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Research Article

Baseline overly accommodating interpersonal problems in relation to parsed alliance-outcome associations in cognitive behavioral therapy for generalized anxiety disorder

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ABSTRACT

Objective: Given its interpersonal underpinnings, relational factors may be salient in psychotherapy for generalized anxiety disorder (GAD). Supporting this point, research has indicated a positive total alliance-improvement correlation in cognitive behavioral therapy (CBT) for GAD. However, less research has disaggregated this correlation into within- and between-patient components, or examined theory-informed ways in which patient characteristics influence to these components. Thus, we first investigated parsed alliance-outcome associations in CBT for GAD. Second, consistent with theory that alliance may represent a direct interpersonal change correlate, we tested whether within-patient alliance improvements were especially therapeutic for patients with higher levels of an interpersonal problem prototypical of GAD —over accommodation. Also, consistent with theory that between-patient differences in overall alliance may be influenced by patients' preexisting relational characteristics, we tested whether more overly accommodating patients reported poorer average alliances that, in turn, related to worse outcomes.
Method: Sixty-nine patients received variants of CBT. Patients rated over accommodation at baseline, and alliance and outcome across treatment.
Results: As hypothesized, within-patient alliance improvements correlated with subsequent anxiety reduction, and this association was stronger for more overly accommodating patients. All between-patient associations were nonsignificant.
Conclusion: Results help clarify the nuanced role of alliance in CBT for GAD.

Keywords: patient overly accommodating interpersonal problems; within- and between-patient alliance; treatment outcome; generalized anxiety disorder

Clinical or Methodological Significance of This Article

This study advances process-outcome research in CBT for GAD; namely, the results indicate that dynamic improvements in patient-perceived alliance quality *within* a given patient-therapist dyad, rather than *between*-patient differences in the relational climate averaged across all of therapy, may be most therapeutic in this treatment context. Adding more clinical nuance, these within-patient alliance improvements may be uniquely beneficial for those patients most in need of a corrective *relational* experience; that is, those presenting with higher levels of a GAD-prototypic problem of being overly accommodating in extratherapy relationships. In light of these results, therapists should assess patients' GAD-salient interpersonal characteristics at baseline and monitor alliance quality across CBT. Knowledge of such evidence-based patient and process markers will provide clinicians with information that could help inform their treatment foci and responsive decision making.

Numerous studies have established the general efficacy of cognitive behavioral therapy (CBT) for generalized anxiety disorder (GAD); that is, for the average patient with this condition, CBT outperforms no

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treatment, placebo, and non-specific therapies (Cuijpers et al., 2014; Newman et al., 2021). Moreover, patients who engage in CBT for GAD can demonstrate clinically meaningful and enduring improvement on both primary (e.g., worry) and secondary (e.g., depression) outcomes (Covin et al., 2008; Newman et al., 2021). However, there is notable response heterogeneity among this patient population, and it remains that a sizable number of individuals (> 50%) fail to benefit at all from CBT, respond only partially, or relapse following treatment (Cuijpers et al., 2014; Hunot et al., 2007). Thus, it remains a high priority to understand more fully the specific participant and in-session factors that facilitate or hinder patient improvement in CBT for GAD.

Contextualized process-outcome studies can provide therapists with important information to help optimize current iterations of CBT and inspire the development and testing of enhanced versions, including those that may need to be personalized to patients who possess certain personal or clinical characteristics (e.g., Newman et al., 2011; Newman et al., 2015; Newman et al., 2017; Westra et al., 2016). When contextualizing to GAD, interpersonal factors related both to the treatment process and the pathology itself may be key for uncovering important clinical nuance in process-outcome associations (e.g., Gómez Penedo et al., 2021). Regarding treatment, the cultivation of a patient-therapist alliance is generally viewed as an important facilitative component of any psychotherapy for most (if not all) mental health concerns (Castonguay et al., 2006).

The latest meta-analytic research on the therapeutic alliance supports its robustly positive correlation with patient improvement across diverse treatments (including CBT) and patient issues (including GAD; Flückiger et al., 2018)—an effect that remains even when adjusting for patient intake characteristics (e.g., demographic factors, symptom severity) and other therapy processes (e.g., therapist treatment adherence/competence, patient homework compliance) that may influence a treatment's outcomes (Flückiger, Del Re et al., 2020). However, the precise ways in which the alliance affects outcomes is largely unsettled, which is partly a function of many prior studies examining *total* correlations that did not parse the variability in outcomes explained by a given patient's experience of alliance changes over time (i.e., *within*-patient effects) or more general alliance differences among patients at a given time or averaged over the course of a treatment (i.e., *between*-patient effects). (Although the present report focuses on the alliance, researchers have also emphasized the importance of disentangling within-person processes from between-person differences in the broader psychological literature for greater statistical and theoretical precision; e.g., Bolger & Laurenceau, 2013; Curran & Bauer, 2011.)

At the within-patient level, a significant statistical effect would indicate that shifts in a particular patient's perceived alliance quality are correlated with subsequent shifts in an outcome variable (Flückiger, Rubel et al., 2020; Zilcha-Mano, 2017). Reflecting the alliance's theoretically facilitative effect, if the movement is toward a higher quality alliance than is usual (i.e., the average) for that patient-therapist dyad, then the proximately resulting symptom level would be lower than is usual for that patient; however, if the movement is toward a lower quality alliance than usual, the proximately resulting symptom level would be higher than usual. With such shifts in a living relationship bearing on patient improvement, some have theorized that there may be something in this evolving relational process that is, in any therapy, directly interpersonally corrective (e.g., a person with GAD experiencing novel secure attachment to their CBT therapist) or disruptive (e.g., a person with GAD reexperiencing a maladaptive pattern, such as the CBT therapist being overcontrolling in the face of the patient's problematic nonassertiveness; Coyne et al., 2019; Zilcha-Mano, 2017, 2021; Zilcha-Mano & Fisher, 2022).

At the between-patient level, a significant statistical effect would indicate that differences in alliance quality across many patients at a given time (e.g., a specific treatment phase or averaged across all of therapy) correlates with between-patient differences on an outcome variable (Flückiger et al., 2018; Zilcha-Mano, 2017). Reflecting the alliance's theoretically facilitative effect, patients reporting higher alliances on average would also have lower symptom levels on average; the converse would also hold. Because the alliance variable in this case reflects an average level *across* a sample of patients, it cannot reflect a given person's shifting perception of a living relationship over time. Rather, it would follow conceptually that across patients, there may be something facilitative (at a single time or in general) when alliance quality is viewed as higher versus lower. How *precisely* the between-patient alliance is facilitative is unknown; however, some have posited that rather than being a particular person's corrective interpersonal experience, the between-patient alliance may be a facilitative platform that aids, or hinders, the effects of *other* treatment interventions and/or processes on patient improvement (e.g., Coyne et al., 2019; Zilcha-Mano, 2017, 2021; Zilcha-Mano & Fisher, 2022). Some researchers have taken this theory even further (Zilcha-Mano, 2017, 2021; Zilcha-Mano & Fisher, 2022) by postulating that individuals who report better alliances (at

a single time or in general) may possess preexisting strengths in relational abilities (e.g., a person with GAD who readily experiences social support from others) that bode well for working in a bonded and collaborative way with a provider to make use of whatever interventions and processes are defining features of a treatment (such as challenging maladaptive cognitions in CBT).

A relatively small, but growing, body of research has parsed the alliance into its within- and between-patient components, thereby beginning to illuminate the specific role(s) the alliance plays in treatment. At the within-patient level, an individual participant data meta-analysis of 17 independent samples and over 5,000 patients revealed that better-than-usual alliance at one session was associated with lower-than-usual symptoms at the next session, even when controlling for prior symptom improvement (Flückiger, Rubel et al., 2020). Similarly, in a narrative review of 41 studies that tested the within-patient alliance-improvement link across varied therapies for diverse problems, 78% found a significant association for at least one study outcome (Zilcha-Mano & Fisher, 2022). At the between-patient level, the aforementioned Flückiger, Rubel et al. (2020) meta-analysis found a moderately sized association between higher quality average alliance and posttreatment outcomes ($r = -.27$). Similarly, in the Zilcha-Mano and Fisher (2022) review of 18 studies that tested the between-patient alliance-improvement association, 61% found a significant relation for at least one study outcome.

Overall, there is relatively strong pantheoretical and pandiagnostic support for both the within- and between-patient alliance-improvement associations. However, it is also worth noting that both of the recent empirical (Flückiger, Rubel et al., 2020) and narrative (Zilcha-Mano & Fisher, 2022) reviews found evidence for variability in the size and significance of these effects across studies. Therefore, more research is needed to clarify for which patients and in what treatments the parsed alliance components are facilitative, hindering, or inert (Zilcha-Mano & Fisher, 2022). Given the alliance's relational nature, such research may be particularly important in the context of patient populations for whom interpersonal factors are especially salient (e.g., individuals with GAD; Newman et al., 2011).

Contextualized specifically to CBT for GAD, we are aware of three studies that have parsed the alliance-outcome association, with alliance rated by the patient at post-session. In one, Coyne and colleagues (2019) found that higher within- and between-patient alliances related to subsequent worry reduction. In another such study, Rubel and colleagues (2019) found that within-patient improvement in alliance was associated with subsequent improvement in coping experiences and anxiety; however, at the between-patient level, better alliance related to better coping experiences, but not anxiety. Finally, in a study that included data from two trials, within-patient alliance improvement was associated with subsequent worry reduction, even when controlling for prior symptom change (Flückiger et al., 2022); however, this study did not report on the between-patient component. Overall, more research is needed in this circumscribed patient (GAD) and treatment (CBT) context, both to replicate the within-patient alliance-outcome link and to clarify the somewhat inconsistent evidence for the between-patient link.

Moreover, given the growing emphasis on personalizing treatment to the patient, as well as the need to more directly test nuanced alliance theories (Huppert, 2022; Zilcha-Mano, 2017, 2021; Zilcha-Mano & Fisher, 2022), a logical next step would be to examine whether pertinent baseline patient characteristics influence the multiple levels of the alliance-outcome association. And, arguably, it may be particularly important to test such questions in treatments, like CBT, that emphasize one specific role of the alliance over the other (viz. alliance as a facilitative buttress for cognitive and behavioral interventions; see Castonguay et al., 2018; Hatcher & Barends, 2006; Zilcha-Mano & Fisher, 2022). Doing so holds promise for further understanding how the alliance may operate differently for different patients in different treatments.

With regard to pertinent patient characteristics to consider in relation to the parsed alliance-outcome association, one can look to the specific nature of the presenting pathology. For example, ample research has consistently indicated that a central and prototypical self-reported interpersonal problem for people with GAD (or high trait worry) is being overly accommodating; that is, enacting friendly submissiveness to the point of being easily exploited in extratherapy relationships (e.g., Eng & Heimberg, 2006; Erickson et al., 2016; Gómez Penedo et al., 2017; Newman et al., 2013; Przeworski et al., 2011; Salzer et al., 2008; Shin & Newman, 2019). Although individuals with GAD can certainly show heterogeneity in their interpersonal themes (i.e., pathoplasticity; Przeworski et al., 2011), the previously cited self-report data robustly establish over accommodation as the *average* problem tendency, which may reflect key functions of pathological worry. For example, being overly affiliative in relationships could serve to head off hostility from important others and the corresponding sharp increase in negative emotion that people with GAD are motivated to avoid (Llera & Newman,

2014; Newman & Llera, 2011). Moreover, being overly deferent could be a means to showing important others that one cares; that is, if I worry about and excessively attend to *your* needs and wishes, I may attain your love and approval (Erickson et al., 2016). Of course, such functions are ultimately maladaptive in that they have both emotional and relational costs. Considering the relationally and emotionally engaging nature of a psychological treatment, it may be that different presenting levels of this GAD-relevant interpersonal issue influences the within- and between-alliance-outcome associations in psychotherapy.

Moreover, to the extent that theory about the clinical meanings of the parsed alliance components is accurate (Zilcha-Mano, 2017, 2021; Zilcha-Mano & Fisher, 2022), it follows that the effect of baseline over accommodation would be distinct depending on the level of analysis. Namely, if the alliance is truly an evolving corrective experience, then it is plausible that it could be most corrective (at the within-patient level) for those patients who begin therapy needing it most; that is, those for whom a pathology-characteristic interpersonal problem is one thing that needs to be "corrected." Supporting this idea for depressed patients, another pathology characterized by nonassertive interpersonal problems, one study of CBT showed that the positive within-patient alliance-improvement association was especially strong for patients who presented with lower levels of interpersonal agency (Gómez Penedo et al., 2020). To date, though, we are unaware of any studies that have tested this notion among GAD patients receiving CBT.

Similarly, drawing again on parsed alliance theory (Zilcha-Mano, 2017, 2021; Zilcha-Mano & Fisher, 2022), if the overall between-patient alliance level is more of a facilitative entity, then its variability at the patient level could be explained (at least partly) by patients' preexisting, overall relational abilities; that is, at this between-patient level, we might expect that greater baseline levels of problematic over accommodation in relationships would predict poorer general alliances and, ultimately, worse treatment outcomes for patients with GAD. Although there is voluminous research using total correlations that supports the idea of baseline interpersonal problems being a risk factor for poorer alliance quality (see Constantino et al., 2010), explicit tests of this notion in studies that statistically parse the alliance-outcome relation are relatively rare. In one such study of depressed patients receiving supportive-expressive therapy, those who reported more distress from interpersonal problems (in general) tended to have lower quality between-patient alliances (Dinger et al., 2013). However, we are unaware of any studies that have tested this conceptual notion among GAD patients receiving CBT.

Partially addressing the existing gaps in the literature, this study first replicated the aforementioned GAD-specific studies (i.e., Coyne et al., 2019; Flückiger et al., 2022; Rubel et al., 2019) by testing whether alliance quality (assessed at sessions 2, 5, 10, and 14) related to subsequent GAD-relevant improvement (assessed at sessions 3, 6, 11, and post-treatment) at the within-patient level, between-patient level, or both, when controlling for prior symptoms. Based on the results of these prior studies, and the broader parsed alliance literature (e.g., Flückiger, Rubel et al., 2020), we hypothesized that the alliance-outcome links at both levels would be positive and significant. Second, and consistent with the alliance-as-an-evolving-corrective experience theory, we tested whether patients' baseline level of problematic interpersonal over accommodation would moderate the within-patient alliance-outcome association. We hypothesized that the positive alliance-improvement relation would be *stronger* for patients with more problematic over accommodation. Finally, and consistent with the alliance-as-reflective-of-adaptive-relational-traits theory, we tested whether patients' baseline level of over accommodation would relate to treatment outcome through its influence on general alliance quality. For this mediational path, we hypothesized that higher interpersonal over accommodation would relate negatively to alliance quality that would, in turn, associate with worse outcomes.

Method

Data for this study derived from a randomized controlled trial (RCT; Borkovec et al., 2002) that compared the efficacy of individual behavioral therapy with applied relaxation and self-control coping desensitization (BT), cognitive therapy (CT), and their combination (CBT). Given there were no significant between-group differences on demographics, pretreatment severity, or treatment outcome (see Borkovec et al., 2002); average alliance across treatment; or the baseline interpersonal problem of over accommodation (all $ps > .05$), we collapsed the conditions into a single sample for this study.

Participants

Consistent with the primary analyses from the parent RCT (Borkovec et al., 2002), the present study included the 69 patients who completed treatment and excluded the 7 patients who dropped out of the trial at an early stage. The average age of this effective

sample was 37.14 years ($SD = 11.80$), and the average duration of GAD was 12.81 years ($SD = 12.16$). Most patients identified as white ($n = 61$, 88.4%), and the majority of the sample identified as women (n = 45, 65.2%). Three patients identified as Hispanic/Latinx (4.3%), two as Indian (2.9%), two as African-American (2.9%), and one as Middle Eastern (1.4%).

The therapists were 3 doctoral-level clinicians (1 who identified as male and 2 who identified as female) and 1 advanced graduate student (who identified as female). The male doctoral-level therapist saw 34 patients, while one female doctoral-level therapist saw 16 patients and the other female doctoral-level therapist saw 13 patients. The graduate student treated 6 patients. All therapists treated an approximately equal number of people in each of the three treatment conditions. Additionally, all therapists had previous experience conducting CBT, underwent a 3-month training program on the GAD-specific treatment protocols, and received weekly supervision throughout the project.

Treatments

All treatments involved 14 weekly sessions. The first four sessions were 2 h in duration, and the remaining sessions were 1.5 h long. To account for the additional therapist contact time in the combined CBT condition, the first 30 min of the BT and CT sessions involved supportive listening. Consistent with the broad CBT model, all conditions involved self-monitoring, early identification of anxiety cues, homework assignments, and review of homework (see Borkovec et al., 2002, for a more detailed description of the treatments).

Measures

Anxiety Severity

Patients completed a client daily diary (CDD) of anxiety severity. From pre- through posttreatment, patients recorded their anxiety levels 4 times daily (upon arising, end of morning, end of afternoon, and end of evening) on a scale from 0 to 100, with higher scores indicating more anxiety. For this study, we calculated weekly scores based on averaged daily ratings. Using data from the same trial, Newman and Fisher (2010) found a CDD two-week retest reliability of .80, as well as significant correlations between average CDD ratings and scores on the Hamilton Anxiety Rating Scale (HARS; Hamilton, 1959), which supports convergent validity.

Alliance Quality

Patients completed four times over treatment the Working Alliance Inventory (WAI; Horvath & Greenberg, 1989), a widely used measure of Bordin's (1979) three-component alliance conceptualization, consisting of patient-therapist agreement on treatment goals, agreement on treatment tasks, and emotional bond. The WAI consists of 36 items rated on a scale from 1 to 7, with higher scores reflecting a better quality alliance (possible range of 36–252). As is commonplace given the high correlations among the alliance components, we used the WAI total score in the present analyses, which possesses strong psychometric properties (Elvins & Green, 2008). In this sample, α ranged from .92 to .96 across the four time points.

Interpersonal Problems

Patients completed at baseline the Inventory of Interpersonal Problems—Circumplex Scale (IIP-C; Alden et al., 1990). The IIP-C consists of 64 items rated on a scale from 0 to 4, with higher scores indicating more problems. Items reflect both behavioral deficiencies ("It is hard for me to … ") and excesses ("These are things I do too much … "). The IIP-C includes eight subscales of eight items each that correspond to octants on the interpersonal circumplex, with different problem domains reflecting particular combinations of interpersonal affiliation and dominance. Based on previous research of the prototypical interpersonal problem that characterizes patients with GAD, we were specifically interested in the *overly accommodating* subscale, which involves high levels of interpersonal affiliation and low levels of interpersonal dominance; for example, one item states, "I let other people take advantage of me too much." In the present analyses, we used the average baseline item score for this subscale. All IIP-C subscales possess good test-retest reliability (average $r = .81$) and internal consistency ($\alpha = .72$ to .85; Horowitz et al., 1988). In this sample, α for the IIP-C subscales ranged from .73 to .89.

Procedure

To be trial eligible, participants needed to be adults (age 18–65 years) and receive a primary diagnosis of severe GAD based on the Anxiety Disorders Interview Schedule-III-R (ADIS-R; DiNardo & Barlow, 1988), as well as meet additional criteria proposed in the Diagnostic and Statistical Manual of Mental Disorders (4th ed.; DSM-IV; American Psychiatric Association, 1994). Exclusion criteria included: (a)

the presence of major depression, substance abuse, psychosis, and/or medical or physical conditions underlying the anxiety; (b) concurrent psychotherapy or having received CBT in the past; and/or (c) an unstable dose of psychotropic medication. Participants were randomized to one of three conditions; yet, as noted, we collapsed across conditions in the present study. Because the WAI was administered after sessions 2, 5, 10, and 14, we selected CDD average scores (our main outcome) for the sessions immediately following each WAI administration (3, 6, 11, and posttreatment). We also controlled for prior anxiety severity by using CDD scores from sessions immediately prior to the WAI assessments (1, 4, 9, and 13), as discussed more fully in the next section. As an important administrative note, the IIP-C was added to the assessment protocol later in the project, resulting in not every patient completing it (see the next section for additional information on how we addressed these missing data). All secondary analyses of deidentified data from this trial were approved by the Institutional Review Board of the site where data were collected.

Data Analyses

We first examined the distributions of all variables to determine whether any transformations were needed. To test our hypotheses, we fit 2-level (repeated measures nested within patients) multilevel structural equation models (MSEMs; Preacher, Zyphur, & Zhang, 2010), as facilitated by the Mplus 8.4 program (Muthén & Muthén, 1998–2017). Most relevant to this study, MSEM parses both the predictor (alliance) and outcome (anxiety) variables into their latent within-patient (i.e., time-specific variations around a patient's average level of a variable) and between-patient (i.e., differences between patients in their average level of a variable across treatment) components. This latent variable approach is advantageous because it creates unbiased estimates at each level of analysis (e.g., Lüdtke et al., 2008; Preacher et al., 2010).

Additionally, because there is some evidence that it provides more accurate estimates for samples with smaller cluster sizes, we used the Bayesian estimator within the Mplus program (Muthén & Asparouhov, 2012). With this approach, effects are considered significant if the 95% credible interval (CI) does not contain zero; that is, there is a 95% chance that the CI contains the true effect. For our analyses, we used non-informative priors, which result in models that are only influenced by the data. We used this approach because we were unaware of previous studies that have tested our research questions using similar enough variables in a sample of patients receiving CBT for GAD (Muthén, 2010). Additionally, missing data were addressed using the Bayesian corollary of full information maximum likelihood estimation; thus, any patient who completed at least one occasion of a study measure, which in this case was the full patient sample ($N = 69$), was included in all analyses. Thus, even though not all patients completed the baseline IIP-C overly accommodating subscale (as previously noted), it is because they completed the WAI and CDD measures that we could retain them in the MSEMs. Notably, there were no significant differences in baseline severity, GAD duration, or demographic variables between participants with ($n = 44$) or without ($n = 25$) the overly accommodating subscale data, based on chi-square and ANOVA tests (all $ps > .05$).

More specifically, to test our research questions, we fit two, 2-level MSEM models with within-patient change at level 1 and between-patient differences at level 2. Because only 4 therapists treated patients in this trial, we were unable to model therapist-level variability at a third level of analysis. Therefore, we controlled for any therapist effects by including 3 dummy coded variables (with the fourth therapist serving as the reference group) in all models. Across both models, effect sizes are represented as standardized coefficients. In the first model, we tested latent within- and between-patient alliance quality as predictors of subsequent within- and between-patient anxiety, respectively, while controlling for prior anxiety change and any linear time trends in the outcome variable (i.e., overall patient-specific increases/decreases in anxiety across treatment). Time was coded such that a one-unit change represented anxiety change from one measurement occasion to the next and centered at the last timepoint, so that the intercept represented posttreatment anxiety. See the online supplement for this model's equation, represented in standard multilevel notation.

In the second model, we simultaneously tested overly accommodating interpersonal problems as a moderator of the within-patient alliance-outcome association (i.e., a cross-level interaction) and as a predictor of between-patient differences in alliance and outcome (i.e., a fully between-patient mediation model). More specifically, regarding the within-patient question, we allowed the within-patient alliance-outcome link to vary across patients (i.e., a random slope), which was predicted by between-patient differences in over accommodation. Regarding the between-patient question, the SEM capabilities of the model allowed us to also treat alliance as an additional outcome variable that was predicted by over accommodation. That is, between-patient

differences in over accommodation predicted between-patient differences in alliance (mediational "a" path) that, in turn, predicted between-patient differences in outcome (mediational "b" path). To represent both the main effect for the cross-level interaction and the direct path (mediational "c'" path), we also included over accommodation as a predictor of average outcome. To avoid fitting a model that was too complex to be supported by our relatively small sample size, we only controlled for possible therapist effects in this analysis and not for prior symptom change and linear time trends (like we did in the previous model). See the online supplement for this model's equation, represented in standard multilevel notation.

Finally, given our relatively small sample, we conducted post hoc power analyses by fitting two-level Monte Carlo simulations using the Bayesian estimator in the Mplus program (Bolger & Laurenceau, 2013; Lane & Hennes, 2018). More specifically, the observed parameter estimates served as the "population" model, and the "data" are randomly generated from the hypothesized population model in order to create sampling variability across many hypothetical studies (in this case 5,000; Bolger & Laurenceau, 2013; Lane & Hennes, 2018). The percentage of times each of the associations of interest are significant approximates statistical power. Using this general approach, we fit two sets of models. In the first, we estimated the power we had to detect simple within- and between-patient alliance-outcome associations (aim 1). In the second, we estimated the power we had to detect the hypothesized influence of overly accommodating interpersonal problems on both the within- and between-patient alliance-outcome associations (the two elements of aim 2). For each of these two sets of analyses, we fit two models (for a total of four simulations). First, we fit a model using the observed parameters, which provided an estimate of the power we had to detect effects of the size observed in the present study. Second, both to address the inherent difficulty in accurately estimating power for nonsignificant associations (e.g., Lane & Hennes, 2018) and to more closely mimic an *a priori* power analysis, we ran a model in which any observed nonsignificant hypothesized effect(s) were estimated to be at least moderate in size ($r = .30$). Therefore, these models estimated the power we had to detect such medium effects were they to have truly existed.

Results

Primary

All variables were acceptably normally distributed (all skewness values > −2 and < +2); thus, no transformations were needed. See Supplemental Table 1 for descriptive statistics and intercorrelations for all study variables. The results of our first model revealed that, as expected, within-patient increases in alliance at one session (compared to a given patient's own average level) were associated with within-patient decreases in anxiety at the next session ($\gamma_{10} = -0.14$; 95% CI = −0.29, −0.004), controlling for within-patient changes in anxiety at the prior session ($\gamma_{30} = 0.34$; 95% CI = 0.21, 0.47) and linear time trends in anxiety across treatment ($\gamma_{20} = -1.37$; 95% CI = −2.26, −0.43). Represented as a standardized association, every 1-*SD* increase in within-patient alliance was associated with a 0.42-unit decrease in next-session anxiety (i.e., a moderately sized association). In contrast, at the between-patient level, average differences in alliance across treatment were unrelated to between-patient differences in posttreatment anxiety ($\gamma_{01} = -0.004$; 95% CI = −0.07, 0.09).

The results of our second model revealed that, as expected, baseline overly accommodating interpersonal problems moderated the within-patient alliance-outcome association, such that improvement in alliance quality was associated with *greater* subsequent improvement in anxiety for patients with more problematic over accommodation ($\gamma_{11} = -0.21$; 95% CI = −0.389, −0.004). Represented as a standardized association, every 1-*SD* increase in over accommodation was associated with a 0.58-unit *stronger* within-patient alliance-improvement association (i.e., a moderately sized association). As depicted visually in Figure 1, simple slopes revealed that for patients with a highly overly accommodating interpersonal style (+1.5 *SD*s), every 1-unit increase in within-patient alliance associated with a 0.57-unit decrease in next-session anxiety (simple slope = −0.57; 95% CI = −0.86, −0.21). In contrast, for patients with very low levels of over accommodation (−1.5 *SD*s), the within-patient alliance-anxiety association was nonsignificant (simple slope = 0.06; 95% CI = −0.29, 0.35).

At the between-patient level, counter to our expectation, differences in baseline over accommodation were unrelated to differences in average alliance ("a" path [γ_{01}] = 2.16; 95% CI = −3.51, 7.01). Also counter to our hypothesis, differences in alliance were unrelated to average outcome, when controlling for baseline over accommodation ("b" path [γ_{05}] = −0.09; 95% CI = −0.244, 0.01). Finally, the between-patient indirect effect of over accommodation on anxiety through alliance was also nonsignificant (indirect effect = −0.15; 95% CI = −0.98, 0.46). See Table 1 for the full results of both MSEMs.

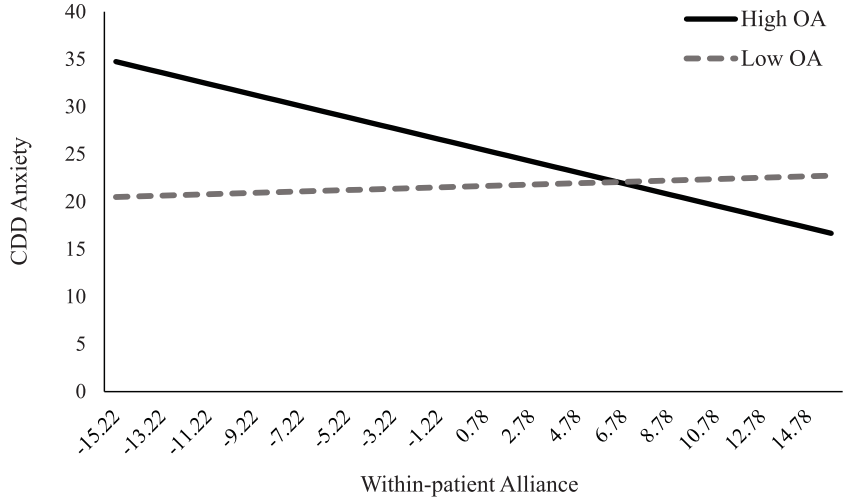

Figure 1. The solid black line represents the association between within-patient alliance and next-session anxiety for patients who reported a high level of overly accommodating interpersonal problems (+1.5 *SD*s) at baseline. The dashed grey line represents the association between within-patient alliance and next-session anxiety for patients who reported a low level of overly accommodating interpersonal problems (−1.5 *SD*s) at baseline. CDD = Client Daily Diary; OA = overly accommodating interpersonal problems.

Post hoc Power

Results of the Monte Carlo simulations indicated that we were adequately powered (i.e., > 80%) to detect the observed within-patient alliance-outcome association (significant in 99% of the simulations), and to detect the observed moderating effect of overly accommodating interpersonal problems on the within-patient alliance-outcome association (significant in 87% of simulations). At the between-patient level, results indicated that we were underpowered to detect if the effects of the size found in this study were truly significant; that is, the between-patient alliance-outcome effect that we observed was significant in 44% of simulations, and the effect that we observed of overly accommodating interpersonal problems on between-patient alliance quality was significant in 14% of simulations. However, when we replicated this power analysis with our observed associations set to an effect size of $r = .30$, the between-patient alliance-outcome association was significant in 73% of simulations, and the effect of over accommodation on between-patient alliance was significant in 69% of simulations. Overall, we were well-powered to detect the observed moderately sized within-patient associations

Table 1. Within- and Between-Patient Alliance-Outcome Associations and the Impact of Baseline Interpersonal Over Accommodation on these Relations ($N = 69$)

	Model 1			**Model 2**		
Fixed effects	Coefficient (*SD*)	95% CI	ES	Coefficient (*SD*)	95% CI	ES
CDD intercept, γ_{00}	22.44* (8.03)	3.77, 36.55	–	41.37* (12.35)	20.12, 70.98	–
WAI_b, γ_{01}	−0.004 (0.04)	−0.07, 0.09	−0.01	−0.09 (0.06)	−0.24, 0.01	−0.21
Therapist 1, γ_{02}	−0.10 (1.32)	−2.90, 2.34	–	−1.22 (2.66)	−6.62, 3.74	–
Therapist 2, γ_{03}	1.69 (2.03)	−2.47, 6.08	–	6.86 (4.21)	−0.92, 15.17	–
Therapist 3, γ_{04}	1.93 (1.44)	−0.80, 5.31	–	6.820* (2.81)	1.07, 12.41	–
OA IIP, γ_{05}	–	–	–	1.37 (1.33)	−1.28, 4.09	0.16
WAI_w-CDD association, γ_{10}	−0.14* (0.07)	−0.29, −0.004	−0.42	−0.06 (0.13)	−0.35, 0.15	−0.15
OA IIP, γ_{11}	–	–	–	−0.21* (0.10)	−0.39, −0.004	−0.58
Linear time trend, γ_{20}	−1.37* (0.45)	−2.26, −0.43	−0.23	–	–	–
Prior CDD change, γ_{30}	0.34* (0.07)	0.21, 0.47	0.35	–	–	–
WAI_b, γ_{00}	–	–	–	210.08* (3.37)	203.68, 216.74	–
OA IIP, γ_{01}	–	–	–	2.16 (2.84)	−3.51, 7.01	0.11

Note. *SD* = standard deviation; CI = credible interval; ES = effect size, which r epresents the standardized coefficient; CDD = client daily diary; WAI = *Working Alliance Inventory*; $_b$ = between-patient; $_w$ = within-patient; OA = over accommodating; IIP = *Inventory of Interpersonal Problems*.

* Indicates that the 95% CI does not include zero.

(including the cross-level interactive effect of over accommodation), underpowered to detect significant small-sized between-patient associations, and only *slightly* underpowered to detect significant moderately sized between-patient associations (average power to detect moderately sized between-patient effects = 71% vs. the typically accepted power level of 80%).

Discussion

Although empirical support for the general, or total, alliance-outcome association in psychotherapy is robust, this study aimed to increase the specificity of this support by disaggregating this relation into its within- and between-patient components in the context of a specific treatment (CBT) for a particular clinical problem (GAD). Moreover, given the prototypical interpersonal underpinnings of GAD pathology, we also examined the influence of patients' baseline levels of over accommodating interpersonal problems on the parsed alliance-outcome associations. As hypothesized, at the within-patient level, improvement in alliance predicted subsequent reduction in anxiety, even when controlling for prior anxiety change. Additionally, and also as expected, the positive within-patient alliance-improvement association was more pronounced for patients who presented with higher versus lower levels of interpersonal over accommodation. Counter to our expectation, however, at the between-patient level, average differences in patients' alliance quality across treatment were unrelated to average differences in their outcomes. Moreover, and again counter to our expectation, baseline levels of over accommodation did not predict between-patient differences in average alliance quality.

Consistent with the results of the limited prior research that parsed the alliance in CBT for GAD (Coyne et al., 2019; Flückiger et al., 2022; Rubel et al., 2019), the significant within-patient alliance-improvement association supports the hypothesis that a dyad's unique and evolving alliance quality can represent a corrective interpersonal experience and change correlate in its own right (e.g., Coyne et al., 2019; Zilcha-Mano, 2017), including in a treatment approach (CBT) that theoretically emphasizes non-relationship-oriented interventions as the primary ingredients for patient change (Castonguay, et al., 2018). Although the present results are correlational, and thereby do not ensure a causal effect of alliance on outcome, by measuring the link between alliance shifts and *subsequent* change, while also controlling for *prior* change, we can have more confidence that positive shifts in patient-perceived alliance within a given therapeutic dyad (relative to that dyad's average overall alliance) influence symptom reduction, as opposed to being a byproduct of it (e.g., Falkenström et al., 2013; Falkenström et al., 2016).

The significant moderator finding at the within-patient level also supports the hypothesis that positive alliance shifts for a given patient-therapist dyad may be most therapeutic for those patients who have interpersonally oriented problems that may plausibly be most "correctable" in the context of the therapeutic relationship—such as patients with GAD who are *particularly* overly friendly and deferent in their extratherapy relationships. More specifically, whereas improvement in alliance strongly correlated with subsequent reduction in anxiety for patients who reported having high levels of over accommodating interpersonal problems, improvement in alliance was *unrelated* to outcome for patients with low levels of such problems. Such moderation suggests that, in CBT for GAD, an increasingly collaborative, supportive, and well-attuned relationship with one's therapist may only be a novel and corrective experience for those patients who typically struggle with a particular type of maladaptive interpersonal pattern in their relationships outside of treatment. Put differently, it is possible that the directive but democratic relationship that many CBT clinicians attempt to foster (see Castonguay et al., 2018) uniquely facilitates personal improvement for those patients who have not historically experienced such a reciprocal and equitable relationship. (Again, because the present results are correlational, causal claims cannot be made; however, the present results are consistent with within-patient alliance theory and can inform future experimental designs to test the causality of pertinent effects.)

For those patients who do not present with especially prominent problems of over accommodation, it may be that other aspects of treatment (beyond shifting experiences of the alliance) are more important for promoting symptom change. This possibility is further supported by the fact that over accommodation did not have a direct association with anxiety reduction in the current sample. Thus, although the alliance did not appear to be a vital change facilitating process for this subset of individuals, some other processes not measured in this study promoted comparable levels of symptom improvement for these patients. Although such processes would need to be tested directly in future research, it could be that CBT-specific interventions (vs. a theory-common factor like the alliance) are the most therapeutic for individuals with low levels of problematic over accommodation at baseline.

The current parsed alliance-outcome results, as well as the moderator finding at the within-patient level, add specificity and nuance to our understanding of the role that evolving alliance quality may play in the delineation and implementation of evidence-based practices. Although the alliance should continue to be viewed as a key correlate of successful therapy, it is important to acknowledge that it does not have the same therapeutic or mutative value for all patients. Such a conclusion, which could also be inferred from the fact that the total alliance (across both levels of analysis) explains less than 10% of the variability in patients' outcomes, is a warning against patient uniformity myths that have long been observed in psychotherapy research (Kiesler, 1966). Whereas research has long demonstrated that not all patients improve from treatment (Barkham & Lambert, 2021), our findings contribute to the more limited, but crucially needed, evidence base showing that patients have different needs and can respond to treatment via diverse pathways.

Adding more complexity, the current null findings at the between-patient level reinforce the presently mixed support for the between-patient alliance-outcome association in CBT for GAD (Coyne et al., 2019; Rubel et al., 2019). Taken together, these results further underline that what may be most consistently therapeutic about the alliance in this treatment for this condition is within-patient improvements, especially for those patients who present with more severe interpersonal problems. Additionally, the results did not support the notion that between-patient differences in overall alliance result (at least in part) from patients' preexisting relational functioning prior to treatment; that is, baseline differences in problematic interpersonal over accommodation did not predict between-patient differences in average alliance during treatment. This result challenges existing parsed alliance theory (Zilcha-Mano, 2017, 2021; Zilcha-Mano & Fisher, 2022), instead suggesting, at least preliminarily, that other factors (beyond patients' general relationship traits/skills) may contribute more to this alliance component. For example, it seems plausible that other therapy-specific patient factors that go beyond preexisting relational traits/skills (e.g., perceptions of a treatment or provider's credibility) could more strongly explain between-patient differences in overall alliance quality. However, the present non-significant results require replication and alternate hypotheses need testing, especially in larger samples that are well powered to detect between-patient associations.

Clinically, this study's results have several preliminary implications. Most simply, they further support the notion that therapists may be wise to routinely monitor their alliances throughout treatment, including in CBT for GAD (Coyne et al., 2019; Rubel et al., 2019). Such a longitudinal assessment focus could enhance therapists' real-time knowledge of patient and process markers known to correlate with outcomes, which could help inform their clinical foci and decision making with a given patient over time. For example, in light of the within-patient results that point to the facilitative effect of alliance improvement relative to its average quality, a therapist may shift to evidence-based alliance-negotiation tactics in the face of a *static* or *deteriorating* alliance (e.g., Constantino et al., 2020). Such responsivity could involve the use of alliance-fostering strategies to address a stagnant relationship (e.g., Crits-Christoph et al., 2010) and the use of rupture-repair strategies to addressing a worsening relationship (Eubanks et al., 2018), though more work is certainly needed to explicate even more precisely the most effective ways in which therapists can take action vis-à-vis case-level alliance challenges over time.

Adding even more nuance, this study's moderation result suggests that GAD patients' interpersonal problems could be another context to which therapists' need to be responsive. Specifically, if a patient presents at baseline with higher levels of over accommodation (which would need to be routinely assessed), then therapists could place a special emphasis on fostering an increasingly close and collaborative relationship, as our results suggest that this may represent a key correlate of change for this subset of patients. In contrast, for patients with lower levels of over accommodation, therapists could attend more closely to other personal change correlates, though future research will need to identify the nature of such processes (so that this too can become evidence-based decision making).

Finally, in contrast to the significant within-patient results, this study's null between-patient results suggest that when working with GAD patients, CBT therapists may be able to place relatively less emphasis on stable differences between their patients in their overall alliance quality. Practically speaking, this may mean that therapists need not be overly concerned if their early alliance level with a particular patient is somewhat lower than average (compared to their other patients), as long as that alliance quality appears to be improving over time. In fact, as noted, the present results suggest that such an improvement pattern may be even more facilitative of good outcomes than a stably positive relationship.

This study had several limitations. First, the patient sample size could have prevented a reliable estimation of the relation between alliance and outcome, especially with respect to between-patient associations. Our post hoc power analyses indicated

that we were underpowered to detect small effects at the between-patient level; however, had any meaningful medium effects truly existed, we likely would have had sufficient power to detect them (thus, the null between-patient results were likely not simply a function of inadequate power). Second, the small number of providers precluded an assessment of therapist effects. A full modeling of such effects could have provided information on how much of the within-patient associations might be accounted for by differential levels of therapist effectiveness, indicating that some therapists may be better than others at establishing an alliance that is corrective (Boswell et al., 2022; Coyne et al., 2021). Third, although the four alliance measurement occasions meet a minimal criterion for a reliable estimation of alliance-outcome relations (Crits-Christoph et al, 2011), more frequent assessments would have allowed for the testing of more complex longitudinal models. Additionally, although the use of the CDD allowed for a more frequently repeated measurement of outcome during treatment, it may not have fully captured symptom change. Together, these process and outcome measurement issues may have minimized the true relations between the examined constructs, as may have the missing IIP data due to this measure being added to the assessment battery partway through the parent RCT.

Fourth, it is possible that our focus on post-session alliance ratings for within-patient effects was too restrictive, as during-session, micro-shifts in alliance quality are possible. Future tests of the alliance-as-corrective-experience hypothesis should include moment-to-moment coding methods to capture alliance shifts with more granularity. Finally, although the patient *self-report* literature has robustly established over accommodation as a prototypical interpersonal problem for people with GAD, the research is less consistent when informants rate individuals' interpersonal features (Shin & Newman, 2019). Given that our study centered on patients' own perceptions of their interpersonal troubles, this concern was less directly pertinent; however, more research is needed to determine other potential interpersonal deficits worthy of study in relation to the multilevel alliance-outcome association.

Limitations notwithstanding, the present study not only further supports the importance of the alliance in CBT, it also questions the role it has been traditionally and theoretically assumed to play in this approach. By parsing the alliance-outcome link, this study suggests the utility of the alliance in CBT is not necessarily restricted to its facilitative properties for specific cognitive and behavioral techniques. Rather, the alliance in CBT for GAD, and especially for some patients, may be more appropriately viewed as a theory-common change correlate in itself.

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