according to the random coefficient prediction (RCP) model for testing cross-level interactions (Preacher et al., 2016). Specifically, for each process variable, the relevant therapist-level moderators were included as level 2 predictors of the relevant within-therapist (level 1) process-outcome association. To enhance interpretability of the intercept, the moderators were grand-mean centered. Additionally, for the ancillary aim, this framework was also used to test whether between-therapist process variability moderated the relevant within-therapist process-outcome association. The only difference for this model was that the relevant between-therapist process variability was added as the moderator of the within-therapist process-outcome association. Thus, across these models, I tested the extent to which the within-therapist process-outcome association changed as a function of the between-therapist level of the process. See Appendix G for the full equation.

The between-therapist moderation models were fit according to the latent moderated structural equations (LMS) model for same-level interactions in MSEM (Asparouhov & Muthén, 2020; Preacher et al., 2016). This model involves the generation of latent interactions among

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random coefficients (in this case, the latent between-therapist component of the relevant process variable and therapist-level moderator). Simulation research has shown that the LMS method results in less bias than other multilevel moderation approaches (e.g., those using observed rather than latent variables), including for sample sizes similar to the present study (Preacher et al., 2016). However, given that this model is computationally complex (Preacher et al., 2016), and to preserve power and model parsimony, I fit separate models for each moderator and treated the sole continuous covariate of patient baseline global well-being/functioning as an observed (rather than latent) variable. Therefore, I disaggregated this covariate into its within- and between-therapist components using group-mean centering (Raudenbush & Bryk, 2002). The moderators were grand-mean centered prior to the creation of the latent interactions. See Appendix H for the full equation.

CHAPTER 3

RESULTS

3.1 Preliminary Analyses

As all study variables were acceptably normally distributed (all skewness values $< +2$ and > -2), no transformations were needed. See Table 2 for descriptive statistics and intercorrelations (i.e., total correlations) among all continuous study variables. In terms of missing patient data, although all patients rated their baseline global well-being/functioning ($N = 212$), and all but 1 patient rated their posttreatment level of global well-being/functioning ($n = 211$),[8] only 88% ($n = 186$) and 90% ($n = 190$) of patients provided alliance and OE ratings, respectively. In terms of missing moderator data, all 42 therapists completed most items. However, 1 therapist did not complete the following items: focus on the therapeutic relationship (i.e., "Focus discussion on the relationship between the clinician and client"), focus on the therapy rationale (i.e., "Explain the

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[8] As noted, "posttreatment" in the parent trial referred to either 16 weeks or the point at which treatment terminated, whichever came sooner. Therefore, even patients who terminated treatment early (e.g., before session 3) could provide a posttreatment outcome assessment.

rationale behind your technique or approach to treatment"). Additionally, 11.90% (*n* = 5) of

therapists did not complete the item assessing their identification with a

psychoanalytic/psychodynamic theoretical orientation. As noted, all missing data was handled

using the Bayesian version of FIML, which allowed all participants (patients and therapists) to be

retained in all analyses.

3.2 Within- and Between-Therapist Process-Outcome Associations

The full results of the 2-level MSEM model testing the within- and between-therapist

alliance-outcome associations are reported in Table 3 and visually depicted in Panel A of Figure

3. Most relevant to my research questions, although within-therapist fluctuations around a given

therapist's mean level of alliance quality were unrelated to within-therapist differences in

patients' posttreatment global well-being/functioning (within therapist association = 0.38; 95% CI

= -0.07, 0.75), therapists who fostered higher quality average alliances across all patients in their

caseloads tended to also achieve more patient improvement, on average (between-therapist

association = 0.62; 95% CI = 0.003, 1.10). Expressed as a standardized association, every 1-*SD*

increase in between-therapist alliance quality was associated with a .54-*SD* increase in average

patient posttreatment well-being/functioning.

Regarding OE, the full results of the 2-level MSEM model testing the within- and

between-therapist OE-outcome associations are reported in Table 4 and visually depicted in Panel

B of Figure 3. Most relevant to my research questions, at the within-therapist level, patients who

had more optimistic OE compared to their therapist's mean level of OE also tended to experience

more posttreatment improvement than their therapist's average patient (within therapist

association = 0.84; 95% CI = 0.15, 0.1.53). Expressed as a standardized association, every 1-*SD*

increase in within-therapist OE was associated with a .15-*SD* increase in patient posttreatment

well-being/functioning. In contrast, between-therapist differences in OE were unrelated to

caseload-level differences in patients' global well-being/functioning (between-therapist

association = 2.64; 95% CI = -0.67, 6.20).

3.3 Therapist-Level Variability in Within-Therapist Process-Outcome Associations

As hypothesized, random effects indicated that the within-therapist alliance-outcome association varied significantly among therapists ($\tau_{11} = 0.40$; 95% CI = 0.10, 1.33). Specifically, therapists who were 1 *SD* above the mean had relatively strong, positive within-therapist alliance-improvement associations (simple slope = 1.01) that were *more than double* the average association (average within-therapist association = 0.38), whereas therapists who were 1 *SD* below the mean had relatively small, *negative* alliance-improvement associations (simple slope = -.25). See Panel C of Figure 3 for a visual depiction.

Also as expected, random effects indicated that the within-therapist OE-outcome association varied significantly across therapists ($\tau_{11} = 1.25$; 95% CI = 0.36, 4.59). Specifically, therapists who were 1 *SD* above the mean had strong, positive within-therapist OE-improvement associations (simple slope = 1.96) that were *more than double* the average positive association (average within-therapist association = 0.84), whereas therapists who were 1 *SD* below the mean had slightly *negative* OE-improvement associations (simple slope = -.28). See Panel D of Figure 3 for a visual depiction.

3.4 Therapist-Level Moderation of the Within- and Between-Therapist Process-Outcome Associations

The full results of the 2-level RCP MSEM model testing therapist-level moderators of the within-therapist alliance-outcome association are reported in Model 1 of Table 5. Only therapist self-perceived alliance-fostering ability significantly moderated the within-therapist alliance-outcome association ($\gamma_{31} = -0.76$; 95% CI = -1.18, -0.28). More specifically, whereas therapists who perceived themselves as having above average (+1.5 *SD*s) abilities to foster high quality alliances had *negative* (though only marginally significant) alliance-improvement associations (simple slope = -0.57, one-tailed *p* = .04; 95% CI = -1.13, 0.14), therapists who perceived themselves to have below average (-1.5 *SD*s) abilities to foster high quality alliances had strong

positive alliance-improvement associations that were approximately *3 times* larger than the average within-therapist alliance-outcome association (simple slope = 1.14, one-tailed p = .001, 95% CI = 0.52, 1.72; see Figure 4). Regarding OE, the full results of the 2-level RCP MSEM models testing therapist-level moderators of the within-therapist OE-outcome association are reported in Model 2 of Table 5. None of the examined therapist-level variables significantly moderated the within-therapist OE-improvement association.

Regarding the fully between-therapist moderation models, the full results of the alliance and OE 2-level LMS MSEM models are reported in Table 6. Across these models, results indicated that only the degree of CB theoretical orientation moderated the between-therapist *alliance*-improvement association (γ_{04} = -0.46; 95% CI = -0.96, -0.004). As depicted in Figure 5, for therapists with a more CB orientation (1 *SD* above the mean), the between-therapist alliance-outcome association was slightly negative (simple slope = -0.27; 95% CI = -0.82, 0.34). In contrast, for therapists who reported a lower-than-average CB orientation (1 *SD* below the mean), there was a strong positive between-therapist alliance-outcome association (simple slope = 0.75; 95% CI = 0.20, 1.37).[9]

3.5 Interactive Effect of Within- and Between-Therapist Variability in Process on Outcome

Finally, also using the RCP model reported above that tested therapist-level moderators of the within-therapist alliance-outcome association, I examined whether between-therapist differences in alliance and OE moderated the within-therapist alliance- and OE-outcome associations, respectively. Results indicated that between-therapist differences in alliance quality

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[9] Because treatment length varied across patients, we replicated all models with research question-relevant significant results (for aims 1, 2, and 3) with the total number of weeks patients were in the study as an additional covariate. All significant alliance results (across all aims) remained statistically significant and similarly sized. For OE, the within-patient OE-outcome association remained statistically significant and similarly sized (the within-therapist element of aim 1), and the therapist-level variability in this association also remained significant and similarly sized (aim 2). However, although the between-therapist OE-outcome association remained almost identical in size and total time in the study did not relate to outcome at the therapist level, the OE-outcome association became only marginally significant when this additional covariate was added (the therapist-level element of aim 1).

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did not moderate the within-therapist alliance-outcome association (γ_{31} = -0.03, *SD* = 0.04; 95%

CI = -0.13, 0.04). Similarly, there was also no evidence that between-therapist differences in OE

moderated the within-therapist OE-outcome association (γ_{31} = -0.26, *SD* = 7.01; 95% CI = 16.91,

14.82).

CHAPTER 4

DISCUSSION

The present study had three primary aims: (1) test the alliance- and OE-outcome

associations at both the within- and between-therapist levels; (2) examine whether the within-

therapist alliance- and OE-outcome associations varied among therapists; and (3) explore

therapist-level moderators of the within- and between-therapist alliance- and OE-outcome

associations. Regarding aim 1, as hypothesized, both the alliance- and OE-outcome associations

were significant at either the within- or between-therapist level. More specifically, although

higher-quality between-therapist alliances associated with greater average improvement, within-

therapist (between-patient) differences in alliance quality were unrelated to within-therapist

differences in improvement. In contrast, more optimistic OE was associated with greater

improvement at the within- but not between-therapist level. Regarding aim 2, as expected, the

within-therapist alliance-outcome association varied significantly among therapists, such that

some therapists had strong, positive alliance-improvement associations, others had negligible

alliance-improvement associations, and still others had *negative* alliance-improvement

associations. Similarly, the within-therapist OE-improvement association demonstrated

variability among therapists. Finally, regarding aim 3, therapists' self-perceived alliance-fostering

ability and degree of CB orientation significantly moderated the within- and between-therapist

alliance-outcome associations, respectively. In contrast, no significant moderators of either the

within- or between-therapist OE-outcome associations emerged. This study also had one ancillary

aim: test whether the two components of the process-outcomes associations interacted to predict

treatment outcomes. For both alliance and OE, these interactions were not significant.

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The aim-1 finding that the between- but not within-therapist alliance-outcome association was significant may help to clarify the presently mixed literature on this topic. Regarding the between-therapist alliance-outcome association, out of now 10 studies to date, seven (including the present one) have found a significant between-therapist alliance-improvement association (i.e., Baldwin et al., 2007; Crits-Christoph et al., 2009; Crits-Christoph et al., 2018; Huppert et al., 2014; Marcus et al., 2011; Zuroff et al., 2010), with only three finding a null association at this level (i.e., Coyne et al., 2021; Crits-Christoph et al., 2011; Falkenström et al., 2014). Moreover, the three studies that found a null between-therapist alliance-outcome association had design features that could have limited the authors' abilities to detect this relation. Specifically, two of these studies only assessed the alliance at a single time point very early in treatment (e.g., session 1), making it more difficult to reliably capture *therapists'* contributions to the alliance (Crits-Christoph et al., 2011; Falkenström et al., 2014). The other study had a small number of therapists, which resulted in low power (Coyne et al., 2021). Thus, the present results support a growing consensus that therapists who consistently foster more positive alliances across all patients in their caseload also tend to be more globally effective. In contrast, the within-therapist alliance-outcome association can now be regarded as more mixed, with six studies finding a significant alliance-improvement association (i.e., Coyne et al., 2021; Crits-Christoph, et al., 2011; Falkenström et al., 2014; Huppert et al., 2014; Marcus et al., 2011; Zuroff et al., 2010) and four (including the present one) finding a null association at this level (i.e., Baldwin et al., 2007; Crits-Cristoph et al., 2009; Crits-Cristoph et al., 2018).

Clinically, these results may suggest that what is most *consistently* therapeutic about the alliance is the portion that can be attributed to the therapist rather than the portion that can be attributed to the patient or the specific patient-therapist pairing. Although speculative, this finding may square with interpersonal theory positing that a quality alliance represents a novel and corrective in-session relational experience that can generalize to patients' extratherapy relational functioning, which can, in turn, facilitate broader symptom reduction (e.g., Coyne et al., 2019;

Zilcha-Mano, 2017). From this vantage point, it would make sense that the *novel* aspects of the therapeutic relationship would be more attributable to what the therapist and overall treatment context bring to the table than to what the patient imports, which could include a person's preexisting, relationship-fostering abilities and/or interpersonal problems (Zilcha-Mano). Regardless of the reason, the present results further support the notion that therapists may wish to monitor their *general, caseload level* alliances and engage alliance-focused trainings if their average alliance levels tend to be lower than their peers. Of course, additional research is needed to solidify further the between-therapist alliance-outcome association, and to continue to clarify the within-therapist alliance-outcome association.

Regarding the aim-1 OE-outcome association, this study was the first to parse this relation into its within- and between-therapist components. Therefore, there is no existing literature with which to compare the present findings. Notably, though, in contrast to this study's alliance results, more optimistic OE was associated with greater improvement only at the *within-therapist* level. Although speculative, it seems plausible that in comparison to the inherently interpersonal alliance construct, the *patient-*"owned" nature of the OE variable could render individual, patient-level differences in this construct more potent for *patient-level* differences in outcome (Constantino et al., 2018). In other words, it may make sense that this inherently patient-focused construct operates primarily at the patient-level of analysis. Thus, therapists might consider monitoring their individual patients' *relative* OE. When a particular patient reports lower OE than usual, compared to the therapist's other patients, then that therapist could consider implementing OE-fostering strategies (e.g., providing personalized hope-inspiring statements, tailoring treatment strategies to match a person's beliefs; Constantino et al., 2018). Of course, the presently novel multilevel OE-outcome findings, and their preliminary clinical implications, require additional testing.

As expected, for aim 2, both the within-therapist alliance- and OE-outcome associations varied significantly among therapists, providing proof of concept for the notion that different

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therapists may use different psychotherapy processes to differing therapeutic effects. Regarding the alliance, this finding replicates the results of the limited previous research on this topic (Coyne et al., 2021; Dinger et al., 2008) and extends this finding to naturalistic outpatient settings. Together, these now three studies preliminarily suggest that one reason for the variability in the size and significance of the within-therapist alliance-outcome association across studies could be that therapists differ in the extent to which they effectively use the alliance to achieve positive outcomes. Regarding OE, these results add nuance to the *average* within-therapist OE-improvement association revealed with aim 1 of this study; that is, there appears to be a subgroup of therapists who do (those with strong, positive OE-improvement associations) and a subgroup who do not (those with negative or negligible OE-improvement associations) need to closely attend to differences in OE among the patients within their practices in order to maximize patient improvement (or minimize harm).

Additionally, OE presents a special case for a process variable. Namely, given that it can be assessed *prior to the start of therapy* (Constantino et al., 2018), the present results could support a new form of patient-therapist matching; that is, because therapists with *negative* OE-improvement associations achieve better outcomes when patients report more vs. less pessimistic OE, it could be beneficial to assign the subgroup of patients with low (more pessimistic) presenting OE to these therapists. Similarly, it could also be beneficial to assign patients with more positive/optimistic baseline OE to therapists who seem better able to capitalize on such optimism (i.e., therapists with strong *positive* OE-improvement associations). Therefore, although replication and further examination of specific moderators is needed (see my discussion of aim 3 below), these results preliminarily point to the importance of personalizing OE practice recommendations and case assignments *to the provider*.

At least preliminarily, the present aim-3 results further extend the literature by pointing to at least one therapist-level characteristic that can explain the previously discussed *within-therapist* alliance-outcome variability (i.e., significant therapist-level moderation). Specifically,

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whereas therapists who perceived themselves as having above average abilities to foster high-quality alliances had *negative* alliance-improvement associations, therapists who perceived themselves to have average or below average abilities to foster high-quality alliances had strong, positive alliance-improvement associations that were approximately *3 times* larger than the average within-therapist alliance-outcome association. Therefore, for therapists who hold humbler views of their relationship-fostering abilities, the alliance may represent a key ingredient for fostering change in their patients, whereas those who view themselves as more universally/consistently effective in building alliances may rely on *other* non-alliance processes to affect change. Although the exact reason for such moderation remains unknown, I offer one speculation.

It is plausible that the therapist self-perception variable is largely a byproduct of how they view and use treatment processes. Those therapists using the alliance to the strongest effect may also be the ones who see the variable as being at the core of their work. And with such a relational focus, they may appreciate that alliance quality is neither always easily achieved nor constant, which is reflected in what they may see as an accurate account of their abilities; that is, regardless of their average relational skill, their alliances with individual patients will vary and can sometimes be difficult/suboptimal. In contrast, those therapists whose alliances do not associate strongly with outcome may also be the ones who place less emphasis on the alliance as a central change agent. And with this secondary alliance focus, they may be less likely to perceive or concern themselves with fluctuations in relational quality, which is reflected in what they may see as an accurate account of their strong ability to cultivate a non-primary change process.

Regardless of the exact reason for this finding, it could have preliminary implications for personalizing one's practice to the factors that are most important for a given therapists' outcomes – a *therapist-level* form of the "what works for whom" question. Specifically, it may be helpful for therapists to "know thyself" by reflecting on their own comparative alliance-fostering abilities. If therapists believe themselves to be roughly average compared to their peers (i.e.,

"sometimes more effective" or "inconsistently more effective"), it may behoove them to closely monitor their individual alliances with patients in the service of heightening effective responsivity to this personally important variable. That is, when patients rate the alliance as high, it could be a cue that things are going well and to continue with their treatment plan. In contrast, when the alliance with a given patient is relatively low, it could be important to recognize this *personal* risk factor for poorer outcomes and to respond accordingly (e.g., by incorporating explicit alliance-focused strategies; Flückiger et al., 2018).

In contrast, for therapists who *do not* have this level of the moderator, it could be less clinically important for them to attend to within-caseload fluctuations in their alliances, as such differences do not appear to be a key *personal* change agent. Of course, deriving more specific implications for these therapists will depend on researchers and clinicians working together to identify *other* (beyond the alliance) personalized change processes, which could be theory-specific (e.g., effective use of cognitive interventions or interpretations) or theory-common (e.g., effective use of empathy, emotional expression). Alternatively, if such therapists were nevertheless motivated to view and use the alliance as a change process, then they may benefit from changing the present moderator; that is, becoming humbler about their alliance-fostering abilities. However, future research will need to investigate *whether/how* such changes can happen, and if they can indeed change the strength of a therapist's alliance-outcome relation.

Finally, therapist identification with a CB orientation moderated the between-therapist alliance-improvement association. Specifically, for *strongly* CB therapists, their caseload-level average alliance quality was generally unrelated to their average outcomes. In contrast, for therapists who did not identify with a CB orientation (or who identified with it less strongly than their peers), their average alliance quality was a relatively strong positive predictor of their average outcomes. This result squares with the theoretical role of the alliance in CB traditions; that is, the alliance is historically viewed as a facilitative platform that allows other theory-specific techniques (i.e., the more cognitive and behaviorally related putative change

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mechanisms) to have a greater effect on improvement (Castonguay et al., 2010; Hatcher & Barends, 2006; Zilcha-Mano, 2017). Therefore, it seems plausible, and perhaps even likely, that therapists who are strongly aligned with this theoretical perspective may place relatively less emphasis on trying to parlay their alliances *directly* into patient improvement, which could account for the observed null (and even slightly negative) between-therapist alliance-improvement association for these providers. It is worth noting that, somewhat counter to my expectations, therapist identification with a PA/PD orientation did not have the opposite impact on the between-therapist alliance-outcome association. Although speculative, this result could owe to the fact that a strong identification with a PA/PD orientation was quite rare in this sample, which could have limited my ability to detect this association. Alternatively, this result could suggest that most of the other orientations (beyond CB) with which therapists in this sample identified (e.g., interpersonal, humanistic) could place relatively equal emphasis on the alliance as a change mechanism as compared with PA/PD. However, these speculations require additional testing.

With additional regard to the CB moderator finding, though, it is worth reiterating that this result does not imply that therapists of certain theoretical orientations tend to be globally more vs. less effective. Instead, this result simply suggests that, for highly CB therapists, other factors (beyond the alliance) are likely to explain between-therapist differences in outcome. Therefore, it may be helpful for therapists to "know thyself" in terms of their degree of CB orientation and to personalize their alliance practices accordingly. For example, it seems possible that highly CB therapists may be most effective when they attend to the change processes that they personally believe to be most facilitative of patient improvement (e.g., cognitive and behavioral interventions). Notably, this idea is consistent with the anecdotal observations of Crits-Christoph et al. (2010) who indicated that after an alliance-focused training, some therapists appeared to become *less effective*, suggesting that a focus on this construct may have detracted from their ability to implement the strategies that *personally* help them to work more effectively

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with their patients. When these anecdotal results are interpreted in the context of the present findings, it seems likely that therapists' degree of identification with a CB orientation could represent one therapist-level characteristic that influences the efficacy of alliance-focused *trainings*. Whereas therapists with a low or moderate degree of CB identification may be wise to seek out alliance-focused trainings if/when their caseload-level alliances are relatively low in quality, therapists with a strong CB orientation may be better served by seeking *other* types of trainings to improve their outcomes. Of course, these speculations and preliminary training implications require direct testing in future studies.

Overall, it is worth noting that several of the investigated therapist-level variables did not moderate the alliance-outcome association at either level, and none explained variability in the OE-outcome associations. Although this proof-of-concept study was largely exploratory, these null results could have implications for future research. First, for *both* processes, the consistent lack of moderation for therapists' use of alliance- and OE-focused interventions could owe to the present study's reliance on self-report methods; that is, it is possible that therapists' self-perceptions of their use of these strategies could be somewhat unrelated to their *actual* use of such techniques. Therefore, it may be more fruitful for future studies to use observer-coding methods that can capture therapists' in-session provision, for example, of a compelling treatment rationale (my putative OE-focused practice). Second, with specific regard to OE, the present results may suggest that future therapist-level moderator research should look beyond the variables investigated in the present study. For example, perhaps other OE-focused techniques (such as providing personalized, hope-inspiring statements, tailoring treatment to a patient's momentary level of OE; Constantino et al., 2018) could allow therapists to parlay this belief into symptom change.

Finally, across both alliance and OE, the ancillary aim demonstrated no evidence that within- and between-therapist variability interacted to predict patient outcomes. Regarding the alliance construct, this null finding actually replicates the results of the one previous study that

tested this interaction (Baldwin et al., 2007). Although speculative, these results may suggest that the behaviors/characteristics that allow therapists to capitalize on within-therapist alliance and OE variability are fairly distinct from those that enable therapists to be more (or less) *globally* effective at fostering these processes (i.e., the between-therapist components). If replicated, these results would underscore the importance of disaggregating process-outcome correlations in order to inform more nuanced clinical guidelines.

The present study had several limitations. First, as noted, I did not have access to session recordings. Therefore, the assessments of all therapist-level moderators were based on self-report, which could be subject to bias. Second, although based on existing measures, the therapist self-report items were somewhat study-specific (Constantino et al., 2021). Third, despite this study having a relatively large sample size compared to many psychotherapy process-outcome studies, it only met the minimum sample size required to test multilevel moderation (Preacher et al., 2016). Therefore, I cannot rule out the possibility that some of the null results observed for the third aim could be a function of low power at the therapist level. Fourth, owing to the naturalistic context, there was patient-level variability in the length of treatment, and relatedly, the number of measurement occasions available for the process variables. Although a supplemental analysis controlling for the number of weeks patients were in the study revealed generally consistent results across the study aims, it remains that variable treatment lengths could have impacted the study results, perhaps especially for OE. Thus, future research should replicate the present study's results in samples that include more consistent treatment lengths. Finally, the sample was mostly White, with relatively high income; thus, replication is needed in more diverse samples.

Limitations notwithstanding, this study was one of the first to examine the potential utility of personalizing psychotherapy process and training to the *therapist*. Using two common processes, the results provided proof of concept for the idea that different therapists rely on different psychotherapy processes to affect clinical change. Preliminarily, clinicians may wish to attend to their own self-perceptions and theoretical orientations when attempting to parlay the

alliance into therapeutic change. Additionally, if replicated, clinicians may use such information to select personally well-suited clinical trainings, whether to embolden strengths or redress weaknesses. Finally, the results also suggest that the time may be right for researchers to begin attending to *therapist-level* "what works for whom" questions when examining both theory-specific and common process-outcome associations, as such work has the potential to inform the development of more nuanced personalized case assignments, clinical practices, and trainings that take into account both participants in the psychotherapy endeavor.

Table 1

*Patient Baseline Demographic and Clinical Characteristics by Condition (*N = *212*)

Variables	CAU (*n* = 114)			Match (*n* = 98)		
	M	*SD*	*n* (%)	*M*	*SD*	*n* (%)
Age	34.44	11.67		33.09	10.50	
Sex						
Female			77 (67.5)			65 (66.3)
Male			37 (32.5)			33 (33.7)
Race/ethnicity						
Caucasian/White			101 (88.6)			86 (87.8)
Hispanic/Latino			3 (2.6)			3 (3.1)
African American/Black			6 (5.3)			7 (7.1)
Asian			2 (1.8)			1 (1.0
Other			2 (1.8)			1 (1.0)
Sexual Orientation						
Heterosexual			92 (80.7)			88 (89.8)
Bisexual			10 (8.8)			6 (6.1)
Gay or lesbian			4 (3.5)			3 (3.1)
Not sure			5 (4.4)			0 (0.0)
Missing			3 (2.6)			1 (1.0)
Annual Household Income						
Less than 20,000			6 (5.3)			7 (7.2)
20,000-40,00			11 (9.7)			10 (10.2)
40,000-75,000			36 (31.6)			28 (28.5)
75,000-100,000			21 (18.4)			24 (24.5)
100,000 or more			37 (32.5)			28 (28.6)
Missing			3 (2.6)			1 (1.0)
Education						
High school or less			14 (12.3)			18 (18.4)
Business or trade school			6 (5.3)			8 (8.2)
Two-year college			10 (8.8)			13 (13.3)
Four-year college			41 (36.0)			29 (29.6)
Masters or doctorate			33 (29.0)			22 (22.4)
Missing			10 (8.8)			8 (8.2)
Marital Status						
Single			53 (46.5)			45 (45.9)
Married/cohabiting			51 (44.7)			43 (43.9)
Divorced/widowed/separated			7 (6.1)			9 (9.2)
Missing			3 (2.6)			1 (1.0)
Previous therapists/courses of therapy[a]	1.72	1.89		1.56	1.51	
On psychiatric medication?						
Yes			34 (29.8)			26 (26.5)
No			55 (48.2)			52 (53.1)
Missing[b]			25 (21.9)			20 (20.4)
TOP-CS Total Score[c]	258.03	26.57		252.87	29.13	

Note. CAU = case assignment as usual; *M* = mean; *SD* = standard deviation; TOP-CS = *Treatment Outcome Package-Clinical Scales*. [a] Note that *n* = 207 for this variable due to missing data. [b] The total sample size for the psychiatric medication item is 167 because of a technological error during data collection. [c] Note that *n* = 211 for this variable due to missing data.

Table 2

Descriptive Statistics and Intercorrelations for All Continuous Study Variables

Variable	*M*	*SD*	1	2	3	4	5	6	7	8	9	10
1. Patient alliance	65.76	12.53	–									
2. Patient OE	17.98	5.12	.71***	–								
3. Baseline global well-being/functioning	255.64	27.84	.06	.11	–							
4. Posttreatment well-being/functioning	273.55	27.07	.22**	.26***	.59***	–						
5. Therapist CB orientation	5.12	1.09	.02	.02	-.02	-.05	–					
6. Therapist PA/PD orientation	2.24	1.77	.05	.09	-.06	.06	-.20	–				
7. Therapist focus on therapeutic relationship	2.56	1.45	.14	.03	-.01	.001	-.17	.38*	–			
8. Therapist self-perceived alliance fostering ability	5.64	0.76	.09	.03	-.06	-.06	-.21	.34*	.26	–		
9. Therapist focus on treatment rationale	4.34	1.49	-.03	.08	-.05	.05	.42**	-.07	-.09	-.09	–	
10. Therapist self-perceived OE fostering ability	5.36	0.82	.04	.02	-.04	-.04	-.05	.30	.25	.72***	.20	–

Note. OE = outcome expectation; CB = cognitive-behavioral; PA/PD = psychoanalytic/psychodynamic. The significance values for some of these correlations are inflated given that these correlations were estimated based on the raw data outside of a multilevel framework. Thus, the intercorrelations are intended to provide purely descriptive information about the total correlation between each of our variables. *N*s for correlations involving patient-rated variables ranged from 180 to 211 and *N*s for correlations involving only therapist-rated variables ranged from 36 to 42 due to missing data.
*p < .05; **p < .01; ***p < .001

Table 3

*The Within- and Between-Therapist Alliance-Outcome Association (*N = *212*)

Fixed effects	Coefficient (*SD*)	95% CI	ES[a]
Posttreatment TOP-CS, γ_{00}	154.25 (*245.78*)	-492.85, 483.42	--
Baseline TOP-CS$_b$, γ_{01}	0.31 (*0.97*)	-1.08, 2.80	--
Alliance$_b$, γ_{02}	0.62* (*0.29*)	0.003, 1.10	0.54
Match vs. control, γ_{10}	7.06* (*3.15*)	1.39, 13.45	--[b]
Baseline TOP-CS$_w$, γ_{20}	0.59* (*0.06*)	0.48, 0.70	0.60
Alliance$_w$, γ_{30}	0.38 (*0.20*)	-0.07, 0.75	0.13
Random effects	Coefficient (*SD*)	95% CI	ES
Level 1			
Residual, σ^2	417.74* (*45.27*)	338.95, 511.38	--
Level 2			
Intercept, τ_{00}	22.75* (*14.69*)	6.21, 62.09	--
Slope (within-therapist alliance-outcome association), τ_{11}	0.40* (*0.32*)	0.10, 1.33	--
Covariance (intercept with slope), τ_{01}	-0.70 (*1.89*)	-4.14, 4.31	--

Note. CI = credible interval; ES = effect size; TOP-CS = *Treatment Outcome Package-Clinical Scales*; $_b$ = between-therapist association; $_w$ = within-therapist association.
[a] Effect sizes represent the average of the standardized associations across clusters for each parameter.
[b] Given that the assignment condition variable (match = 1, CAU = 0) is dichotomous, it does not make sense to present the association as the expected outcome difference for a 1 *SD* change in the predictor.

Table 4

The Within- and Between-Therapist OE-Outcome Association (N = *212*)

Fixed effects	Coefficient (*SD*)	95% CI	ES[a]
Posttreatment TOP-CS, γ_{00}	100.56 (*212.47*)	-435.33, 331.66	--
Baseline TOP-CS$_b$, γ_{01}	0.47 (*0.83*)	-0.43, 2.65	0.35
OE$_b$, γ_{02}	2.64 (*1.69*)	-0.67, 6.20	0.53
Match vs. control, γ_{10}	7.84* (*3.12*)	1.40, 13.48	--[b]
Baseline TOP-CS$_w$, γ_{20}	0.58* (*0.06*)	0.46, 0.69	0.59
OE$_w$, γ_{30}	0.84* (*0.35*)	0.15, 1.53	0.15
Random effects	Coefficient (*SD*)	95% CI	ES
Level 1			
Residual, σ^2	418.00* (*45.48*)	341.91, 520.02	--
Level 2			
Intercept, τ_{00}	24.71* (*18.26*)	3.78, 76.76	--
Slope (within-therapist OE-outcome association), τ_{11}	1.25* (*1.23*)	0.36, 4.59	--
Covariance (intercept with slope), τ_{01}	-2.31 (*3.74*)	-10.77, 4.43	--

Note. CI = credible interval; ES = effect size; TOP-CS = *Treatment Outcome Package-Clinical Scales*; $_b$ = between-therapist association; OE = outcome expectation; $_w$ = within-therapist association.

[a] Effect sizes represent the average of the standardized associations across clusters for each parameter.

[b] Given that the assignment condition variable (match = 1, CAU = 0) is dichotomous, it does not make sense to present the association as the expected outcome difference for a 1 *SD* change in the predictor.

Table 5

Moderators of the Within-Therapist Alliance- and OE-Outcome Association (N = 212)

Fixed effects	Alliance Model			OE Model		
	Coefficient (*SD*)	95% CI	ES[a]	Coefficient (*SD*)	95% CI	ES[a]
Posttreatment TOP-CS, γ_{00}	269.77* (*2.09*)	265.60, 273.93	--	270.80* (*13.57*)	243.41, 301.62	--
Baseline TOP-CS$_b$, γ_{01}	0.27 (*0.89*)	-2.73, 1.15	0.09	0.57 (*8.79*)	-19.03, 16.75	0.21
Alliance$_b$/OE$_b$, γ_{02}	0.72 (*0.39*)	-0.22, 1.29	0.45	1.40 (*3.46*)	-5.80, 6.26	0.23
CB orientation, γ_{03}	-1.67 (*1.45*)	-4.62, 1.11	-0.21	-1.97 (*1.93*)	-5.65, 1.84	-0.27
PA/PD orientation, γ_{04}	2.30* (*1.08*)	0.13, 4.47	0.49	1.40 (*1.10*)	-0.76, 3.67	0.31
Focus on alliance/rationale, γ_{05}	-0.20 (*1.35*)	-2.92, 2.33	-0.03	1.71 (*1.55*)	-1.25, 4.85	0.32
Self-perceived alliance/OE fostering ability	-3.88 (*2.30*)	-8.14, 1.03	-0.36	-1.55 (*2.45*)	-6.89, 3.01	-0.17
Match vs. CAU, γ_{10}	8.55* (*2.70*)	3.52, 13.89	--[b]	6.86* (*2.92*)	0.96, 12.32	--[b]
Baseline TOP-CS$_w$, γ_{20}	0.57* (*0.06*)	0.47, 0.68	0.58	0.57* (*0.06*)	0.46, 0.68	0.58
Alliance$_w$/OE$_w$-TOP-CS (slope), γ_{30}	0.27 (*0.17*)	-0.01, 0.63	0.28	0.67 (*0.42*)	-0.17, 1.52	0.39
CB orientation, γ_{31}	-0.04 (*0.16*)	-0.37, 0.28	-0.05	0.03 (*0.38*)	-0.71, 0.77	0.02
PA/PD orientation, γ_{32}	-0.14 (0.13)	-0.34, 0.18	-0.26	-0.44 (*0.25*)	-1.01, 0.04	-0.50
Focus on alliance/rationale, γ_{33}	0.18 (*0.13*)	-0.09, 0.45	0.30	-0.09 (*0.32*)	-0.74, 0.49	-0.09
Self-perceived alliance/OE fostering ability, γ_{34}	-0.76* (*0.24*)	-1.18, -0.28	-0.62	-0.03 (*0.54*)	-1.05, 1.08	-0.01

Note. Coef. = coefficient; CI = credible interval; ES = effect size; TOP-CS = *Treatment Outcome Package-Clinical Scales*; [b] = between-therapist association; OE = outcome expectation; CB = cognitive behavioral; PA/PD = psychoanalytic/psychodynamic; [w] = within-therapist association.

*indicates that the 95% CI does not include zero.
[a] Effect sizes represent the average of the standardized associations across clusters for each parameter.
[b] Given that the assignment condition variable (match = 1, CAU = 0) is dichotomous, it does not make sense to present the association as the expected outcome difference for a 1 *SD* change in the predictor.

Table 6

*Moderators of the Between-Therapist Alliance- and OE-Outcome Associations (*N = 212*)*

Alliance Models

	CB orientation		PA/PD orientation		Focus on alliance		Self-perceived alliance fostering ability	
Fixed effects	Coef. (*SD*)	95% CI	Coef. (*SD*)	95% CI	Coef. (*SD*)	95% CI	Coef. (*SD*)	95% CI
Posttreatment TOP-CS, γ_{00}	173.73* (*36.49*)	106.59, 246.05	177.30* (*43.12*)	111.46, 278.06	171.90* (*37.81*)	95.67, 245.51	185.25* (*36.18*)	121.84, 252.32
Baseline TOP-CS$_b$, γ_{01}	0.30* (*0.14*)	0.06, 0.58	0.33 (*0.17*)	-0.05, 0.57	0.33* (*0.16*)	0.03, 0.64	0.29* (*0.14*)	0.03, 0.51
Alliance$_b$, γ_{02}	0.26 (*0.16*)	-0.06, 0.55	0.16 (*0.20*)	-0.20, 0.46	0.24 (*0.22*)	-0.22, 0.70	0.19 (*0.16*)	-0.12, 0.47
Moderator, γ_{03}	25.37* (*11.90*)	1.48, 49.29	-3.02 (*4.87*)	-11.73, 6.45	-1.54 (*8.49*)	-18.90, 18.75	-23.32 (*15.48*)	-50.97, 14.44
Interaction, γ_{04}	-0.46* (*0.23*)	-0.96, -0.004	0.06 (*0.09*)	-0.11, 0.25	0.01 (*0.15*)	-0.33, 0.32	0.31 (*.27*)	-0.34, 0.82
Match vs. control, γ_{10}	2.34 (*2.82*)	-3.14, 8.97	2.92 (*2.83*)	-3.96, 8.04	2.35 (*2.64*)	-2.21, 8.15	2.23 (*2.82*)	-3.24, 8.86
Baseline TOP-CS$_w$, γ_{20}	0.61* (*0.07*)	0.49, 0.75	0.61* (*0.08*)	0.44, 0.73	0.61* (*0.07*)	0.48, 0.76	0.61* (*0.07*)	0.49, 0.75
Alliance$_w$, γ_{30}	0.24* (*0.08*)	0.08, 0.39	0.28* (*0.09*)	0.11, 0.46	0.26* (*0.08*)	0.10, 0.42	0.24* (*0.08*)	0.08, 0.39

OE Models

	CB orientation		PA/PD orientation		Focus on treatment rationale		Self-perceived OE fostering ability	
Fixed effects	Coef. (*SD*)	95% CI	Coef. (*SD*)	95% CI	Coef. (*SD*)	95% CI	Coef. (*SD*)	95% CI
Posttreatment TOP-CS, γ_{00}	175.11* (*39.31*)	99.69, 255.04	174.66* (*38.06*)	102.51, 244.18	180.87* (*38.85*)	114.86, 262.99	191.41* (*42.86*)	96.87, 267.96
Baseline TOP-CS$_b$, γ_{01}	0.33 (*0.16*)	-0.03, 0.63	0.33* (*0.16*)	0.03, 0.66	0.34* (*0.15*)	0.004, 0.58	0.30 (*0.17*)	-0.06, 0.66
OE$_b$, γ_{02}	0.70 (*0.67*)	-0.89, 1.79	0.70 (*0.79*)	-1.02, 2.40	0.44 (*0.85*)	-1.52, 2.02	0.34 (*0.77*)	-1.74, 1.74
Moderator, γ_{03}	-6.65 (*9.56*)	-28.99, 11.08	8.13 (*7.78*)	-7.79, 19.42	1.48 (*8.76*)	-14.03, 17.20	2.52 (*17.40*)	-28.47, 43.09
Interaction, γ_{04}	0.59 (*0.63*)	-0.78, 1.91	-0.54 (*0.49*)	-1.25, 2.40	-0.09 (*0.58*)	-1.03, 1.00	-0.27 (*1.08*)	-2.64, 1.88
Match vs. control, γ_{10}	3.05 (*2.64*)	-3.00, 6.89	2.52 (*2.70*)	-2.36, 8.23	2.38 (*2.37*)	-2.58, 6.63	2.08 (*2.58*)	-3.05, 6.99
Baseline TOP-CS$_w$, γ_{20}	0.61* (*0.07*)	0.49, 0.77	0.61* (*0.07*)	0.49, 0.77	0.62* (*0.08*)	0.46, 0.80	0.62* (*0.08*)	0.46, 0.75
OE$_w$, γ_{30}	0.45 (*0.27*)	-0.10, 0.96	0.45 (*0.26*)	-0.08, 0.99	0.53 (*0.28*)	-0.15, 0.97	0.43 (*0.24*)	-0.09, 0.84

Note. CB = cognitive-behavioral; PA/PD = psychoanalytic/psychodynamic; Coef. = coefficient; CI = credible interval; TOP-CS = *Treatment Outcome Package-Clinical Scales*; OE = outcome expectation; $_b$ = between-therapist association; $_w$ = within-therapist association.
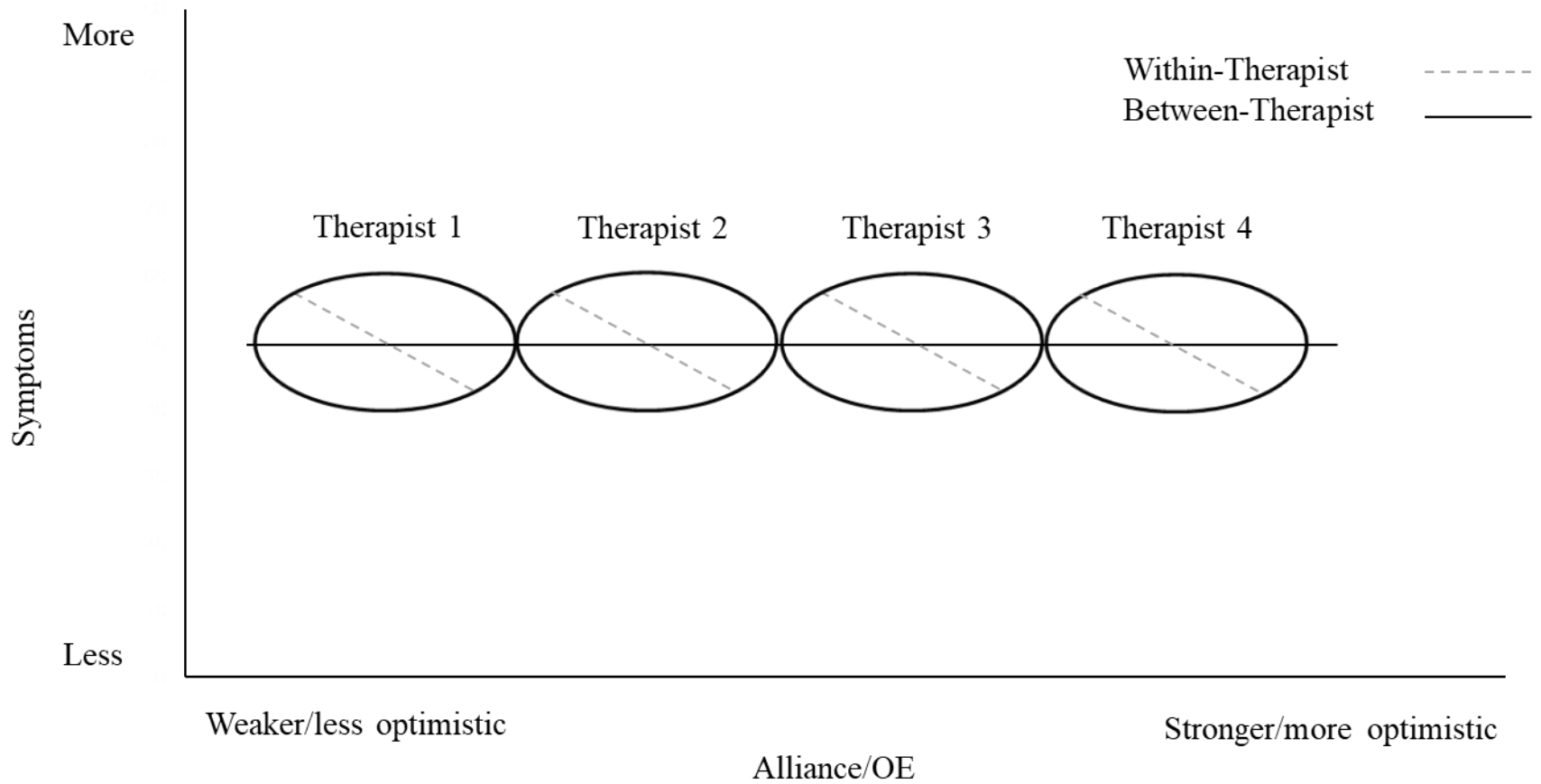
Figure 1. Hypothetical depiction of a significant, positive within-therapist process-improvement association and a nonsignificant between-therapist process-improvement association. OE = outcome expectation.
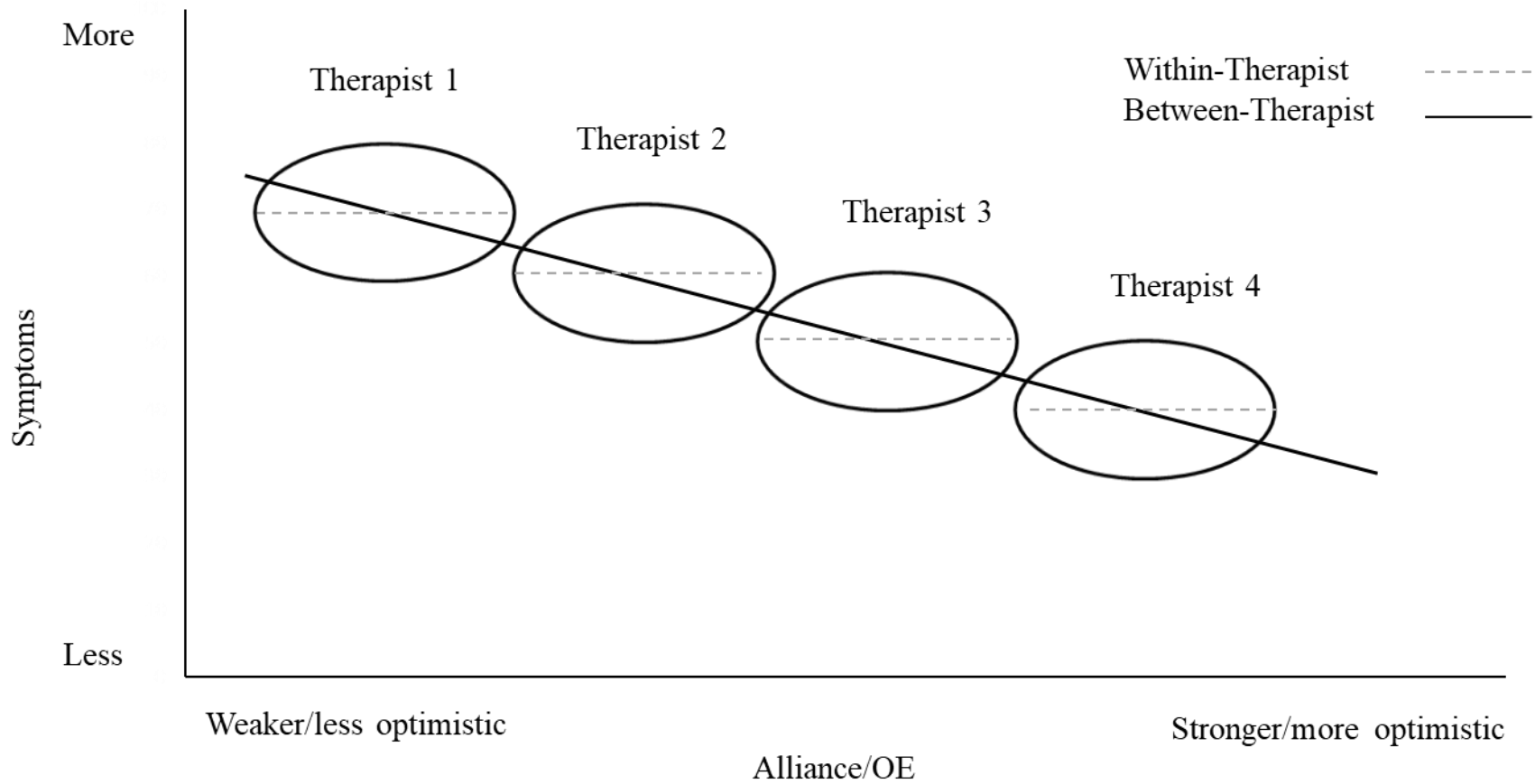
Figure 2. Hypothetical depiction of a nonsignificant within-therapist process-improvement association and a significant, positive between-therapist process-improvement association. OE = outcome expectation.
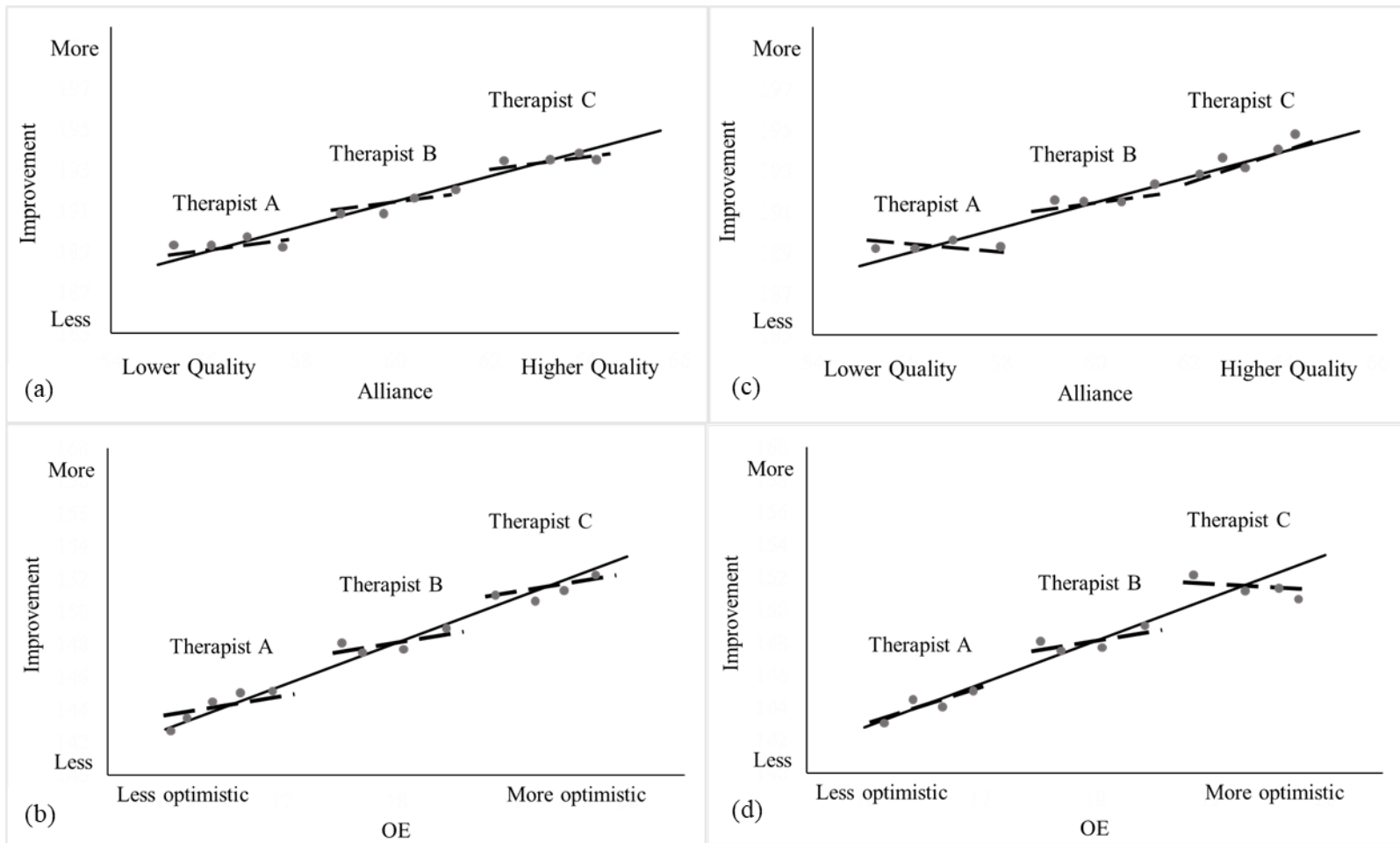
Figure 3. Average Within- and Between-Therapist Process-Outcome Associations and Variability in These Associations. Panel a depicts the sample average within-therapist (standardized association = 0.13) and between-therapist (standardized association = 0.54) alliance-improvement association. Panel b depicts the sample average within-therapist (standardized association = 0.15) and between-therapist (standardized association = 0.53) OE-improvement association. Panel c depicts variability in the within-therapist alliance-improvement association. Specifically, Therapist A's data depicts a negative within-therapist alliance-improvement association that is 1 *SD* below the mean. Therapist B's data depicts the average within-therapist alliance-improvement association. In contrast, Therapist C's data depicts a strong, positive within-therapist alliance-improvement association that is 1 *SD* above the mean. Finally, panel d depicts variability in the within-therapist OE-improvement association. Specifically, Therapist A's data depicts a strong, positive within-therapist OE-improvement association that is 1 *SD* above the mean. Therapist B's data depicts the average within-therapist OE-

improvement association. In contrast, Therapist C's data depicts a negative within-therapist OE-improvement association that is 1 *SD* below the mean.

Note. OE = outcome expectation.
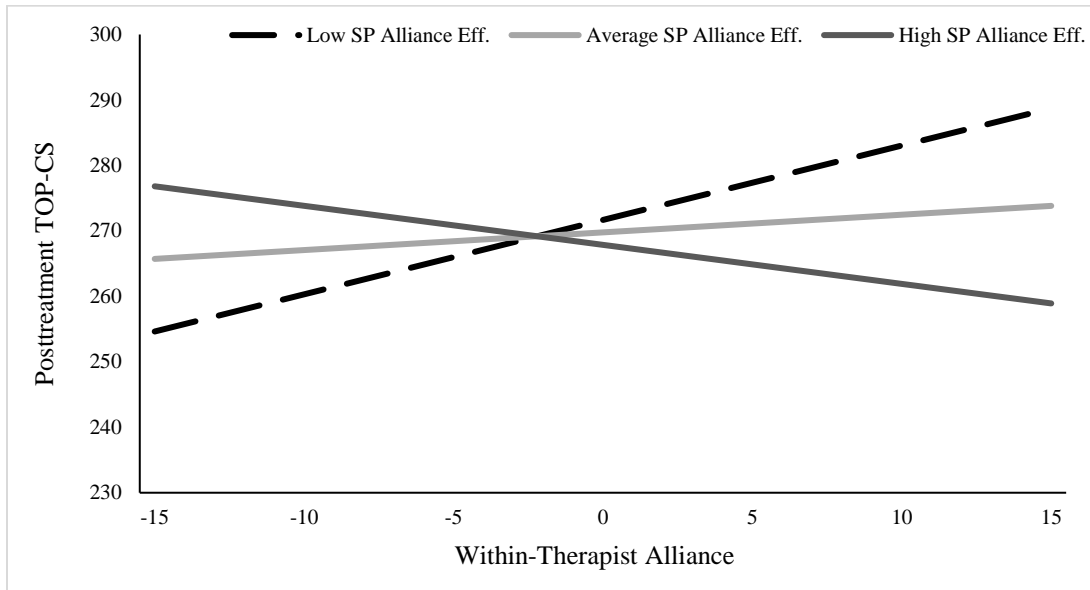
Figure 4. Self-perceived alliance-fostering effectiveness as a moderator of the within-therapist alliance-improvement association. The dashed black line depicts the within-therapist alliance-outcome association for therapists who were 1.5 *SD*s below the mean level of self-perceived alliance fostering effectiveness. The solid light grey line depicts the within-therapist alliance-outcome association for therapists with an average level of self-perceived alliance fostering effectiveness. The solid dark grey line depicts the within-therapist alliance-outcome association for therapists who were 1.5 *SD*s above the mean level of self-perceived alliance fostering effectiveness.

Note. SP = self-perceived; eff. = effectiveness; TOP-CS = *Treatment Outcome Package-Clinical Scales.*
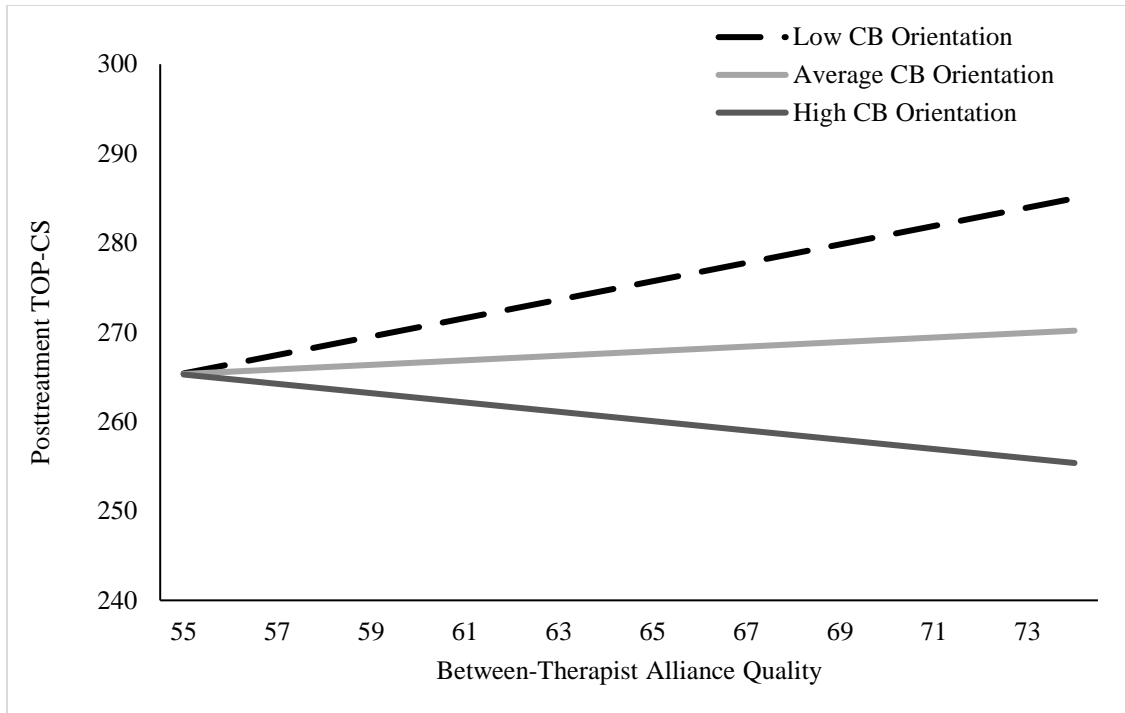
Figure 5. Degree of cognitive behavioral orientation as a moderator of the between-therapist alliance-outcome association. The dashed black line depicts the between-therapist alliance-outcome association for therapists who reported a low level of cognitive behavioral orientation (i.e., 1 *SD*s below the mean). The solid light grey line depicts the between-therapist alliance-outcome association for therapists with an average level of level of cognitive behavioral orientation. The solid dark grey line depicts the between-therapist alliance-outcome association for therapists who reported a high level of cognitive behavioral orientation (i.e., 1 *SD* above the mean).

Note. TOP-CS = *Treatment Outcome Package-Clinical Scale*; CB = cognitive behavioral.

TOP

Adult TOP Clinical Scales Form

IMPORTANT: Before answering any question, please read the message on the back regarding the purpose and use of this information.

OP4.2 Adult CS
David R. Kraus, Ph.D. © BHL, 2004

ENGLISH

All	Most	A lot	Some	A little	None	Indicate how much of the time during the past two weeks you have . . .
○	○	○	○	○	○	been satisfied with your relationships with others
○	○	○	○	○	○	been satisfied with your daily responsibilities
○	○	○	○	○	○	been satisfied with your general mood and feelings
○	○	○	○	○	○	been satisfied with your life in general
○	○	○	○	○	○	felt too much conflict with someone
○	○	○	○	○	○	been emotionally hurt by someone
○	○	○	○	○	○	felt someone else had too much control over your life
○	○	○	○	○	○	had trouble falling asleep
○	○	○	○	○	○	had nightmares
○	○	○	○	○	○	awakened frequently during the night
○	○	○	○	○	○	had trouble returning to sleep after awakening in the night
○	○	○	○	○	○	had a paying job
○	○	○	○	○	○	had conflicts with others at work or school regardless of fault
○	○	○	○	○	○	missed work or school for any reason
○	○	○	○	○	○	not been acknowledged for your accomplishments at work or school
○	○	○	○	○	○	had your performance criticized at work or school
○	○	○	○	○	○	not been excited about your work or school work
○	○	○	○	○	○	physically hurt someone else or an animal
○	○	○	○	○	○	had desires to seriously hurt someone
○	○	○	○	○	○	had thoughts of killing someone else
○	○	○	○	○	○	felt that you were going to act on violent thoughts
○	○	○	○	○	○	felt no desire for, or pleasure in, sex
○	○	○	○	○	○	felt sexually incompatible with your partner or frustrated by the lack of a partner
○	○	○	○	○	○	felt emotional or physical pain during sex
○	○	○	○	○	○	had trouble functioning sexually (having orgasms, ...)
○	○	○	○	○	○	had a racing heart
○	○	○	○	○	○	felt light-headed
○	○	○	○	○	○	had shortness of breath
○	○	○	○	○	○	had a dry mouth or trouble swallowing ("a lump in your throat")
○	○	○	○	○	○	had sweaty hands (clammy) or cold hands or feet
○	○	○	○	○	○	had to do something to avoid anxiety or fear (washing hands, ...)
○	○	○	○	○	○	avoided certain situations due to fear or panic
○	○	○	○	○	○	felt panic in places that would be hard to leave if necessary
○	○	○	○	○	○	felt down or depressed
○	○	○	○	○	○	felt little or no interest in most things
○	○	○	○	○	○	felt guilty
○	○	○	○	○	○	felt restless
○	○	○	○	○	○	felt worthless
○	○	○	○	○	○	felt tired, slowed down, or had little energy
○	○	○	○	○	○	worried about things
○	○	○	○	○	○	had trouble concentrating or making decisions
○	○	○	○	○	○	noticed your thoughts racing ahead
○	○	○	○	○	○	inflicted pain on yourself
○	○	○	○	○	○	felt rested after only a few hours of sleep
○	○	○	○	○	○	thought about killing yourself or wished you were dead
○	○	○	○	○	○	planned or tried to kill yourself
○	○	○	○	○	○	felt you were better than other people
○	○	○	○	○	○	felt on top of the world
○	○	○	○	○	○	worried that someone might hurt you
○	○	○	○	○	○	had unwanted thoughts or images
○	○	○	○	○	○	seen or heard something that was not really there
○	○	○	○	○	○	felt someone or something was controlling your mind
○	○	○	○	○	○	spent more time drinking or using drugs than you intended
○	○	○	○	○	○	neglected school, work, or other responsibilities because of using alcohol or drugs
○	○	○	○	○	○	felt you wanted or needed to cut down on your drinking or drug use
○	○	○	○	○	○	had your family, a friend, or anyone else tell you they objected to your alcohol or drug use
○	○	○	○	○	○	found yourself thinking about a drink or getting high
○	○	○	○	○	○	used alcohol or drugs to relieve uncomfortable feelings, such as sadness, anger, or boredom

Provider Code

Client Code

Primary Dx

Payer request:
follow payer
instructions or
leave blank

Phase
○ Pre-treatment assessment
○ Treatment starts today
○ First assessment during treatment
○ Middle of treatment assessment
○ Last assessment during treatment
○ Post treatment assessment

Admin
○ Completely Self-Administered
○ Self-Administered with some assistance
○ Semi-structured Interview
○ Clinician Judgement

○ Case-Mix form is attached
○ Case-Mix not completed

Units of service delivered
Units listed ○ Hours
are in... ○ Days

45

WAI – PATIENT VERSION

On the following pages there are some sentences that describe some of the different ways a person might think or feel about his or her therapist (counselor). Please complete these ratings in terms of your experience with your therapist during the most recent session. As you read the sentences, mentally insert the name of your therapist (counselor) in place of the _____ in the text.

1	2	3	4	5	6	7
Never	Rarely	Occasionally	Sometimes	Often	Very Often	Always

Use the above seven point scale for each item. If the statement describes the way you <u>always</u> feel (or think), circle the number '7'; if it <u>never</u> applies to you, circle the number '1'. Use the numbers in between to describe the variations between these extremes. This questionnaire is confidential; your therapist will not see your answers. Work fast; your first impressions are the ones we would like to see. Please don't forget to respond to every item.

_____ 1. _____ and I agree about the things I will need to do in therapy to help improve my situation.

_____ 2. What I am doing in therapy gives me new ways of looking at my problem.

_____ 3. I believe _____ likes me.

_____ 4. _____ does not understand what I am trying to accomplish in therapy.

_____ 5. I am confident in _____'s ability to help me.

_____ 6. _____ and I are working on mutually agreed upon goals.

_____ 7. I feel that _____ appreciates me.

_____ 8. We agree on what is important for me to work on.

_____ 9. _____ and I trust one another.

_____ 10. _____ and I have different ideas on what my problems are.

_____ 11. We have established a good understanding of the kind of changes that would be good for me.

_____ 12. I believe the way we are working with my problem is correct.

CEQ – PATIENT VERSION

We would like you to indicate below how much you believe, *right now*, that the therapy you are receiving will help to reduce your presenting concerns/problems. Belief usually has two aspects to it: (1) what one *thinks* will happen and (2) what one *feels* will happen. Sometimes these are similar; sometimes they are different. Please answer the questions below. In the first set, answer in terms of what you *think*. In the second set, answer in terms of what you really and truly *feel*.

Set I

1. At this point, how logical does the therapy offered to you seem?

   1   2   3   4   5   6   7   8   9
   not at all logical   somewhat   very

2. At this point, how successful do you think this treatment will be in reducing your presenting concerns/problems?

   1   2   3   4   5   6   7   8   9
   not at all useful   somewhat   very useful

3. How confident would you be in recommending this treatment to a friend who experiences similar concerns/problems?

   1   2   3   4   5   6   7   8   9
   not at all confident   somewhat   very

4. By the end of the therapy period, how much improvement in your presenting concerns/problems do you think will occur?

   0%   10%   20%   30%   40%   50%   60%   70%   80%   90%   100%

Set II

For this set, close your eyes for a few moments, and try to identify what you really *feel* about the therapy and its likely success. Then answer the following questions.

1. At this point, how much do you really *feel* that the therapy will help you reduce your presenting concerns/problems?

   1   2   3   4   5   6   7   8   9
   not at all   somewhat   very much

2. By the end of the therapy period, how much improvement in your presenting concerns/problems do you really *feel* will occur?

0%   10%   20%   30%   40%   50%   60%   70%   80%   90%   100%

Other (insert): _____   0   1   2   3   4   5   6

To what extent do you *currently* regard yourself as having one *primary* orientation?

                          0=not at all   3=somewhat   6=very much
                          0   1   2   3   4   5   6

To what extent do you *currently* regard your orientation as Integrative?

                          0=not at all   3=somewhat   6=very much
                          0   1   2   3   4   5   6

Using the same 0-6 scale, please rate how characteristic each item is of your typical therapy practice.

                          0=not at all   3=somewhat   6=very much
                          0   1   2   3   4   5   6

1. Encourage exploration of feelings regarded by the client as uncomfortable   _____
(e.g., anger, fear, excitement, sadness, or happiness).

2. Give explicit advice or direct suggestions to the client.   _____

3. Actively initiate the topics of discussion and therapeutic activities.   _____

4. Link client's current feelings or perceptions to experiences of the past.   _____

5. Focus attention on similarities among the client's relationship repeated   _____
over time, settings, or people.

6. Focus discussion on the client's irrational or illogical belief systems.   _____

7. Focus discussion on the relationship between the clinician and client.   _____

8. Encourage the client to experience and express feelings in the session.   _____

9. Suggest specific activities/tasks (homework) for the client to attempt   _____
outside sessions.

10. Address the client's avoidance of important topics and shifts in mood.   _____

11. Explain the rationale behind your technique or approach to treatment.   _____

12. Focus discussion on the client's future life situation.   _____

13. Suggest alternative ways to understand experiences or events not   _____
previously recognized by the client.

14. Identify recurrent patterns in the patient's actions, feelings, and   _____
experiences.

15. Provide client with information/facts about symptoms, disorder, or   _____
treatment.

16. Allow the client to initiate the discussion of significant issues, events, _____
or experiences.

17. Explicitly suggest that the client practice behavior learned in therapy _____
between sessions.

18. Teach the client specific techniques for coping with symptoms. _____

19. Encourage discussion of client's wishes, fantasies, dreams, or early _____
childhood memories (positive or negative).

20. Interact with the client in a teacher-like (didactic) manner. _____

21. Encourage the client to recognize social influences on his/her experience. _____

22. Encourage the client to express feelings in symbolic or artistic forms. _____

23. Encourage the client to develop a spiritual mindset. _____

24. Encourage the client to develop a mindfulness mindset. _____

25. Other (describe):

_____

26. Other (describe):

_____

TPS – THERAPIST-RATED

Date: _____
Provider TOP ID: _____

The following items ask you to provide ratings regarding your perceived therapeutic effectiveness in specific domains. Some of these domains are symptom-specific, while others are related to functioning and treatment process. Please use the following 1-7 scale:

1-Always ineffective
2-Usually ineffective
3-Sometimes ineffective
4-Inconsistently effective
5-Sometimes effective
6-Usually effective
7-Always effective

1. In treating my clients' symptoms of **DEPRESSION**, I would say that I am:
_____

2. In treating my clients' symptoms of **ANXIETY**, I would say that I am:
_____

3. In treating my clients' symptoms of **MANIA**, I would say that I am:
_____

4. In treating my clients' symptoms of **SUBSTANCE ABUSE**, I would say that I am:
_____

5. In treating my clients' symptoms of **PSYCHOSIS**, I would say that I am:
_____

6. In treating my clients' **SUICIDALITY**, I would say that I am:
_____

7. In reducing my clients' risk of **VIOLENCE**, I would say that I am:
_____

8. In improving my clients' **SEXUAL FUNCTIONING**, I would say that I am:
_____

9. In improving my clients' **SOCIAL FUNCTIONING**, I would say that I am:
_____

10. In improving my clients' **SLEEP**, I would say that I am:
_____

11. In improving my clients' **WORK FUNCTIONING**, I would say that I am:
_____

12. In improving my clients' **QUALITY OF LIFE**, I would say that I am:

     _____

13. In establishing and maintaining a positive **WORKING ALLIANCE** with my clients I would say that I am:

     _____

14. In instilling **POSITIVE OUTCOME EXPECTATIONS** with my clients, I would say that I am:

     _____

Please rank the following treatment domains in the order of your perceived relative effectiveness, with a ranking of **1 indicating *most* effective** relative to all other domains, and **12 indicating *least* effective** relative to all other domains:

_____   DEPRESSION (reducing symptoms)
_____   ANXIETY (reducing symptoms)
_____   MANIA (reducing symptoms)
_____   SUBSTANCE ABUSE (reducing symptoms)
_____   PSYCHOSIS (reducing symptoms)
_____   SUICIDALITY (reducing)
_____   VIOLENCE (reducing risk)
_____   SEXUAL FUNCTIONING (improving)
_____   SOCIAL FUNCTIONING (improving)
_____   SLEEP (improving)
_____   WORK FUNCTIONING (improving)
_____   OVERALL QUALITY OF LIFE (improving)

The following items ask you to provide ratings regarding your perceived therapeutic effectiveness **relative to other similarly trained and experienced clinicians** in specific domains. Some of these domains are symptom-specific, while others are related to functioning and treatment process. Please use the following 1-7 scale:

<div align="center">

1-Always more ineffective
2-Usually more ineffective
3-Sometimes more ineffective
4-Inconsistently more effective
5-Sometimes more effective
6-Usually more effective
7-Always more effective

</div>

1. Compared to other clinicians, in treating my clients' symptoms of **DEPRESSION**, I would say that I am:

     _____

2. Compared to other clinicians, in treating my clients' symptoms of **ANXIETY**, I would say that I am:

     _____

3. Compared to other clinicians, in treating my clients' symptoms of **MANIA**, I would say that I am:

     _____

4. Compared to other clinicians, in treating my clients' symptoms of **SUBSTANCE ABUSE**, I would say that I am:

‾‾‾‾‾‾

5. Compared to other clinicians, in treating my clients' symptoms of **PSYCHOSIS**, I would say that I am:

‾‾‾‾‾‾

6. Compared to other clinicians, in reducing my clients' **SUICIDALITY**, I would say that I am:

‾‾‾‾‾‾

7. Compared to other clinicians, in reducing my clients' risk of **VIOLENCE**, I would say that I am:

‾‾‾‾‾‾

8. Compared to other clinicians, in improving my clients' **SEXUAL FUNCTIOING**, I would say that I am:

‾‾‾‾‾‾

9. Compared to other clinicians, in improving my clients' **SOCIAL FUNCTIONING**, I would say that I am:

‾‾‾‾‾‾

10. Compared to other clinicians, in improving my clients' **SLEEP**, I would say that I am:

‾‾‾‾‾‾

11. Compared to other clinicians, in improving my clients' **WORK FUNCTIONING**, I would say that I am:

‾‾‾‾‾‾

12. Compared to other clinicians, in improving my clients' **QUALITY OF LIFE**, I would say that I am:

‾‾‾‾‾‾

13. Compared to other clinicians, in establishing and maintaining a positive **WORKING ALLIANCE** with my clients, I would say that I am:

‾‾‾‾‾‾

14. Compared to other clinicians, in instilling **POSITIVE OUTCOME EXPECTATIONS** with my clients, I would say that I am:

‾‾‾‾‾‾

Clinicians may have preferences for the types of clients with whom they would like to work. The following is a list of characteristics that clients may possess. Please provide preference ratings for each of the following client characteristic using the following 1-5 scale:

1-Strongly prefer not to work with this type of client
2-Somewhat prefer not to work with this type of client
3-No particular preference for this type of client (neither prefer nor do not prefer)
4-Somewhat prefer to work with this type of client

5-Strongly prefer to work with this type of client

1. **Problem Domains:**
    a. Depression   _____
    b. Anxiety   _____
    c. Substance abuse   _____
    d. Relationship problems   _____
    e. Psychosis   _____
    f. Sexual functioning   _____
    g. Mania   _____
    h. Violence   _____
    i. Suicide   _____
    j Sleep   _____
    k. Existential   _____
    l. Other (describe and rate)   _____

2. **Personality:**
    a. Extraverted   _____
    b. Introverted   _____
    c. Neurotic   _____
    d. Agreeable   _____
    e. Conscientiousness   _____
    f. Open to experience   _____

3. **Demographic:**
    a. Men   _____
    b. Women   _____
    c. Younger adults   _____
    d. Older adults   _____
    e. Religious/spiritual   _____
    f. Similar race/ethnicity (to your own)   _____
    g. Different race/ethnicity (from your own)   _____

A variety of resources are available to clinicians that may assist in enhancing one's effectiveness. For the following list of potential resources, please provide a rating of (a) how often you seek out this resource, and (b) how helpful you have found this resource in enhancing your therapy practice:

Frequency Scale (1-5)

1-Never Use/Seek This
2-Rarely Use/Seek This
3-Sometimes Use/Seek This
4-Often Seek/Use This
5-Always Use/Seek This

Helpfulness Scale (1-5)

1-Not At All Helpful
2-Minimally Helpful
3-Somewhat Helpful
4-For the Most Part Helpful
5-Extremely Helpful

	Frequency	**Helpfulness**
1. TOP Reports	_____	_____

2. Journal Articles   _____   _____

3. Books   _____   _____

4. Peer Consultation   _____   _____

5. Supervision   _____   _____

6. Workshops   _____   _____

7. Other (describe and rate)   _____   _____

8. Other (describe and rate)   _____   _____

9. Other (describe and rate)   _____   _____

10. Other (describe and rate)   _____   _____

WITHIN- AND BETWEEN-THERAPIST PROCESS-OUTCOME ASSOCIATION EQUATION

Level-1 Model

Posttreatment TOP-CS$_{ij}$ = β_{0j} + β_{1j}*(Within-therapist process$_{ij}$) + β_{2j}*(Within-therapist baseline TOP-CS$_{ij}$) + β_{3j}*(Condition$_{ij}$) + r_{ij}

Level-2 Model

β_{0j} = γ_{00} + γ_{01}*(Between-therapist baseline TOP-CS$_j$) + γ_{02}*(Between-therapist process$_j$) + u_{0j}

β_{1j} = γ_{10} + u_{1j}

β_{2j} = γ_{20}

β_{3j} = γ_{30}

At level 1, posttreatment global well-being/functioning for patient i seen by therapist j was predicted by within-therapist differences in the relevant process variable (β_{1j}), within-therapist differences in baseline global well-being/functioning (β_{2j}), and condition (Match = 1; CAU = 0; β_{3j}). At level 2, the value of these parameters for each therapist (j) drop down to become the outcome variables. Each therapist's (j) average posttreatment global well-being/functioning across all patients in their caseload (adjusted for the level 1 covariates; β_{0j}) was predicted by between-therapist differences in their overall caseload severity at baseline (γ_{01}) and between-therapist differences in the relevant process variable (γ_{02}). The remaining fixed effects represent the average within-therapist process-outcome association (γ_{10}), the average within-therapist baseline global well-being/functioning-outcome association (γ_{20}), and the average effect of case assignment condition (γ_{30}). Random effects (u_{0j}, u_{1j}) allowed individual therapists to vary around the sample averages and were allowed to covary. Importantly, u_{1j} represents the extent to which the within-therapist process-outcome association varies across therapists (i.e., the focus of aim 2).

RANDOM COEFFICIENT PREDICTION MODERATOR MODEL

Level-1 Model

Posttreatment TOP-CS$_{ij}$ = β_{0j} + β_{1j}*(Within-therapist process$_{ij}$) + β_{2j}*(Within-therapist baseline TOP-CS$_{ij}$) + β_{3j}*(Condition$_{ij}$) + r_{ij}

Level-2 Model

β_{0j} = γ_{00} + γ_{01}*(Between-therapist baseline TOP-CS$_j$) + γ_{02}*(Between-therapist process$_j$) + γ_{03}*(CB Orientation$_j$) + γ_{04}*(PA/PD Orientation$_j$) + γ_{05}*(Focus on alliance/rationale $_j$) + γ_{06}*(Self-perceived alliance/OE fostering effectiveness $_j$) + u_{0j}

β_{1j} = γ_{10} + γ_{11}*(CB Orientation$_j$) + γ_{12}*(PA/PD Orientation$_j$) + γ_{13}*(Focus on alliance/rationale $_j$) + γ_{14}*(Self-perceived alliance/OE fostering effectiveness $_j$) + u_{1j}

β_{2j} = γ_{20}

β_{3j} = γ_{30}

Most relevant to research aim 3, γ_{10} represents the within-therapist process-outcome association for a therapist with an average level of the moderators (main effect), and γ_{11}-γ_{14} represent the extent to which the within-therapist process-outcome association changes as a function of each therapist-level moderator.

APPENDIX H

LATENT MODERATED STRUCTURAL EQUATIONS MODEL

Level-1 Model

Posttreatment TOP-CS$_{ij}$ = β_{0j} + β_{1j}*(Within-therapist process$_{ij}$) + β_{2j}*(Within-therapist baseline TOP-CS$_{ij}$) + β_{3j}*(Condition$_{ij}$) + r_{ij}

Level-2 Model

β_{0j} = γ_{00} + γ_{01}*(Between-therapist baseline TOP-CS$_j$) + γ_{02}*(Between-therapist process$_j$) + γ_{03}*(Moderator$_j$) + γ_{04}*(Latent between-therapist process by moderator interaction$_j$) + u_{0j}

β_{1j} = γ_{10}

β_{2j} = γ_{20}

β_{3j} = γ_{30}

Most relevant to research aim 3, γ_{02} represents the main effect of the relevant between-therapist process for a therapist with an average level of the moderator, γ_{03} represents the main effect of the moderator for a therapist with a score of zero on the relevant process variable, and γ_{03} represents the therapist-level interactive effect.

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