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Interpersonal Problems, Mindfulness, and Therapy Outcome in an Acceptance-Based Behavior Therapy for Generalized Anxiety Disorder

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Abstract

Objective—To better understand the role interpersonal problems play in response to two treatments for generalized anxiety disorder (GAD); an acceptance based behavior therapy (ABBT) and applied relaxation (AR), and to examine how the development of mindfulness may be related to change in interpersonal problems over treatment and at follow-up.

Method—Eighty-one individuals diagnosed with GAD (65.4% female, 80.2% identified as White, average age 32.92) were randomized to receive 16 sessions of either ABBT or AR. GAD severity, interpersonal problems, and mindfulness were measured at pre-treatment, post-treatment, 6-month follow-up, and 12-month follow-up.

Results—Mixed effect regression models did not reveal any significant effects of pre-treatment interpersonal problems on GAD severity over treatment. After controlling for post-treatment GAD severity, remaining post-treatment interpersonal problems predicted 6- but not 12- month GAD severity. Participants in both conditions experienced a large decrease in interpersonal problems over treatment. Increases in mindfulness over treatment and through follow-up were associated with decreases in interpersonal problems, even when accounting for reductions in overall GAD severity.

Conclusions—Interpersonal problems may be an important target of treatment in GAD, even if pre-treatment interpersonal problems are not predictive of outcome. Developing mindfulness in individuals with GAD may help ameliorate interpersonal difficulties among this population.

Keywords

Generalized anxiety disorder; interpersonal problems; mindfulness; acceptance-based treatment; applied relaxation

Generalized anxiety disorder (GAD) is a chronic, impairing (Bobes, Caballero, Villardaga, & Rejas, 2011) condition characterized by frequent and persistent worry. Although cognitive behavioral therapy appears efficacious for GAD (Colvin, Ouimet, Seeds, & Dozois, 2008), a

quarter (Ladouceur et al., 2000) to three quarters (Waters & Craske, 2005) of patients may not achieve high-end state functioning by treatment completion.

The interpersonal problems commonly co-occurring with GAD may contribute to this chronicity by negatively impacting psychological (Beach, Wamboldt, Kaslow, Heyman, & Reiss, 2006) and physical well being (e.g., Kiecolt-Glaser et al., 2005; Kiecolt-Glaser, et al., 1993) and potentially impeding therapeutic alliance (Eames & Roth, 2000). Individuals with GAD report more marital dissatisfaction (Whisman, Sheldon, & Goering, 2000) and overall interpersonal problems (Eng & Heimberg, 2006) than control participants. Moreover, personality disorders, involving interpersonal functioning deficits (Hengartner, Muller, Rodgers, Rossler, & Ajdacic-Gross, 2013), are frequently comorbid with GAD (Grant et al., 2005).

Considering these data, researchers have examined whether specific interpersonal problems adversely impact GAD treatment. One study found that marital tension predicted less improvement and greater relapse rates following treatment (Durham, Allan, & Hackett, 1997). In contrast, no association was found between in session therapist/client behavior and treatment outcome (Critchfield, Henry, Castonguay, & Borkovec, 2007). However, both of these interpersonal behaviors are at least partially influenced by characteristics of another person, and they likely only narrowly represent the full spectrum of interpersonal functioning,

In contrast, self-report instruments, like the Inventory of Interpersonal Problems (IIP; Horowitz, Rosenberg, Baer, Ureno, & Villasenor, 1988), measure interpersonal difficulties more generally across relationships. Unlike observer ratings, they also capture the respondent's perception of their own patterns, which may be important given the demonstrated discrepancy between self-and other- perceptions of interpersonal behavior among those with GAD (e.g., Eng & Heimberg, 2006). Several versions of the IIP exist, with recent studies favoring one based on the interpersonal circumplex model (IIP-C), which maps personality traits onto a circular model, oriented around axes of dominance and love (Wiggins, 1996).

Two studies have examined the impact of pre-treatment IIP or IIP-C scores on response to GAD treatment. Borkovec and colleagues (2002) found no association between pre-therapy IIP-C subscale scores and post-therapy GAD outcomes. Although some pre-treatment interpersonal problems (domineering, intrusive, and vindictive subscale scores) were negatively correlated with 6-month follow-up endstate functioning, because the researchers did not control for the potential influence of baseline GAD severity, the specific effects of interpersonal problems on longer-term GAD severity are unknown. Moreover, these relationships were no longer significant at 12 or 24-month follow-up, raising questions about the clinical significance of the 6-month associations.

Crits-Christoph and colleagues examined the impact of baseline interpersonal problems on response to an interpersonally oriented psychodynamic psychotherapy for GAD (Crits-Christoph, Gibbons, Narducci, Schamberger, & Gallop, 2005). Only 2 of 27 possible correlations between pre-treatment IIP scores and residualized changes in anxiety, worry,

and depression were significant; baseline overly nurturant problems were associated with decreased change in anxiety and worry, but not depression. Unfortunately, these researchers did not examine how baseline interpersonal problems impacted longer term GAD severity.

Research has also investigated the potential impact of interpersonal problems remaining after treatment on longer term GAD severity. In the CBT study noted above, (Borkovec et al., 2002) post-treatment intrusive, vindictive, domineering, nonassertive, and self-sacrificing interpersonal problems significantly correlated with 6-month endstate functioning, controlling for baseline anxiety scores. However, these analyses did not control for the effects of post-treatment GAD severity on follow-up. Thus, it is unclear whether interpersonal problems lingering at post-treatment uniquely influence longer-term GAD severity. Moreover, post-therapy interpersonal problems were not associated with 12 or 24-month follow-up GAD severity, raising questions about the longer standing implications of the 6-month finding.

Researchers have also examined whether treatments targeting GAD also improve interpersonal functioning. An interpersonally oriented psychodynamic psychotherapy for GAD led to reductions in interpersonal problems at post-treatment (Crits-Cristoph, Connolly, Azarian, Crits-Cristoph, & Shappell, 1996), though not more than a supportive listening control (Crits-Christoph et al., 2005). Similarly, an integrative CBT package for GAD including an interpersonal focus yielded a significant decrease in the number of participants exhibiting clinically significant IIP-C scores in an open trial (Newman, Castonguay, Borkovec, Fisher, & Nordberg, 2008). However, in a subsequent evaluation, this treatment was no more effective in targeting interpersonal problems than a CBT plus supportive listening comparison condition (Newman et al., 2011).

Acceptance-based behavior therapy (ABBT) is a new approach to treatment for GAD with demonstrated efficacy (Hayes-Skelton, Roemer, & Orsillo, 2013; Roemer & Orsillo, 2007; Roemer et al., 2008) that integrates acceptance and mindfulness with traditional behavioral approaches. Although no research exists on the effects of ABBT on interpersonal problems in GAD, evidence supports relational benefits of mindfulness practice. Mindfulness-based interventions have been shown to enhance empathic perspective taking (Birnie, Speca, & Carlson, 2010), couples' relationship satisfaction (Carson, Carson, Gil, & Baucom, 2004), and social connectedness (Cohen & Miller, 2009). Thus, we hypothesized that ABBT would have a positive impact on the interpersonal problems comorbid with GAD through its cultivation of mindfulness.

The current study had five goals: (1) To explore the relationship between baseline interpersonal problems and therapeutic alliance, (2) To identify the impact of baseline interpersonal problems on response to GAD treatment, (3) To determine the effect of interpersonal problems lingering post treatment on GAD at follow-up, (4) To examine the relative efficacy of ABBT compared to applied relaxation (AR) in reducing interpersonal problems in clients with GAD since ABBT, but not AR, has an explicit focus on interpersonal relationships, (5) To assess how change in mindfulness over treatment might impact change in interpersonal problems, and if this relationship makes a mindfulness-based

treatment, such as ABBT, more effective than one not formally focusing on mindfulness, such as AR.

Methods

Participants

Participants were 81 individuals in a randomized controlled trial (see Hayes-Skelton, Roemer, & Orsillo, 2013 for complete details) comparing an acceptance-based behavior therapy (ABBT) with applied relaxation (AR) for the treatment of GAD. Eligible participants had to receive a primary diagnosis of GAD on the Anxiety Disorders Interview Schedule (ADIS-IV; DiNardo, Brown, & Barlow, 1994), be stabilized on psychotropic medications for at least 3-months, not receive additional psychosocial treatments for anxiety or mood disorders during the study, be over age 18, and be fluent in English. Exclusion criteria included the presence of comorbid bipolar disorder, a psychotic disorder, an autism-spectrum disorder, or current substance dependence.

Forty-one participants (50.6%) received AR and 40 (49.4%) received ABBT. Twenty-eight participants (34.6%) were male, 53 (65.4%) were female, 65 (80.2%) identified as white, and 16 (19.8%) reported belonging to a racial or ethnic minority group. No significant differences in GAD severity, age, gender, or ethnicity emerged by treatment group.

Primary Outcome Measures

Anxiety Disorders Interview for DSM-IV—(ADIS-IV; DiNardo, Brown, & Barlow, 1994). The ADIS-IV is a semi-structured diagnostic interview used to determine current and lifetime status of DSM-IV diagnoses with adequate reliability for GAD ($\kappa = .67$; Brown, DiNardo, Lehman, & Campbell, 2001). It includes a Clinician Severity Rating (CSR), scored on a 0-8 range with 4 representing the clinical significance threshold. Doctoral level graduate students or post-doctoral fellows conducted all interviews. Diagnoses were confirmed in consensus meetings, and a second rater scored 30% of interviews, yielding an interclass correlation (ICC) between raters of .73 for GAD CSRs.

Inventory of Interpersonal Problems Circumplex Scales, short form—(IIP-SC; Soldz, Budman, Demby, & Merry, 1995). The IIP-SC is a 32-item version of the IIP-C (Alden et al., 1990) consisting of 8 4-item subscales, domineering, vindictive, cold, socially avoidant, nonassertive, exploitable, overly nurturant, and intrusive, organized around the axes of dominance and love, which can be combined for a total score. The IIP-SC was administered at pre, post, 6-month, and 12-month follow-up (Cronbach's α s = .90-.95).

Five Facet Mindfulness—Questionnaire (FFMQ; Baer, Smith, Hopkins, Krietemeyer, & Toney, 2006) The FFMQ is a 39-item measure assessing mindfulness with five subscales: nonreactivity to inner experiences, observing or attending to sensations, acting with awareness, describing, and nonjudging of experience and also yields a total score. Items are scored from 0 to 5 in terms of frequency of mindful engagement in a behavior. Total scores were calculated for pre, post, 6-month, and 12-month follow-up (Cronbach's α s = .88-.94).

Working Alliance Inventory—(WAI: Horvath & Greenberg, 1986, 1989). The WAI measures therapist and client agreement on treatment goals, tasks to achieve these goals, and client and therapist bonds (Borodin, 1979). Items are scored from 1 to 7 referring to the frequency the person encounters a given situation in therapy. The present study used the 12-item client (WAI-C) and therapist (WAI-T) subscales, collected at sessions 4, to assess early working alliance. WAI-C and WAI-T internal consistencies were .84 and .76, respectively.

Interventions

Both treatments had 16 total sessions: 4 initial weekly 90-minute sessions, followed by 60-minute weekly sessions, and finishing with bi-weekly sessions 14 – 16. Therapists were advanced-level graduate students or post-doctoral fellows, trained by experts in both interventions. Sessions were randomly selected and rated for adherence, suggesting that both interventions were faithfully and competently administered (see Hayes-Skelton et al., 2013).

Acceptance Based Behavior Therapy—(ABBT: Roemer & Orsillo, 2009; Orsillo & Roemer, 2011). ABBT addresses the problematic relationships with internal experiences, experiential avoidance, and behavioral restriction present in GAD (Roemer & Orsillo, 2007). It draws from mindfulness- and acceptance- based treatments (Hayes, Follette, & Linehan, 2004), as well as cognitive-behavioral therapy (e.g., Borkovec & Sharpless, 2004). Treatment explores the function of emotions, how emotions can become confusing and intensified through habits including worry and other forms of experiential avoidance, and teaches methods of clarifying emotions including formal and informal mindfulness practice. Clients also identify their values through didactic and experiential exercises, and use mindfulness and acceptance skills to enhance engagement in valued actions.

Applied Relaxation—(AR: Bernstein, Borkovec, & Hazlett-Stevens, 2000; Öst, 2007). AR develops relaxation as a skill that clients practice and apply in daily life. Clients learn to notice early signs of anxiety and apply relaxation techniques. They practice a 16-muscle group progressive relaxation, which shifts to 8 and then 4 muscle groups with proficiency. The second phase combines the early detection of anxiety with the deployment of relaxation skills (release-only, cue-controlled, differential, and rapid relaxation) both in and between sessions. The last 3 sessions emphasize consolidating gains and minimizing chances of relapse (Hayes-Skelton et al., 2013).

Data Analysis

Fewer than 5% of GAD CSRs, IIP-SC scores, and FFMQ scores were missing across measures at pre-treatment. This quantity grew at post (between 19.8 and 22.2%), 6-month follow-up (between 32.1 and 33.3%), and 12-month follow-up (between 38.3 and 39.5%) with no significant differences in missing data between treatments. Inspection of the histograms for all three variables over time revealed no violations of assumptions of normality, suiting them for the proposed analyses. Of the data on the WAI-C and WAI-T, 17.3 % and 16% were missing, respectively.

For exploring the relationship between baseline interpersonal problems and session 4 working alliance, we conducted bivariate correlations. To test whether baseline interpersonal

problems impacted GAD treatment efficacy, as assessed via CSR scores, we utilized mixed-effect regression models (MRM: Hedeker & Gibbons, 2006) in SPSS version 20. This allowed inspection of change over time on an individual level (Level 1), as well as between group differences (Level 2) through the 12-month follow-up timepoint. Effect sizes for these models were based on the between-groups t-test value: $d = 2t / \sqrt{df}$ (Dunlap, Cortina, Vaslow, & Burke, 1996).

We also assessed how remaining interpersonal problems at post-treatment impact follow-up outcomes, controlling for post-treatment GAD severity, in a multiple linear regression (MLR), with post treatment CSR in step 1, post treatment CSR scores and IIP-SC scores in step 2, and 6-month follow up GAD severity as the outcome variable. We replicated this model with 12-month follow-up scores. Bivariate and partial correlations tested associations between post-treatment interpersonal problem subscales and 6-month and 12-month follow-up GAD severity.

We used MRM analyses to examine potential change in interpersonal problems over time by treatment condition.

We conducted regression models using residualized gain scores (controlling for pre-treatment levels of variables) to test how the development of mindfulness related to reductions in interpersonal problems, controlling for change in GAD severity. Change in GAD severity was entered in step 1, and change in mindfulness added in step 2, with change in interpersonal problems as the dependent variable. These analyses were performed from pre- to post-treatment and from pre- to 6- and 12-month follow-up.

Results

Means and standard deviations for study measures are presented in Table 1. One-way ANOVA's did not reveal pre-treatment differences in interpersonal problems [$F(1,77) = 0.24, p = .62$], GAD severity [$F(1,79) = 0.37, p = .55$], or mindfulness [$F(1,77) = 0.06, p = .81$]. Furthermore, there were no significant differences in number of sessions completed between interventions [ABBT - 12.80 ($SD = 5.50$); AR - 13.15 ($SD = 5.54$); $F(1, 79) = 0.08, p = .78$]. Upon completion, clients rated both treatments good matches for their needs on a 9-point Likert scale (means were 7.41 for ABBT and 7.39 for AR) with no significant differences between treatments [$F(1, 62) = 0.003, p = .96, d = 0.01$].

Effects of Interpersonal Problems on Treatment Outcome

MRM results for the effects of total baseline interpersonal problems on GAD severity are presented in Table 2. There was no significant main effect of baseline interpersonal problems on GAD severity, and there were no significant interactions between baseline IIP-SC scores and treatment type or time on outcome. Moreover, there were no significant correlations between any pre-treatment interpersonal problem subscales and residualized gain scores for change in GAD severity over treatment (r s range from .07 to .12).

Effects of Interpersonal Problems on Early Working Alliance

Bivariate correlations did not reveal significant associations between pre-treatment interpersonal problems and therapist, $r(68) = .18, p = .15$, or client, $r(67) = .12, p = .35$, working alliance at session 4.

Effects of Treatment on Interpersonal problems

There was a large negative effect of time on interpersonal problems (Table 3), indicating a significant decrease in interpersonal problems through 12-month follow-up for both treatments. However, there was no main effect of treatment type (ABBT vs. AR) or time by treatment interaction, indicating that there were not significant differences between the two treatments. Pre-post effect-sizes were large for both ABBT ($d = .98$) and AR ($d = .84$).

Effects of Post-Treatment Interpersonal Problems on Follow-up Outcomes

Multiple linear regression analyses (Table 4) indicated that total post-treatment interpersonal problems significantly predicted 6-month follow-up GAD severity. Total post treatment interpersonal problems explained an additional 9% of the variance in 6-month GAD CSR severity, controlling for post-treatment GAD severity. However, total post-treatment interpersonal problems no longer predicted GAD severity at 12-month follow-up (Table 5).

With regard to sub-scales, 6-month GAD severity was significantly correlated with solely the vindictive [$r(55) = .42, p < .01$], cold [$r(55) = .30, p < .05$], nonassertive [$r(55) = .37, p < .01$], exploitable [$r(55) = .41, p < .01$], and overly nurturant [$r(55) = .53, p < .01$] post-treatment interpersonal problems. However, when controlling for post-treatment GAD severity through partial correlations only the vindictive [$r(55) = .28, p < .05$] and overly nurturant [$r(55) = .37, p < .01$] post-treatment subscales remained significantly associated with 6-month follow-up GAD severity, although two subscales, (exploitable [$r(55) = .26, p = .056$]. and nonassertive [$r(55) = .27, p = .052$]) trended toward significance.

Initially there was a significant correlation between post-treatment intrusiveness [$r(50) = .29, p = .04$] and 12-month GAD severity, however this relationship was no longer significant when post-treatment GAD severity was controlled for through a partial correlation [$r(50) = .05, p = .78$]. No other post-treatment subscales were associated with 12-month outcome when controlling for post-treatment GAD severity (r s ranged from .16 to .23).

Relationship Between Mindfulness and Interpersonal Problems

Multiple linear regression analyses (Tables 6, 7, and 8) suggested that an increase in mindfulness predicted a decrease in interpersonal problems over and above the effects of changes in GAD severity at post, 6- and 12-month follow-up. Specifically, change in mindfulness explained an additional 18% of the variance in interpersonal problems at post, 22% of the variance at 6-months, and 19% of the variance in change in interpersonal problems above and beyond change in GAD severity at 12-months.

Discussion

While prior research suggests that pre-existing interpersonal problems could negatively affect therapy outcomes (e.g. Ruiz et al., 2004), research on individuals with GAD has been equivocal (Borkovec et al., 2002; Crits-Cristoph et al., 2005). Moreover, studies have not controlled for the effects of baseline GAD severity (Borkovec et al., 2002) or examined the potential effects of pre-treatment interpersonal functioning beyond post-treatment (Crits-Cristoph et al., 2005). In the current study we found no effect of pre-treatment interpersonal problems on response to either ABBT or AR from pre to 12-month follow-up. Similarly, pre-therapy individual subscales of interpersonal problems were uncorrelated with GAD outcomes. Although these findings seem to suggest that both treatment approaches may be beneficial for clients with a range of interpersonal difficulties, it is possible that limited variability in CSR scores at post and follow-up obscured important relationships. Between 60.6% and 80% of participants in this study experienced clinically significant change, which may have made it difficult to detect interpersonal predictors of outcome.

Previous research suggests that the interpersonal problems that remain at post-treatment could negatively impact longer-term recovery from GAD (Borkovec et al., 2002). However, this earlier finding did not account for the effects of post-treatment GAD severity on follow-up. The present findings found an association between interpersonal problems remaining at the end of treatment and 6-month follow-up GAD severity, which persisted when controlling for post-treatment GAD severity. Of particular interest may be the vindictive, overly nurturant, exploitable, and nonassertive subtypes of interpersonal problems, which at post treatment remained correlated with 6-month GAD severity over and above the effects of post-treatment GAD severity. However, consistent with previous research (Borkovec et al., 2002), lingering interpersonal problems no longer predicted GAD severity at 12-month follow-up. This lack of significant prediction at 12-months versus six months could relate to longer-term consolidation of therapy skills, or potentially reflect the participants who returned for the 6-month as opposed to the 12-month follow-ups.

Despite theory and previous research suggesting that ABBT, with its unique emphasis on cultivating mindfulness, would be particularly beneficial in addressing interpersonal problems, ABBT and AR had similar effects. The effect of AR on GAD symptoms in the current trial was larger than in previous trials (Borkovec & Costello, 1993; Wells et al., 2010), possibly due to the extended length of the treatment and/or the emphasis on recognizing tension and deploying relaxation skills in the moment. Thus, AR may have simply been more powerful than expected on a variety of outcomes. All therapists in this trial were teaching and practicing mindfulness in some form, which may have impacted their interpersonal behavior, leading to an impact on interpersonal problems for their clients (Fulton, 2013). Treatment diffusion, arising from the shared therapists across conditions, is a less likely explanation given that adherence ratings did not detect this. Alternatively, despite the fact that AR is not intentionally designed to cultivate mindfulness, it may be that methods such as self-monitoring and the practice of “letting go” of tension promote this stance (Borkovec & Sharpless, 2004; Hayes-Skelton, Usmani, Lee, Roemer, & Orsillo, 2012). Preliminary evidence suggests that one particular mindfulness skill, decentering, or the observation of thoughts as passing events in the mind, may be a common mechanism

across these two treatments (Hayes-Skelton, Calloway, Roemer, & Orsillo, in press). Decentering may help individuals to be less impulsive and reactive in their interpersonal interactions.

As predicted, developing mindfulness skills over treatment was associated with decreased interpersonal problems over and above the effects of reduction in GAD severity. This association was even stronger when looking from pre-treatment through 6-month follow-up, and still present though less robust through 12-month follow-up, suggesting enduring benefits for cultivating mindfulness in this population.

Several limitations to the present research should be noted when considering the implications of the findings. The percentage of missing data, especially high at post and follow-up time points, could potentially bias results. Although the IIP-C is a commonly used measure of interpersonal problems with strong convergent validity, reliance on a single self-report measure of interpersonal functioning may reduce the external validity of the findings. The lack of diversity in the current sample also limits the generalizability of the findings. Finally, mechanisms not examined in the current study may better account for improvements in interpersonal problems. For example, ABBT emphasizes the importance of engaging in valued actions in one's interpersonal domain, which likely impacts interpersonal functioning, while increased relaxation skills in AR may help clients to approach previously avoided social contexts, leading to more positive interpersonal experiences. Future studies exploring a broad range of potential mechanisms are needed to inform treatment refinement.

This study is part of a larger literature on interpersonal functioning in GAD. Much psychotherapy research emphasizes individual-level variables, which are crucial for understanding treatment mechanisms and effectiveness. This focus may downplay therapy's carryover into the individual's interactions with others. For GAD, a clinical presentation that includes interpersonal difficulties, ameliorating interpersonal problems may be beneficial. Ideally such change will improve the lasting effectiveness of GAD interventions.

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Table 1

Means and Standard Deviations (Untransformed) of Each Outcome Measure for Both Treatments Across Timepoints

	Pretreatment M (SD) (N = 81)	Post Treatment M (SD) (N = 63)	6 month Follow-up M (SD) (N = 55)	12 month Follow-up M (SD) (N = 50)
GAD CSR				
ABBT	5.53 (0.55)	3.03 (1.38)	2.88 (1.59)	2.70 (1.61)
AR	5.44 (0.71)	2.70 (1.57)	2.77 (1.59)	2.63 (1.90)
IIP-SC				
ABBT	50.59 (19.78)	37.24 (20.28)	37.53 (22.20)	37.05(24.13)
AR	48.49 (18.05)	37.02 (18.30)	36.85 (17.65)	37.46(19.95)
FFMQ				
ABBT	111.33(19.29)	135.40 (20.73)	136.91 (22.58)	134.76 (22.70)
AR	112.32 (17.19)	134.09 (20.62)	137.02 (18.96)	140.23 (20.32)

Note: ABBT = acceptance-based behavior therapy; AR = applied relaxation; CSR = Clinician Severity Rating; IIP-SC = Inventory of Interpersonal Problems Circumplex Scales, short form, FFMQ = Five Facet Mindfulness Questionnaire

Table 2

Results of Mixed Effect Regression Models Examining Change in GAD Severity Across Treatment and Follow-up

	<i>Estimate</i>	<i>SE</i>	<i>t</i>	<i>df</i>	<i>p</i>	<i>95% CI</i>	<i>d</i>
Time	-.84	.41	-2.06	116.68	.04	-1.64, -.03	-.38
Baseline IIP-SC	.01	.01	.63	187.74	.53	-.01, .03	.09
Treatment	.39	.71	.55	187.78	.59	-1.01, 1.79	.08
Time X Treatment	-.28	.57	-.50	114.87	.62	-1.40, .84	-.09
Baseline IIP-SC X Treatment	.00	.01	-.34	188.25	.73	-.03, .02	-.05
Baseline IIP-SC X Time	.00	.01	-.36	118.44	.72	-.02, .01	-.07
Time X Treatment X Baseline IIP-SC	.01	.01	.57	118.93	.57	-.01, .03	.10

Note: IIP-SC = Inventory of Interpersonal Problems Circumplex Scales, short form

Table 3

Results of Mixed Effect Regression Models Examining Change in Interpersonal Problems Across Pre-treatment, Post-treatment, 6-month Follow-up, and 12-month Follow-up

	<i>Estimate</i>	<i>SE</i>	<i>t</i>	<i>df</i>	<i>p</i>	<i>95% CI</i>	<i>d</i>
Time	−4.23	1.09	−3.87	65.60	.01	−6.41, −2.05	−.96
Treatment	1.83	4.05	.45	95.98	.65	−6.22, 9.87	.09
Time X Treatment	−.52	1.63	−.32	68.47	.75	−3.77, 2.73	−.08

Table 4

Effect of Remaining Interpersonal Problems on 6-month Follow-up GAD Severity

Variable	R ²	F	df	Beta
Step 1	.28**	20.01	1,53	
Post CSR				.52**
Step 2	.09*	7.57	1,52	
Post IIP-SC				.35**
Post CSR				.35**

Note: CSR = Clinician Severity Rating; IIP-SC = Inventory of Interpersonal Problems, Circumplex, short form Betas reported are those from the final step at which all variables were entered into the equation.

*
p < .05

**
p < .01

Table 5

Effect of Remaining Interpersonal Problems on 12-month Follow-up GAD Severity

Variable	R ²	F	df	Beta
Step 1	.24**	15.30	1,48	
Post CSR				.49**
Step 2	.00**	.00	1,47	
Post IIP-SC				-.01
Post CSR				.50**

Note: CSR = Clinician Severity Rating; IIP-SC = Inventory of Interpersonal Problems, Circumplex, short form
 Betas reported are those from the final step at which all variables were entered into the equation.

*p < .05

**
 p < .01

Table 6

Change in Mindfulness From Pre- to Post-Treatment Predicting Change in Interpersonal Problems From Pre- to Post Treatment

Variable	R ²	F	df	Beta
Step 1	.34**	31.02	1,61	
GAD CSR Change				.58**
Step 2	.18**	22.94	1,60	
FFMQ Change				-.48**
GAD CSR Change				.36*

Note: CSR = Clinician Severity Rating; FFMQ = Five Facet Mindfulness Questionnaire Betas reported are those from the final step at which all variables were entered into the equation.

*
p < .05

**
p < .01

Table 7

Change in Mindfulness from Pre- to Post-Treatment Predicting Change in Interpersonal Problems from Pre- to 6-month Follow-Up

Variable	R ²	F	df	Beta
Step 1	.37**	30.19	1,51	
GAD CSR Change				.61**
Step 2	.22**	26.30	1,50	
FFMQ Change				-.61**
GAD CSR Change				.22

Note: CSR = Clinician Severity Rating; FFMQ = Five Facet Mindfulness Questionnaire Betas reported are those from the final step at which all variables were entered into the equation.

*p < .05

**
p < .01

Table 8

Change in Mindfulness from Pre- to Post-Treatment Predicting Change in Interpersonal Problems from Pre- to 12-month Follow-Up

Variable	R ²	F	df	Beta
Step 1	.27**	15.86	1,43	
GAD CSR Change				.52**
Step 2	.19**	14.65	1,42	
FFMQ Change				-.47**
GAD CSR Change				.35**

Note: CSR = Clinician Severity Rating; FFMQ = Five Facet Mindfulness Questionnaire Betas reported are those from the final step at which all variables were entered into the equation.

*p < .05

**
p < .01