



# The Relation between Improvement in the Therapeutic Alliance and Interpersonal Functioning for Individuals with Emotional Disorders

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## Abstract

**Background:** Individuals with emotional disorders often have comorbid relationship problems, and improving interpersonal functioning is a common goal of treatment. Research indicates that the therapeutic alliance is associated with broad symptom improvement; however, no study has examined whether the alliance promotes improved interpersonal functioning for individuals with emotional disorders and varying levels of interpersonal difficulties. The present study tested whether improvement in the alliance is associated with enhanced interpersonal functioning and examined whether this association is stronger for individuals with higher, relative to lower, relationship difficulties. **Methods:** Adults (ages 18–70;  $N = 251$ ) with primarily major depressive disorder (55.4%) or generalized anxiety disorder (34.2%) received combined cognitive behavioral therapy and pharmacological treatment at a psychiatric hospital day program. At both pre- and post-treatment, participants completed self-report assessments of the alliance, relationship problems, and symptoms of depression and anxiety. **Results:** Across the full sample, improvement in alliance (bond, tasks, and goals) was associated with improved interpersonal functioning. Additionally, agreement on treatment goals more strongly predicted enhanced interpersonal functioning for individuals presenting to treatment with higher, relative to lower, relationship difficulties—controlling for depression and anxiety symptom severity. **Conclusions:** These findings contribute to research identifying ways to improve interpersonal functioning (i.e., strengthening the alliance) for individuals entering treatment with emotional disorders and varying levels of relationship difficulties.

**Keywords** Alliance · Interpersonal functioning · Depression · Anxiety · Cognitive behavioral therapy

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## The Relation between Improvement in the Therapeutic Alliance and Interpersonal Functioning for Individuals with Emotional Disorders

Healthy relationships contribute to optimal mental and physical functioning (e.g., Berkman et al. 2000; Cohen 2004; Pietromonaco et al. 2013; Uchino 2009). Many individuals presenting to psychological services report significant relationship difficulties in addition to their primary mental health problem (Horowitz et al. 1988). For example, individuals with major depressive disorder (MDD) and generalized anxiety disorder (GAD)—two of the most prevalent mental illnesses—commonly report high levels of relationship difficulties (Barrett and Barber 2007; Eng and Heimberg 2006). Furthermore, the association between mental health and interpersonal problems tends to be bidirectional. Namely, in addition to mental disorders contributing to increased interpersonal problems, research findings suggest that relationship difficulties are associated with an elevated risk of mood, anxiety, and substance use disorders (Whisman 2007). In light of evidence of the bidirectional association between relationship difficulties and symptoms of mental illness, improving relationship functioning is often an important goal of treatment (Horowitz et al. 1988; Mallinckrodt 1996; Weissman et al. 2000).

Research on the working alliance and treatment outcomes has been mixed. The alliance is traditionally defined as consisting of three components: (1) goals—agreement between the therapist and patient on the desired outcomes of therapy, (2) tasks—appropriateness and usefulness of the interventions chosen to achieve the identified goals, and (3) bond—sense of trust and warmth between the therapist and patient (Bordin 1979; WAI; Horvath and Greenberg 1986). Research has assessed the alliance between therapist-patient dyads (e.g., Strunk et al. 2012) and between patients and their treatment team (e.g., Webb et al. 2014). Numerous studies have found that a strong working alliance between therapist (or treatment team) and patient contributes to symptom improvement (Horvath et al. 2011; Horvath and Symonds 1991; Martin et al. 2000). However, some research studies have failed to find an association between the two (Strunk et al. 2010, 2012), and other research studies have found that only some elements of the alliance contribute to symptom improvement. For example, Webb et al. (2011) reported that only the therapist-patient agreement on goals and tasks contributed to depressive symptom change in cognitive behavioral therapy (CBT). Additionally, the alliance may be more strongly associated with unique outcomes for certain populations. For example, in a qualitative study with domestic violence perpetrators, 86% of men reported that the most helpful factor for improving relationship functioning and reducing violent behaviors was their alliance with the group facilitator (Rosenberg 2003). Further, improvement in patient-therapist alliance was related to reductions in husband and wife's reports of physically and emotionally abusive relationship behaviors from before to after CBT violence intervention programs (Brown and O'Leary 2000; Taft et al. 2003). The alliance may be particularly important for improving relationship functioning for those with elevated levels of relationship difficulties.

The alliance may improve interpersonal functioning through several mechanisms. Therapeutic relationships are interpersonal and intimate in nature (Mallinckrodt 1996). They involve disclosing vulnerability, building trust, and working toward mutually agreed upon goals (Horvath and Greenberg 1986). Building an alliance with a treatment team requires many of the same skills needed to build effective relationships outside of therapy (e.g., communication, negotiation, compromise). Further, positive therapeutic

relationships often involve direct feedback and opportunities for personal and relational growth in a non-judgmental space (Mallinckrodt 1996). Weak alliances hinder the expression of emotion (Johnson and Talitman 1997), lead patients to feel misunderstood, and reinforce any preexisting beliefs that people cannot be trusted. In such cases, patients will be less inclined to share thoughts and emotions related to interpersonal challenges, thus making behavior change more difficult.

There is some evidence that individuals with relationship problems may, on average, have weaker alliances with their therapists (Linehan 1993; Taft et al. 2004). Improvement in the alliance may be particularly important for these individuals in order to improve relationship functioning and treatment outcomes. Individuals who report relationship problems at the start of treatment may be more likely to display interpersonal styles (e.g., detached and withdrawn, or irritable; Saunders 2001) that impede a therapist's ability to connect and work collaboratively to achieve change (Horvath and Luborsky 1993; Muran et al. 1994; Taft et al. 2004). For example, individuals with MDD and a personality disorder are more distant, avoidant, nonassertive, vindictive, and unforgiving (Barrett and Barber 2007). These interpersonal difficulties interfere with establishing and maintaining strong alliances (Linehan 1993; Yeomans et al. 1994) and lead to poorer therapeutic outcomes (Hardy et al. 2001; Howard et al. 2006). Howard et al. (2006) measured interpersonal problems, working alliance, and depression for individuals participating in CBT for depression. They found that worse interpersonal problems at the beginning of treatment were related to more severe depression at the end of treatment. This relation was in turn mediated by the negative influence of interpersonal problems on the working alliance. Similarly, Hardy et al. (2001) found that the alliance mediated the relation between patient's avoidant interpersonal style and depression outcomes within CBT for depression. Although interpersonal problems may make it more difficult to develop a strong working alliance and can negatively impact treatment outcomes, improvement in the alliance might be particularly beneficial for these individuals. To date, no study has examined whether improvement in the alliance contributes to the amelioration of relationship difficulties, outside of therapy, for individuals entering treatment for mood or anxiety disorders.

## Overview of the Present Study

Given that interpersonal problems can severely impact one's psychological health, improving relationship functioning is an important goal in mental health treatment. Previous research has examined the impact of the alliance on relationship functioning for individuals with relationship violence as the primary presenting problem and the impact of interpersonal problems on symptom outcomes via the alliance. However, to our knowledge, this is the first study to examine the impact of the alliance on interpersonal functioning for individuals with emotional disorders and whether this relationship is moderated by pre-treatment severity of relationship difficulties. Specifically, we hypothesized that improvement in the alliance would be more strongly associated with enhanced interpersonal functioning for individuals presenting to treatment with relatively higher relationship difficulties compared to those with lower relationship difficulties. Additionally, given the time-limited nature of our treatment setting, emphasis on goals, and research finding that improvement in goals contributes

to symptom improvement for patients with depression (Webb et al. 2011), we expected that goals improvement would more strongly predict better interpersonal functioning in our sample. Therefore, we also examined each subscale of the WAI (i.e., goals, tasks, and bond). Given previous work indicating a positive association between alliance and prior depressive and anxiety symptom improvement (e.g., Barber et al. 2009; Klein et al. 2003), we controlled for these two potential third variable confounds in our analyses testing the association between the alliance and interpersonal outcomes.

## Method

### Participants and Treatment Setting

The present sample consisted of patients receiving treatment at a partial hospital day program in New England from May 2012 to March 2013. Patients engaged in the program from 8 a.m. to 3 p.m. for approximately 12 days. In order to be included in the present study, patients had to be admitted to the partial hospital day program and complete assessments at pre- and post-treatment as part of their standard clinical care. Patients were only excluded if they met criteria for a current or past psychotic disorder. Patients included in the study were 251 individuals (ages 18–70,  $M = 33.4$ ,  $SD = 13.7$ ; 44.60% males; 89.4% White, 5% Asian, 2.8% multi-racial, 1.8% Hispanic, 1.4% African-American, 0.9% American Indian). All participants provided written consent for their clinical assessment data to be used for research purposes. The majority of the sample met criteria for current MDD (55.4%) or GAD (34.2%). Co-morbidity was common; 41.5% of the sample met criteria for more than one current diagnosis ( $M = 1.40$ ,  $SD = 1.16$ ). Other diagnosis at the time of intake included social anxiety disorder (22.7%), panic disorder (20.8%), agoraphobia (13.3%), alcohol dependence (11.2%), alcohol abuse (7.3%), obsessive compulsive disorder (8.4%), post-traumatic stress disorder (8%), bulimia nervosa (4.8%), and anorexia nervosa (0.5%), mania-hypomanic episode (0.8%), mania-manic episode (0.4%).

Patients receive group and individual CBT and medication management based on their individual treatment plans, which are developed by clinical team managers upon entry to the program. Group and individual psychotherapy are delivered by mental health counselors, graduate level and postdoctoral psychology trainees, nurses, social workers, and psychologists. Patients attend up to five groups per day and three individual therapy sessions per week. One group per day is focused on behavioral activation (Martell et al. 2010), a second on identifying and challenging negative automatic thoughts (Beck et al. 1979), and the remaining groups include DBT skills (i.e., distress tolerance, emotion regulation, mindfulness, and interpersonal effectiveness) and other skills adapted from empirically supported CBT manuals (e.g., Beck et al. 1985; Linehan 1993). Group facilitators utilize treatment protocols in order to assure fidelity and are rated for adherence twice per year by a research assistant. Raters have demonstrated excellent inter-rater reliability ( $r = .99$ ) and 83% to 95% (Beard et al. 2017) of protocol components are addressed, on average in each group (see Beard and Björgvinsson 2013 for further details for the partial hospital day program).

## Measures

### MINI (Sheehan et al. 1998)

The Mini International Neuropsychiatric Interview (MINI) is a structured interview used to identify DSM-IV Axis I diagnoses. For each disorder, the interview first asks screening items and then specific symptomatology questions. The MINI demonstrates strong reliability and validity when compared with the SCID-IV (kappas ranging from 0.89–1.0) (Sheehan et al. 1998). The MINI was administered by psychology interns and doctoral practicum students who received weekly supervision from a post-doctoral research fellow. Training for MINI administration consisted of first reviewing administration manuals, then completing mock interviews, and passing a final training interview with the supervisor. MINI administrators met bi-annually to rate an audio recording of a MINI interview. Ratings yielded near perfect reliability on diagnoses (Cohen's Kappa = 0.91).

### WAI-S (Tichenor and Hill 1989; Tracey and Kokotovic 1989)

The Working Alliance Inventory Short Version (WAI-S) is a 12-item patient-rated measure of the quality of the therapeutic alliance. Treatment was delivered by a treatment team in an intensive behavioral partial hospital day program. Thus, the wording of WAI items was adapted to reflect the patient's perception of the alliance with his/her *treatment team* as a whole rather than a single individual. Previous research has used this modified measure (Webb et al. 2014). Items are rated on a seven-point scale from 1 (*never*) to 7 (*always*), and the scale consists of three subscales: *goal* (agreement about goals of therapy; e.g., "We have established a good understanding of the changes that would be good for me"), *task* (agreement about the tasks of the therapy; e.g., "I believe the way we are working with my problem is correct"), and *bond* (the bond between the client and treatment team; e.g., "My treatment team and I trust one another."). Internal consistencies in this sample were excellent at time 1 ( $\alpha = 0.91$ ) and at time 2 ( $\alpha = 0.92$ ).

### BASIS-24 (Cameron et al. 2007)

The Behavior and Symptom Identification Scale (BASIS-24) consists of six subscales measuring various domains of symptoms and functioning. In the present study, we used only the Interpersonal Problems subscale (5 items). Respondents rate items on a five-point scale from 0 (*none of the time*) to 4 (*all of the time*), and higher scores indicate worse functioning. Example items include, "Get along with family members," "Feel close to another person," and "Get along well in social situations." The BASIS-24 has demonstrated good reliability, validity, and responsiveness to change as a measure of mental well-being and functioning (Cameron et al. 2007). Internal consistency for the Interpersonal Problems subscale in this sample was adequate ( $\alpha = 0.76$ ) at Time 1 and 2.

### **CES-D-10 (Andresen et al. 1994)**

The Center for the Epidemiological Studies of Depression-10 (CESD-10) is a widely used, brief instrument for measuring symptoms of depression. Items assess for symptoms of depression (e.g., “I felt depressed”) and response anchors range from 0 (*rarely or none of the time/less than 1 day*) to 3 (*most or all of the time/5–7 days*). The total possible range of scores is from 0 to 30, where higher scores indicate greater severity of depressive symptoms. The CESD-10 had high internal consistency in this study at time 1 ( $\alpha = 0.88$ ) and time 2 ( $\alpha = 0.87$ ).

### **GAD-7 (Spitzer et al. 2006)**

The Generalized Anxiety Disorder Scale-7 (GAD-7) is a self-report questionnaire that assesses general symptoms of anxiety (Spitzer et al. 2006). Participants are asked how often in the past 2 weeks they have been bothered by anxiety symptoms (e.g., trouble relaxing). Participants respond according to a four-point scale, from 0 (*not at all*) to 3 (*nearly every day*). The total possible range of scores is from 0 to 21, where higher scores indicate greater severity of anxiety symptoms. The GAD-7 has demonstrated good reliability and construct validity (e.g., Kroenke et al. 2007; Spitzer et al. 2006) as measure of general anxiety in a partial hospital population (Beard and Björgvinsson 2014). The GAD-7 had high internal consistency in this study at time 1 and 2 ( $\alpha = 0.88$ ).

### **Procedures**

Patients completed daily computerized assessments of their symptoms and overall functioning, which were used by their treatment team as part of standard clinical care. Patients were also given the opportunity to consent for their data to be used in clinical research, and only the data from those who consented are used in this report. Assessments were collected via REDCap (Research Electronic Data Capture)—a web-based application used to securely capture data for research purposes (Harris et al. 2009). The Partners Health Care and McLean Hospital Institutional Review Board approved these study procedures. On their first day of treatment (day 1), patients completed the BASIS-24, CES-D-10, and GAD-7. On their second day of treatment, patients completed the WAI so that patients had some interaction with their treatment team in order to rate the alliance. These were patients’ baseline assessments. The MINI was also administered on day 2. Patients completed all measures, except the MINI, again on their discharge day.

### **Analytic Strategy**

Data were analyzed using PROCESS (Hayes 2013) in SPSS version 21.0. All variables were centered within PROCESS. To test our hypotheses, we tested main effects and interaction models. For the main effects model, our dependent variable was post-treatment relationship functioning and our independent variables were therapeutic alliance residualized change score (e.g., WAI at time 2, adjusting for WAI at time 1), pre-treatment relationship functioning, baseline depression and anxiety symptoms, and

baseline alliance. For the interaction model, we added the interaction of the alliance residualized change score and pre-treatment relationship functioning. For all analyses, we examined  $R^2$  change in order to assess additional variance explained by the interaction term. In order to examine components of the alliance, we conducted parallel analyses substituting total alliance scores with each subscale of the WAI (goals, tasks, and bond).

## Results

Means, standard deviations, and correlations for all variables are reported in Table 1.

### Primary Analyses

For the full sample, improvement in the alliance was associated with improved post-treatment relationship functioning ( $b = -0.014$ ,  $SE = 0.004$ ,  $CI = -0.022$ ,  $-0.006$ ,  $p < .001$ ). However, pre-treatment relationship problems did not significantly moderate the association between improvement in the overall alliance and post-treatment relationship difficulties (i.e., the two-way interaction between improvement in alliance and pre-treatment relationship problems was not significant,  $b = -0.006$ ,  $SE = 0.005$ ,  $CI = -0.016$ ,  $0.003$ ,  $p = .166$ ) (see Table 2).

Next, we examined subscales of the WAI and found that improvement in bond ( $b = -0.117$ ,  $SE = 0.038$ ,  $CI = -0.193$ ,  $-0.042$ ,  $p = .002$ ) and tasks ( $b = -0.131$ ,  $SE = 0.041$ ,  $CI = -0.210$ ,  $-0.051$ ,  $p = .001$ ) predicted lower post-treatment relationship difficulties (see Tables 3 and 4). Thus, patients who experienced an improvement in therapeutic bond and tasks reported less relationship difficulties at post-treatment. The two-way interactions were not significant between improvement in therapeutic bond and pre-treatment relationship functioning ( $b = -0.016$ ,  $SE = 0.049$ ,  $CI = -0.113$ ,  $.080$ ,  $p = .737$ ) and improvement in tasks and pre-treatment relationship functioning ( $b = -0.041$ ,  $SE = 0.051$ ,  $CI = -0.142$ ,  $0.060$ ,  $p = .424$ ) in predicting post-treatment relationship functioning.

The main effect for improvement in goals was also significant ( $b = -0.126$ ,  $SE = 0.037$ ,  $CI = -0.200$ ,  $-0.053$ ,  $p = .001$ ); and, after adding the interaction, we found that pre-treatment relationship difficulties moderated the association between improvement in goals and post-treatment relationship problems ( $b = -0.107$ ,  $SE = 0.044$ ,  $CI = -0.193$ ,  $-0.021$ ,  $p = .015$ ) (see Table 5). The Johnson-Neyman technique was used to probe the interaction, which revealed that improvement in goals was significantly related to lower relationship difficulties at post-treatment for patients with higher relationship difficulties at pre-treatment (indicated by scores  $\geq 1.07$ , which included 60.56% of the sample) (see Fig. 1). Baseline depression and anxiety symptoms were not related to post-treatment relationship functioning in any of the models.

### Exploratory Analyses

The above analyses controlled for baseline depression and anxiety scores. We reran our analyses controlling for *improvement* in depression and anxiety using residualized change scores (i.e., CES-D at time 2, adjusting for CES-D at time 1, and the

**Table 1** Means (M), standard deviations (SD), and correlations for all variables

Variable	M	SD	2	3	4	5	6	7	8	9	10	11	12
1. WAI_Goals_T1	5.04	1.16	0.57**	0.58**	0.30**	0.64**	0.36**	-0.12	-0.15*	-0.15*	-0.13*	-0.09	-0.07
2. WAI_Goals_T2	5.69	1.11	-	0.31**	0.56**	0.37**	0.64**	-0.08	-0.23**	-0.16*	-0.22**	-0.10	-0.12
3. WAI_Bond_T1	5.34	1.18		-	0.49**	0.83**	0.40**	-0.20**	-0.23**	-0.18**	-0.28**	-0.09	-0.14*
4. WAI_Bond_T2	5.94	1.03			-	0.46**	0.85**	-0.12	-0.25**	-0.17**	-0.34**	-0.12	-0.24**
5. WAI_Tasks_T1	5.29	1.15				-	0.48**	-0.11	-0.15*	-0.15*	-0.26**	-0.06	-0.14*
6. WAI_Tasks_T2	6.04	0.97					-	-0.11	-0.24**	-0.16*	-0.31**	-0.07	-0.20**
7. BASIS_I_T1	1.41	0.81						-	0.59**	0.36**	0.27**	0.16*	0.11
8. BASIS_I_T2	1.03	0.68							-	0.17**	0.36**	0.07	0.20**
9. CES-D_T1	17.35	6.48								-	0.51**	0.60**	0.37**
10. CES-D_T2	10.66	5.71									-	0.38**	0.71**
11. GAD-7_T1	11.83	5.47										-	0.56**
12. GAD-7_T2	7.04	4.58											-

Goals, Bond, and Tasks = subscales of the WAI  
 WAI Working Alliance Inventory, BASIS\_I Interpersonal Problems subscale of the Behavior and Symptom Identification Scale, CES-D Center for the Epidemiological Studies of Depression-10, GAD-7 Generalized Anxiety Disorder-7 Scale, T1 and T2 first and last assessments  
 \* $p < .05$ ; \*\* $p < .01$

**Table 2** Pre-treatment relationship difficulties and improvement in alliance predicting post-treatment relationship difficulties

Predictors	Main effects model				Moderation model			
	<i>b</i>	<i>SE</i>	95% CI		<i>b</i>	<i>SE</i>	95% CI	
			LL	UL			LL	UL
BASIS_I_T1	0.489***	0.047	0.396	0.581	0.489***	0.047	0.387	0.581
WAI_T1	-0.006*	0.003	-0.012	-0.001	-0.007*	0.003	-0.012	-0.001
RES_WAI	-0.014***	0.004	-0.022	-0.006	-0.004	0.009	-0.21	0.013
CES-D_T1	-0.008	0.007	-0.022	0.006	-0.008	0.007	-0.022	0.006
GAD-7_T1	-0.001	0.008	-0.017	0.015	-0.001	0.007	-0.017	0.015
RES_WAI* BASIS_I_T1					-0.006	0.005	-0.016	0.003
R <sup>2</sup>	0.388				0.393			
Adjusted R <sup>2</sup>	0.375				0.377			
F for change in R <sup>2</sup>	28.802***				1.665			

Note: All predictors were mean-centered

*BASIS\_I* Interpersonal Problems subscale of the Behavior and Symptom Identification Scale, *WAI* Working Alliance Inventory, *RES\_WAI* therapeutic alliance residualized change score (WAI at time 2, adjusting for WAI at time 1), *CES-D* Center for the Epidemiological Studies of Depression-10, *GAD-7* Generalized Anxiety Disorder-7 Scale, *T1* first assessment

\*\*\* $p < .001$ ; \*\* $p < .01$ ; \* $p < .05$

**Table 3** Pre-treatment relationship difficulties and improvement in bond predicting post-treatment relationship difficulties

Predictors	Main effects model				Moderation model			
	<i>b</i>	<i>SE</i>	95% CI		<i>b</i>	<i>SE</i>	95% CI	
			LL	UL			LL	UL
BASIS_I_T1	0.491***	0.046	0.401	0.581	0.491***	0.046	0.401	0.582
WAI_Bond_T1	-0.073*	0.030	-0.131	-0.014	-0.074*	0.030	-0.133	-0.015
RES_Bond	-0.117**	0.038	-0.193	-0.042	-0.115**	0.039	-0.192	-0.038
CES-D_T1	-0.007	0.007	-0.021	0.007	-0.007	0.007	-0.021	0.007
GAD-7_T1	-0.002	0.008	-0.017	0.014	-0.001	0.008	-0.017	0.014
RES_Bond* BASIS_I_T1					-0.016	0.049	-0.113	0.080
R <sup>2</sup>	0.385				0.385			
Adjusted R <sup>2</sup>	0.372				0.370			
F for change in R <sup>2</sup>	30.659***				0.113			

All predictors were mean-centered

*BASIS\_I* Interpersonal Problems subscale of the Behavior and Symptom Identification Scale, *WAI\_Bond* Bond subscale of the Working Alliance Inventory, *RES\_Bond* therapeutic alliance bond residualized change score (WAI\_Bond at Time 2, adjusting for WAI\_Bond at Time 1), *CES-D* Center for the Epidemiological Studies of Depression-10, *GAD-7* Generalized Anxiety Disorder-7 Scale, *T1* first assessment

\*\*\* $p < .001$ ; \*\* $p < .01$ , \* $p < .05$

**Table 4** Pre-treatment relationship difficulties and improvement in tasks predicting post-treatment relationship difficulties

Predictors	Main effects model				Moderation model			
	<i>b</i>	<i>SE</i>	95% CI		<i>b</i>	<i>SE</i>	95% CI	
			LL	UL			LL	UL
BASIS_I_T1	0.497***	0.046	0.408	0.587	0.499***	0.046	0.409	0.588
WAI_Tasks_T1	-0.054	0.030	-0.114	0.006	-0.054	0.030	-0.114	0.006
RES_Tasks	-0.131***	0.041	-0.210	-0.051	-0.126**	0.041	-0.207	-0.045
CES-D_T1	-0.008	0.007	-0.021	0.006	-0.007	0.007	-0.021	0.007
GAD-7_T1	0.000	0.008	-0.015	0.016	0.000	0.008	-0.015	0.016
RES_Tasks* BASIS_I_T1					-0.041	0.051	-0.142	0.060
R <sup>2</sup>	0.381				0.382			
Adjusted R <sup>2</sup>	0.368				0.367			
F for change in R <sup>2</sup>	30.112***				0.641			

All predictors were mean-centered

*BASIS\_I* Interpersonal Problems subscale of the Behavior and Symptom Identification Scale, *WAI\_Tasks* Tasks subscale of the Working Alliance Inventory, *RES\_Tasks* therapeutic alliance tasks residualized change score (*WAI\_Tasks* at Time 2, adjusting for *WAI\_Tasks* at Time 1), *CES-D* Center for the Epidemiological Studies of Depression-10, *GAD-7* Generalized Anxiety Disorder-7 Scale, *T1* first assessment

\*\*\* $p < .001$ ; \*\* $p < .01$ , \* $p < .05$

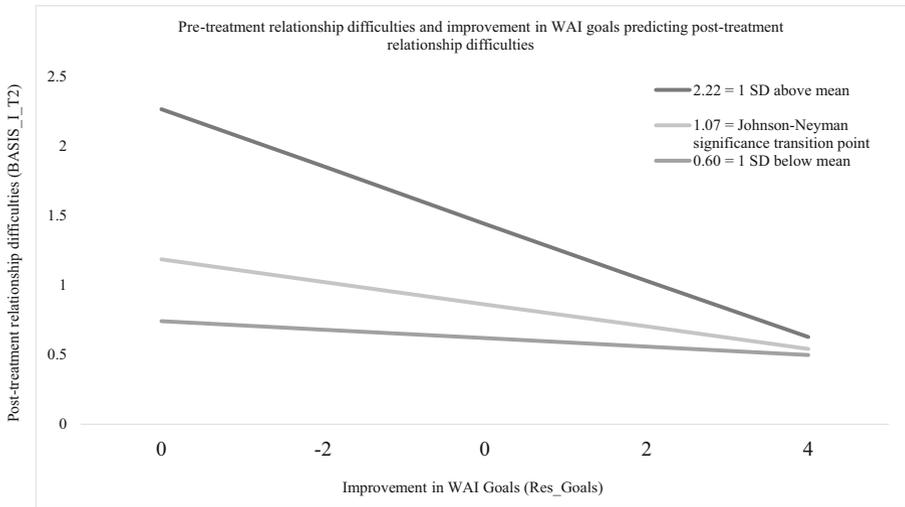
**Table 5** Pre-treatment relationship difficulties and improvement in goals predicting post-treatment relationship difficulties

Predictors	Main effects model				Moderation model			
	<i>b</i>	<i>SE</i>	95% CI		<i>b</i>	<i>SE</i>	95% CI	
			LL	UL			LL	UL
BASIS_I_T1	0.504***	0.045	0.414	0.593	0.509***	0.045	0.420	0.598
WAI_Goals_T1	-0.051	0.030	-0.110	0.008	-0.055	0.030	-0.114	0.004
RES_Goals	-0.126**	0.037	-0.200	-0.053	-0.118**	0.037	-0.191	-0.004
CES-D_T1	-0.007	0.007	-0.021	0.007	-0.007	0.007	-0.021	0.007
GAD-7_T1	-0.001	0.008	-0.016	0.015	-0.001	0.008	-0.016	0.014
RES_Goals* BASIS_I_T1					-0.107*	0.044	-0.193	-0.021
R <sup>2</sup>	0.382				0.397			
Adjusted R <sup>2</sup>	0.370				0.382			
F for change in R <sup>2</sup>	30.331***				6.033*			

Note: All predictors were mean-centered

*BASIS\_I* Interpersonal Problems subscale of the Behavior and Symptom Identification Scale, *WAI\_Goals* Goals subscale of the Working Alliance Inventory, *RES\_Goals* therapeutic alliance goals residualized change score (*WAI\_Goals* at Time 2, adjusting for *WAI\_Goals* at Time 1), *CES-D* Center for the Epidemiological Studies of Depression-10, *GAD-7* Generalized Anxiety Disorder-7 Scale, *T1* first assessment

\*\*\* $p < .001$ ; \*\* $p < .01$ ; \* $p < .05$



Note: The Johnson-Neyman technique indicated that when BASIS\_I\_T1 score were  $\geq 1.07$ , the relation between improvement in WAI goals and post-treatment relationship difficulties was significant

**Fig. 1** Pre-treatment relationship difficulties and improvement in WAI goals predicting post-treatment relationship difficulties

corresponding residualized change score for the GAD-7). Therefore, in our first model, our dependent variable was post-treatment relationship functioning and our independent variables were full-scale WAI residualized change score (e.g., WAI at time 2, adjusting for WAI at time 1), pre-treatment relationship functioning, baseline WAI, and the residualized change scores for depression and anxiety symptoms. In the second model, we added the interaction of the WAI residualized change score and pre-treatment relationship functioning. As in the primary analyses, we conducted parallel analyses substituting total alliance scores with each subscale of the WAI (goals, tasks, and bond). Paralleling findings from our primary analyses, when controlling for improvement in symptoms, the main effects for the WAI full scale, tasks, and the interaction for goals remained significant ( $b = -0.009$ ,  $SE = .004$ ,  $CI = -0.017$ ,  $-0.002$ ,  $p = .015$ ), ( $b = -0.090$ ,  $SE = 0.040$ ,  $CI = -0.168$ ,  $-0.012$ ,  $p = .023$ ), and ( $b = -0.096$ ,  $SE = 0.042$ ,  $CI = -0.179$ ,  $-0.014$ ,  $p = .022$ ), respectively. Findings for the main effect of improvement in bond ( $b = -0.074$ ,  $SE = 0.038$ ,  $CI = -0.149$ ,  $0.000$ ,  $p = .051$ ) trended on significance. Improvement in depression but not anxiety was negatively related to post-treatment relationship difficulties in all models.

Given previous research examining the impact of interpersonal difficulties on alliance for individuals with depression, we also reran our analyses with the subsample of individuals who met criteria for MDD ( $N = 139$ ). In line with our primary analyses, controlling for baseline alliance and depression, the main effects for the full-scale WAI, tasks, and bond and the interaction for goals remained significant ( $b = -0.014$ ,  $SE = 0.005$ ,  $CI = -0.024$ ,  $-0.003$ ,  $p = .012$ ), ( $b = -0.147$ ,  $SE = .057$ ,  $CI = -0.259$ ,  $-0.034$ ,  $p = .011$ ), ( $b = -0.128$ ,  $SE = 0.053$ ,  $CI = -0.233$ ,  $-0.022$ ,  $p = .018$ ) and ( $b = -0.133$ ,  $SE = 0.063$ ,  $CI = -0.258$ ,  $-.009$ ,  $p = .035$ ), respectively. Baseline depression was not related to post-treatment relationship functioning in any of the models. When

controlling for *improvement* in depression, only the interaction for goals remained significant ( $b = -0.124$ ,  $SE = 0.061$ ,  $0 = -0.244$ ,  $-0.004$ ,  $p = .043$ ). The main effects for bond, tasks, and goals were not significant. *Improvement* in depression was negatively related to post-treatment relationship difficulties in all models (e.g., full WAI, tasks, bond, and goals) examining the subsample of individuals with MDD.

## Discussion

The present study examined the association between improvement in the alliance and interpersonal functioning for individuals with mood and anxiety disorders reporting varying degrees of relationship difficulties. We hypothesized that improvement in the alliance would be more strongly associated with reductions in relationship problems for individuals presenting to treatment with relatively higher relationship difficulties. We examined each subscale of the alliance (bond, tasks, and goals) (WAI-S; Tichenor and Hill 1989; Tracey and Kokotovic 1989) and found that improvement in each subscale was associated with improved post-treatment interpersonal functioning. However, only the relation between improvement in goals and post-treatment interpersonal functioning was moderated by pre-treatment relationship functioning.

There are several ways in which building a strong alliance with one's treatment team may result in improved interpersonal functioning with family and friends. Patients had frequent contact with their providers (i.e., several times a week to daily) while engaged in the program. By establishing warm, trusting relationships with several different providers, patients likely built confidence in their abilities to form close relationships. These interactions serve as social exposures and may have reduced anxiety regarding communication and vulnerability in other relationships. Equally, healthy relationships are positively reinforcing which may have encouraged patients to build similarly respectful relationships outside of therapy. Research has found that one's ability to form a positive therapeutic alliance is related to improved social support from others (Mallinckrodt 1996). Feeling as though the therapeutic interventions were useful and effective (i.e., improvement in tasks) also led to enhanced relationship functioning. As patients gain mastery over new skills, they build assurance that they can work effectively with others (e.g., providers in therapy settings and then friends and family outside of therapy) to achieve goals. Lastly, we found that improvement in agreement on goals was related to better relationship functioning for individuals with higher, relative to lower, relationship problems at the start of treatment. When working toward mutually satisfying goals, patients need to identify and voice their desire for change and therapists must listen, agree with, and help operationalize goals. This process, more so than the others, requires authentic communication, compromise, and understanding. For individuals with more severe relationship difficulties, communicating in this way may be novel and improvement in these skills would be particularly beneficial for creating closeness in other relationships.

Interestingly, only bond (and not tasks or goals) was related to relationship functioning during the first WAI assessment. At the first assessment, patients had only established initial goals, which would continue to develop over time, and were introduced to some of the tasks that would be implemented to achieve those goals. Sessions on the first and second day were largely led by the treatment team and it is likely that all

patients, regardless of interpersonal functioning, experienced these sessions similarly. Therefore, we would not necessarily expect to see a relation between interpersonal functioning and tasks or goals at the first assessment. However, patients who had better interpersonal functioning may have established some feeling of initial rapport with their treatment team— explaining the relation between relationship functioning and bond.

For the subsample of patients with MDD, controlling for baseline depression, we found that improvement in bond, tasks, and goals and the interaction between goals and pre-treatment relationship functioning predicted improved post-treatment interpersonal functioning. Baseline depression was not related to post-treatment relationship functioning. However, when controlling for *improvement* in MDD, only the interaction between goals and pre-treatment relationship functioning was significant. We did not find significant main effects for bond, tasks, or goals. In all models, *improvement* in depression was associated with reduced post-treatment relationship difficulties. Individuals with MDD tend to be avoidant of social situations, isolative, passive, and distant (Barrett and Barber 2007). These findings suggest that treatment should focus on depressive symptom reduction in order to improve relationship functioning for people with MDD. However, for people with MDD and elevated interpersonal difficulties, our findings stress the importance of working toward mutually satisfying goals in order to improve relationships. Depression may further exacerbate already poor interpersonal functioning, and patients with co-occurring relationship problems and MDD have poorer outcomes due to their difficulty establishing a strong alliance (Howard et al. 2006). These findings emphasize the importance of focusing on collaborative goals in order to retain and improve relationships for these individuals.

There are several important limitations to be noted. This research was conducted within a naturalistic partial hospital setting (i.e., short-term acute psychiatric treatment). It is unclear how these results would generalize to longer-term outpatient settings. The study relied on the patients' report of alliance (Horvath et al. 2011). Although patient-report measures are the most common method of assessing the alliance (Horvath et al. 2011), an interesting extension of this work would include the treatment team's ratings of alliance. Provider's perception of the alliance may also predict improvement in patient's interpersonal functioning. Obtaining both patient's and provider's perceptions would reveal a more comprehensive understanding of how the alliance contributes to improved relationship functioning for these patients. Because patients were working with a treatment team, rather than a single therapist, we used a modified version of the WAI. Constructs of the alliance may be slightly different when considering a treatment team rather than a single provider. In particular, trust and closeness with a treatment team is likely less intimate than with an individual therapist in longer-term outpatient treatment. Therefore, the generalizability of our findings to "one-on-one" therapy and outpatient therapy is unclear. Interpersonal problems were measured with the BASIS-24, which assesses functioning across a range of relationship types. Therefore, this research is unable to differentiate how the alliance contributes to improved interpersonal functioning in specific relationships (i.e., romantic partnerships, family, and friendships). Future research should use measures that assess specific relationships in order to better understand if improvement in the alliance contributes more or less to specific relationship types. In addition, the alliance and interpersonal functioning were only assessed at the beginning and the end of treatment. A denser assessment schedule (e.g., repeated assessments of these variables over the course of treatment) would have

allowed for a more fine-grained analysis of the temporal relationship between alliance and outcome over time. Another relevant future direction of research would be to examine mediators of the relationship between improvement in the alliance and enhanced interpersonal functioning. For example, does improvement in the alliance promote increased positive and decreased negative communication behaviors for patients with depression and anxiety in individual treatment—as it does for couples (Owen et al. 2011).

The above limitations notwithstanding, the present study made novel contributions by examining the relation between the therapeutic alliance and improvement in interpersonal functioning for patients with depressive and anxiety disorders and a range of relationship difficulties. Additional research is needed to investigate the therapeutic processes that account for the well-documented link between elevated interpersonal difficulties and poor treatment outcomes (e.g., Howard et al. 2006), and to determine how best to intervene to improve interpersonal outcomes for the large proportion of patients who enter treatment with mood and anxiety disorders.

## Compliance with Ethical Standards

**Conflict of Interest** The authors declare that there is no conflict of interest.

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