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The relationship between interpersonal problems, therapeutic alliance, and outcomes following group and individual cognitive behavior therapy

Peter M. McEvoy[a, b], Melissa M. Burgess[a, b], & Paula Nathan[a]

[a] Centre for Clinical Interventions, Perth

[b] School of Psychology and Speech Pathology, Curtin University, Perth

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Correspondence concerning this article should be addressed to Peter M McEvoy, Ph.D., Centre for Clinical Interventions, 223 James Street, Northbridge, Perth, Western Australia, 6003, Australia. Phone: +618 9227 4399. Fax: +618 9328 5911.

Email: peter.mcevoy@health.wa.gov.au

Abstract

Background: Cognitive behavioral therapy (CBT) is efficacious, but there remains individual variability in outcomes. Patient's interpersonal problems may affect treatment outcomes, either directly or through a relationship mediated by helping alliance. Interpersonal problems may affect alliance and outcomes differentially in individual and group (CBGT) treatments. The main aim of this study was to investigate the relationship between interpersonal problems, alliance, dropout and outcomes for a clinical sample receiving either individual or group CBT for anxiety or depression in a community clinic. **Methods:** Patients receiving individual CBT (N = 84) or CBGT (N= 115) completed measures of interpersonal problems, alliance, and disorder specific symptoms at the commencement and completion of CBT. **Results:** In CBGT higher pre-treatment interpersonal problems were associated with increased risk of dropout and poorer outcomes. This relationship was not mediated by alliance. In individual CBT those who reported higher alliance were more likely to complete treatment, although alliance was not associated with symptom change, and interpersonal problems were not related to attrition or outcome. **Limitations:** Allocation to group and individual therapy was non-random, so selection bias may have influenced these results. Some analyses were only powered to detect large effects. Helping alliance ratings were high, so range restriction may have obscured the relationship between helping alliance, attrition and outcomes. C**onclusions:** Pre-treatment interpersonal problems increase risk of dropout and predict poorer outcomes in CBGT, but not in individual CBT, and this relationship is not mediated by helping alliance. Stronger alliance is associated with treatment completion in individual, but not group CBT.

Key Words: Interpersonal problems; therapeutic alliance; depression; anxiety; cognitive behavior therapy

1.0 Introduction

Cognitive behavioral therapy (CBT) is an efficacious treatment for depression in both individual and group treatment formats (Morrison, 2001). However, there remains considerable individual variability in treatment adherence and treatment outcomes (Hamilton & Dobson, 2002). Psychological services operate in a climate where it is important that services are demonstrably evidence-based and cost-effective. In order to provide cost-effective services, and to ensure patients are accurately matched to treatments that provide the best chance of success, it is important to understand how, and for whom, CBT produces positive outcomes. One factor associated with the development and maintenance of psychological problems is interpersonal problems (Davies-Osterkamp et al., 1996), defined as recurring difficulties in social relationships with other people (Horowitz et al,. 1993). interpersonal problems include a wide range of potential difficulties (e.g. being too submissive or controlling) that have the potential to interfere with psychotherapy.

Individual and group therapy place differing interpersonal demands on patients so unsurprisingly the influence of interpersonal problems on treatment outcome seems to vary according to treatment format. Individual therapy involves one-on-one interpersonal contact, and is likely to involve more verbal contributions from the patient than group therapy. Mohr and colleagues (1990) found that patients who report high levels of interpersonal suspiciousness and difficulties trusting others may respond negatively to therapy (i.e. symptoms become more severe). However, at least within the context of individual treatment, well trained clinicians can identify, manage, and, if necessary, help clients to modify interpersonal styles that may be contributing to a client's presenting problem. In contrast, group therapy involves interactions with a number of people, and patients need to share the opportunity to contribute to sessions. Within this context it may be more difficult to work with individuals' problematic interpersonal styles, especially when the group is not

specifically targeting interpersonal skills and the patient's interpersonal problems interfere with their ability to contribute to group discussions. A recent study evaluating the contribution of interpersonal problems to outcomes in group CBT for depression found that difficulties being assertive and a tendency to subjugate one's own needs were associated with poorer outcomes, while difficulties supporting others or being open about one's problems were associated with higher attrition (McEvoy, Burgess, & Nathan, 2013).

There is some evidence that the relationship between interpersonal problems and treatment outcome may be mediated by helping alliance (Hardy et al., 2001; Howard et al., 2006). While there is considerable diversity in the definition and measurement of alliance (Horvath & Luborsky, 1993), broadly speaking alliance refers to the perception of shared responsibility for working out treatment goals (Luborsky, 1976). Alliance can be measured by patient, therapist or observer report (or a combination of these), however evidence suggests that, of these, patient ratings are most predictive of treatment outcome (Bachelor, 1991). Therapy is an inherently interpersonal process (Andrews, 2001), and the ability to form a collaborative patient-therapist working relationship is seen as an essential component for effective psychotherapy across all treatment modalities and formats (Lambert & Barley, 2001). Helping alliance has been demonstrated to have a moderate but consistent relationship with outcome, with stronger alliance predicting more positive treatment outcomes (Martin et al., 2000). A recent meta-analysis indicated that patients reporting weaker helping alliance are more likely to drop out of therapy (Sharf et al., 2010). Importantly, patients reporting a greater number of interpersonal problems at pre-treatment may have an interpersonal style that diminishes their capacity to form a strong helping alliance which may, in turn, adversely impact on treatment outcomes (Horvath & Luborsky, 1993; Muran et al., 1994; Saunders, 2001; Taft et al., 2004).

The influence of helping alliance may vary according to treatment format and stage of treatment. Liber and colleagues (2010) found that stronger helping alliance was related to better treatment adherence and outcomes for anxious children receiving individual but not group CBT. With regard to alliance and treatment stage, Strauss et al. (2006) found that good alliance, followed by deterioration in alliance, followed by an improvement in alliance predicted improvements in symptoms of personality disorders and depression. Conversely, a meta-analysis of 79 studies evaluating the relationship between helping alliance and outcome indicated that alliance has a moderate, positive relationship with outcome, and that this relationship was consistent regardless of the time at which alliance was rated (e.g., early, middle or late in therapy; Martin et al., 2000).

Interpersonal problems have been shown to place patients at greater risk of poor alliance, treatment drop-out and poor outcomes. Howard and colleagues (2006) measured interpersonal problems, helping alliance and treatment outcomes in patients (n=19) receiving individual CBT for depression. They found that higher levels of pre-treatment interpersonal problems were associated with poorer outcomes on depression measures at post-treatment, and that the reduction in treatment efficacy associated with more severe interpersonal problems was largely explained by the impact of interpersonal problems on helping alliance. Hardy and colleagues (2001) evaluated the association between interpersonal problems and treatment outcomes for depressed patients receiving individual cognitive therapy. They found that patients who reported difficulties in becoming socially involved and having an avoidant interpersonal style were likely to have poorer outcomes. This relationship was mediated by helping alliance, such that under-involved, avoidant patients were typically less able to form a strong alliance, which in turn predicted depression outcomes.

The role of interpersonal problems in predicting therapy outcomes is clearly a complex but important one. There is a need to consider the relationship between interpersonal

problems, treatment format (individual vs. group), and the mechanism through which interpersonal problems influence outcomes (directly, mediated by helping alliance, or both). Moreover, it is unclear whether helping alliance at different stages of treatment (i.e., early versus late) is differentially related to outcome. This naturalistic study aimed to examine the associations between pre-existing interpersonal problems, early versus late helping alliance, treatment adherence, and symptom change for patients receiving either individual or group CBT for emotional disorders. The first hypothesis was that poorer helping alliance early in therapy would be associated with higher treatment attrition in both individual and group therapy. The second hypothesis was that therapeutic alliance would mediate the relationship between interpersonal problems and symptom change. Specifically, it was expected that more severe pre-treatment interpersonal problems would result in poorer early and late helping alliance in individual and group therapy which, in turn, would result in higher post-treatment symptoms after controlling for pre-treatment symptoms. The third hypothesis was that interpersonal problems would have a greater adverse impact on attrition and outcomes for group therapy compared to individual therapy, where trained clinicians have more flexibility to address interpersonal issues compared to group sessions. In contrast, but consistent with Liber et al. (2010), it was expected that therapeutic alliance would have a weaker association with outcomes from group therapy compared to individual therapy, where the sole relationship with the therapist may wield greater influence than within a group context.

2.0 Method

2.1 Participants

Participants (*N* = 199, 69.8% women) were referred to a community based specialist mental health clinic by health practitioners for a unipolar depressive disorder or anxiety disorder with a mean age of 37.25 years (*SD* = 12.49, Range = 18 - 73). Inclusion criteria for treatment and therefore this study were (a) a Diagnostic and Statistical Manual of Mental

Disorders (DSM-IV, American Psychiatric Association, 2000) unipolar depressive disorder or anxiety disorder, (b) no current active suicidal intent (suicidal ideation or history were not an exclusion criteria), and (c) no psychotic or bipolar affective disorder. DSM-IV diagnoses were determined using the Mini International Neuropsychiatric Interview (MINI, Lecrubier et al., 1997; Sheehan et al. 1997a, b, 1998). More patients received group (n = 115) than individual (n = 84) treatment. A majority of patients (70.5%) had a principal depressive disorder (major depressive disorder, n = 115; dysthymia, n = 22) with the remaining having a principal anxiety disorder. Principal anxiety disorders included generalized anxiety disorder (n = 26), social phobia (n = 20), panic disorder with or without agoraphobia (n = 11), simple phobias (n = 3), PTSD (n = 1), and anxiety disorder not otherwise specified (n = 1). A majority of patients met criteria for at least one comorbid disorder (n = 114, 57.3%), with 37 (18.6%) meeting criteria for at least two additional disorders. The most common comorbid disorders were GAD (n = 43), social phobia (n = 36), dysthymia (n = 34), major depressive disorder (n = 15), and panic disorder/agoraphobia (n = 14). Most patients were born in Australia (74.4%), followed by Europe/United Kingdom (14.6%), Asia (3.0%), North America (3.0%), and other (5%). Over half (55.6%) were employed, 43.4% were single, 37.2% were married or living with a partner, 17.8% were separated or divorced, and 1.5% were widowed. High school was the highest qualification for 30.5%, whereas 13.0% did not complete high school, 22.0% had a trade qualification, and 30.5% had a tertiary education. Most (71.2%) reported taking medication for their presenting problem.

2.2 Measures

2.2.1 Inventory of Interpersonal Problems (IIP-32, Barkham et al., 1996). The IIP-32 is a 32-item measure with eight subscales reflecting different interpersonal problems. The IIP-32 subscales have demonstrated adequate internal consistency in outpatient and non-clinical samples (Barkham et al., 1996). McEvoy, Burgess, Page, Nathan and Fursland (2013)

found that the eight-factor structure of the IIP-32 was robust and highly internally reliable across clinical samples with anxiety and depressive disorders, and eating disorders. The IIP-32 subscales are also associated with symptoms of anxiety, depression, and eating disorders (Lampard et al., 2011; McEvoy, Burgess, Nathan, 2013; McEvoy, Burgess, Page, et al., 2013). This version of the IIP-32 was used instead of circumplex versions to maximize clinical utility. The IIP-32 total score was used as an indicator of severity of interpersonal problems. Cronbach's alpha was .88 in this study.

2.2.2 Helping Alliance Questionnaire 2 (HAq-II; Luborsky et al., 1996*).* The HAq-II is a 19-item measure of positive and negative helping alliance that is typically calculated as a total score (Luborsky et al., 1996). This measure was completed with reference to the primary group therapist (i.e., most senior clinical psychologist rather than the trainee) or individual therapist. Items are scored on a 6-point rating scale from strongly disagree (1) to strongly agree (6). Cronbach's alpha for the HAq (session 2) was .70.

2.2.3 Beck Anxiety Inventory (BAI; Beck, Epstein, Brown, & Steer, 1988). The BAI consists of 21 items and measures the severity of anxiety symptoms over the previous week. Reliability and validity are established; internal consistency reliability coefficients range from .85 and .94, with a 1-week test-retest reliability coefficient of .75 (Beck et al., 1988). Cronbach's alpha in the current study was .92.

2.2.4 Beck Depression Inventory (BDI-II; Beck, Steer, & Brown, 1996). The BDI-II is a 21-item measure of depression symptoms experienced during the previous two weeks. Factor analytic studies of the BDI-II provide evidence for both a total score and two factor scores representing cognitive and somatic dimensions (Beck et al., 1996). Internal consistency ($\alpha = .92$) and test-retest reliability ($r = .93$ over 1 week) are established (Beck et al., 1996), and evidence for construct validity has been demonstrated (e.g. Dozois et al.,

1998; Osman et al., 2004). Support for convergent and discriminant validity has also been reported (Steer et al., 1997). Cronbach's alpha in the current study was .91.

2.3 Procedure

All patients completed the IIP-32, BDI-II, and BAI prior to their initial assessment, and again at post-treatment. Patients meeting all inclusion criteria were offered a place in the next available group or individual treatment. Referrers nominate their preference for group or individual for their patient, but the final decision is made based on the clinical interview and patient preference and availability. Patients would typically commence individual therapy if they are unable to make the group time or day due to other commitments, if they express a strong preference for individual therapy, or if the clinician believes their problem or presentation is contraindicated for group therapy. The HAq-II was completed after session 2 to measure early therapeutic alliance (early alliance), and again during the last session to measure the strength of the alliance by the end of treatment (late alliance).

2.3.1 *Group treatment*

Group patients attended the same transdiagnostic program comprising of 10 two-hour weekly sessions, which has been demonstrated to be effective (McEvoy & Nathan, 2007; McEvoy, Burgess, & Nathan, 2013). The core components of the program are: (a) psychoeducation about depression and anxiety, (b) de-arousal techniques including slow breathing, (c) behavioral activation tasks, (d) exposure tasks, and (e) cognitive restructuring. None of the content explicitly focused on interpersonal issues, although patient-driven treatment goals may have had interpersonal contexts (e.g., to re-engaged in previously enjoyed social or sporting activities). Between 8 and 10 participants commence each group, and treatment integrity was encouraged by a structured and very detailed therapist manual containing an agenda, detailed content outline for each session, therapist instructions, and patient handouts. All groups are facilitated by one experienced masters- or doctoral-level

Clinical Psychologist and one Clinical Psychologist trainee. Therapist training in the protocol involved co-facilitation of at least one group with a more experienced therapist, along with weekly supervision from another more senior Clinical Psychologist in the service.

2.3.2 *Individual treatment*

Individualized cognitive behavioral case formulations were developed for all patients, which served as the basis for individual treatment plans. Treatment was provided predominantly by masters- and doctoral-level clinical psychologists, but also by clinical psychology trainees. All clinicians received weekly supervision from a more senior clinical psychologist and attended weekly clinic and peer review meetings, during which diagnoses, treatment plans, and outcomes were discussed. Treating clinicians typically use modules from published manuals to address clinical problems, but individual treatment was not manualized for this study. The process of receiving informed written consent for using patients' data for research purposes was approved by the Area Health Service's Mental Health Human Research Ethics Committee (Registration number 2013-13).

2.3.3 *Data Analytic strategy*

Prior to data analyses, distributions, skewness and kurtosis were examined for pre-treatment and post-treatment scale total scores. Distributions approximated normality with all scales demonstrating acceptable levels of skewness and kurtosis ($< |1.00|$), with the exception of the post-treatment BDI-II, BAI, and HAq-II scores. No univariate outliers were detected so these variables were transformed (square root), which brought the skewness and kurtosis within range. All analyses were run with and without transformed variables but the pattern of findings was identical for most analyses, so for ease of interpretation the untransformed variables were used unless otherwise specified. To identify commonalities and differences across the individual and group treatment samples, chi-square analyses (categorical variables) independent-samples t-tests (continuous variables) were used to compare the samples on

sociodemographic factors. Univariate Analysis of Variance (ANOVA) was then used to compare groups across treatment format on the clinical factors whilst controlling for identified sociodemographic differences. All subsequent analyses were conducted separately for the group and individual samples, given that patients were not randomised to treatment format and thus any differences could be attributable to unmeasured sample differences rather than treatment format. Independent-samples t-tests were used to compare discontinuers to treatment completers, and univariate ANOVA was used to test whether differences remained significant after controlling for identified sociodemographic differences between completers and discontinuers. Bivariate correlations between alliance, interpersonal problems, and alliance were then examined before mediational models were tested using the PROCESS macro for SPSS (Hayes, 2012). The PROCESS program calculates the total effect of the independent variable (i.e., pre-treatment IIP-32) and covariates (i.e., pre-treatment symptoms, BDI-II or BAI) on the outcome variable (i.e., post-treatment symptoms, BDI-II or BAI), the direct effect of the independent variable on the outcome variable (i.e., ignoring the mediators), and the separate indirect effects for each mediator (i.e., second-order factor, therapeutic alliance), along with 95% confidence intervals using at least 1000 bootstrapping re-samples. A significant indirect effect is indicative of mediation. Bootstrapping accounts for non-normality of the sampling distribution for indirect effects (Preacher & Hayes, 2008). Analyses were restricted to those who completed treatment and provided post-treatment data on all variables.

3.0 Results

3.1 Characteristics of individual and group treatment samples

Clinical and sociodemographic features of the samples are reported in Table 1, along with group comparisons. Patients receiving individual therapy were more evenly distributed in terms of principal diagnosis (depression or anxiety) compared to those receiving group

treatment, who were more likely to have a principal depressive disorder. Patients receiving individual therapy on average attended more sessions and were less likely to be medicated than group patients. These groups did not significantly differ on gender, age, qualifications, or marital status.

Independent-samples t-tests demonstrated that those who received group therapy had higher pre-treatment BDI-II, higher post-treatment IIP-32 total, and lower HAq-II (early and post-treatment) scores compared to those who received individual therapy (Table 2). Univariate ANOVAs demonstrated that these differences on post-treatment IIP-32, $F(1, 116) = 7.22$, $p < .01$, Partial $\eta^2 = .06$, early HAq-II, $F(1, 189) = 35.84$, $p < .001$, Partial $\eta^2 = .16$, and late HAq-II, $F(1, 115) = 16.48$, $p < .01$, Partial $\eta^2 = .13$, remained significant after controlling for clinical variables that differed across the samples (i.e., principal diagnosis of depression vs. anxiety disorder, number of sessions, medication use), but the difference between group and individual therapy group was no longer significant on pre-treatment BDI-II, $F(1, 189) = .54$, $p = .46$, Partial $\eta^2 = .003$.

3.2 Treatment attrition

Patients were coded as dropouts if termination of therapy was not mutually agreed. Sixty-two (73.4%) of the 84 individual patients were coded as treatment completers, with 50, 48, 47, and 45 of these providing post-treatment BDI-II, BAI, IIP-32, and HAq-II data, respectively. Ninety-six (83.4%) of the 115 patients were coded as treatment completers, with 88, 89, 76, and 78 of these providing post-treatment BDI-II, BAI, IIP-32, and HAq-II data, respectively. Reasons for failure to provide post-treatment data include non-attendance at the final group session (when post-treatment questionnaires were completed) and failure to return questionnaires in the post. Numbers differed across questionnaires if some patients returned partially completed questionnaire booklets. Two patients failed to provide pre-treatment BAI data for similar reasons.

For the individual therapy sample, completers (M = 36.87, SD = 12.91) were older than and dropouts (M = 31.09, SD = 10.42), but this difference just failed to reach statistical significance, t(82)=1.89, p = .06. Completers and dropouts did not significantly differ on gender, $\chi^2(1) = 2.42$, p = .12, principal diagnosis (depression or anxiety disorder), $\chi^2(1) = 0.70$, p = .70, or medication use, $\chi^2(1) = 0.01$, p = .96. For the group therapy sample, completers (M = 38.66, SD = 12.19) and dropouts (M = 38.47, SD = 13.51) did not significantly differ in mean age, t(113) = 0.06, p = .95, principal diagnosis (depression or anxiety disorder), $\chi^2(1) = 3.09$, p = .08, or medication use, $\chi^2(1) = 0.27$, p = .60. However, a higher proportion of women (87.8%) completed group therapy compared to individual therapy (72.7%), $\chi^2(1) = 3.88$, $p < .05$.

Completers and dropouts were compared on pre-treatment BDI-II, BAI, IIP-32 total scores as well as early HAq-II scores (Table 3). For those receiving individual treatment, early HAq-II scores were significantly higher in completers than dropouts. Pre-treatment BDI-II, BAI, and IIP-32 scores did not significantly differ between completers and dropouts. In contrast, for those receiving group treatment pre-treatment BDI-II, BAI, and IIP-32 scores were significantly lower in treatment completers than dropouts, but completers and dropouts did not significantly differ on early HAq-II scores. Univariate ANOVAs demonstrated that differences on the BDI-II, $F(1, 112) = 8.59$, $p < .01$, Partial $\eta^2 = .07$, BAI, $F(1, 111) = 7.18$, $p < .01$, Partial $\eta^2 = .06$, and IIP-32, $F(1, 112) = 6.08$, $p = .02$, Partial $\eta^2 = .05$, remained significant after controlling for gender. Therefore, stronger therapeutic alliance was related to treatment completion for individual treatment, whereas less severe symptoms and interpersonal problems were associated with treatment completion for group treatment.

3.3 Therapeutic alliance and treatment outcome

3.3.1 Change and Bivariate Correlations

Paired-samples t-tests demonstrated that BDI-II, $t(137) = 12.94$, $p < .001$, $d = 1.08$, BAI, $t(135) = 7.49$, $p < .001$, $d = .63$, IIP-32, $t(122) = 9.88$, $p < .001$, $d = .81$, and HAq-II scores, $t(124) = 5.04$, $p < .001$, $d = .13$, significantly improved from pre- to post-treatment for the combined sample. IIP-32 effect sizes (Cohen's *d*) on the IIP-32 were 1.03 and .84 for those receiving individual and group therapy, respectively, and post-treatment means were well within one standard deviation of the published non-clinical mean (Barkham et al., 1996, $M = .98$, $SD = .52$).

Square root transformations were used on post-treatment BDI-II, BAI, and HAq-II for all subsequent analyses. At pre-treatment, the BDI-II was significantly and positively correlated with the BAI and IIP-32 (Table 4), and significantly and negatively correlated with early HAq-II scores. Pre-treatment BAI was also significantly correlated with the IIP-32 total score but not the HAq-II. Pre-treatment BDI-II and BAI, IIP-32 total and early HAq-II scores were also significantly correlated with post-treatment BDI-II , BAI, and IIP-32 total scores, except early HAq-II was not significantly correlated with post-treatment BAI. Pre-treatment BDI-II, BAI, and IIP-32 total were not significantly correlated with post-treatment HAq-II scores. At post-treatment, correlations between the BDI-II, BAI, and IIP-32 total scores were generally moderate to high. Post-treatment HAq-II was also significantly correlated with the BDI-II and IIP-32 total score, but not with BAI.

3.3.2 Alliance as a mediator between pre-treatment interpersonal problems and depression

To test the hypothesis that interpersonal problems would interfere with therapeutic alliance which, in turn, would be associated with higher post-treatment symptoms, two main mediational models were tested. For Model 1, early (session 2) HAq-II was expected to mediate the relationship between pre-treatment IIP-32 total scores and post-treatment symptoms, after controlling for pre-treatment symptoms. For Model 2, late (final session)

HAq-II was expected to mediate this relationship. These two models were first run in the whole sample and then separately for those receiving individual and group treatment. All models were run separately with the BDI-II (this section) and BAI (next section) as outcome variables.

The relations between pre-treatment IIP-32, early helping alliance, and post-treatment BDI-II were examined first. Pre-treatment symptoms corresponding to the outcome in the model (i.e., BDI-II or BAI) were entered as a covariate for both helping alliance (mediator) and post-treatment symptoms (outcome). For the whole sample with pre- and post-treatment data on all variables (n = 138), the IIP-32 and early HAq-II together explained 14% of the variance in post-treatment BDI-II, $F(2, 135) = 10.59$, $p < .001$). After controlling for pre-treatment BDI-II, the total effect of IIP-32 on post-treatment BDI-II was not significant (β = -.10, SE = .08, $t = -1.19$, $p = .23$, 95% CI = -.26 – .06), so the direct and indirect effects were also non-significant. The same model was then run separately for those who received individual and group treatment. For those receiving individual treatment (n = 50) the pattern of findings was the same, so they are not reported here. For those receiving group treatment (n = 88), the total effect of IIP-32 on post-treatment BDI-II was significant (β = -.23, SE = .08, $t = -2.68$, $p < .01$, 95% CI = -.40 – -.06): the direct effect of pre-treatment IIP-32 on post-treatment BDI-II was significant (β = .23, SE = .09, $t = -2.56$, $p < .05$, 95% CI = -.42--.05) with higher pre-treatment IIP-32 scores being associated with higher post-treatment BDI-II scores. The total indirect effect was not significant (β = .01, SE = .03, bootstrapped 95% CI = -.05 – .08), so there was no evidence that the HAq-II mediated this relationship.

The relations between pre-treatment IIP-32, late helping alliance, and post-treatment BDI-II were examined next. For the whole sample (n = 113), the IIP-32 and late HAq-II together explained 14% of the variance in BDI-II, $F(2, 110) = 8.63$, $p < .001$). After controlling for pre-treatment BDI-II, the total effect of IIP-32 on post-treatment BDI-II was

not significant (β = -.09, SE = .09, *t* = -1.01, *p* = .31, 95% CI = -.28 – .09), so the direct and indirect effects were also non-significant. For those receiving individual treatment (n = 40) the pattern of findings was the same, so are not reported. For those receiving group treatment (n = 72), the total effect of IIP-32 on post-treatment BDI-II was significant (β = .22, SE = .09, *t* = 2.39, *p* < .05, 95% CI = .03 - .41): the direct effect of pre-treatment IIP-32 on post-treatment BDI-II was significant (β = .22, SE = .09, *t* = -2.35, *p* < .05, 95% CI = -.41--.03), but the total indirect effect was not (β = .01, SE = .02, bootstrapped 95% CI = -.01 – .08).

3.3.3 Alliance as a mediator between pre-treatment interpersonal problems and anxiety

The relations between pre-treatment IIP-32, early (i.e., session 2) helping alliance, and post-treatment BAI were examined next. For the whole sample (n = 137), the IIP-32 and early HAq-II together explained 8% of the variance in post-treatment BAI, *F*(2, 134) = 15.81, *p* < .01). After controlling for pre-treatment BAI, the total effect of IIP-32 on post-treatment BAI was not significant (β = .39, SE = .28, *t* = 1.37, *p* = .17, 95% CI = -.17 – .95), so the direct and indirect effects were also non-significant. The same model was then run separately for those who received individual and group treatment. The pattern of findings was the same for those receiving individual treatment (n = 48), so they are not reported here. For those receiving group treatment (n = 88), the total effect of IIP-32 on post-treatment BAI was significant (β = .85, SE = .32, *t* = 2.66, *p* < .01, 95% CI = .22 – 1.50): the direct effect of pre-treatment IIP-32 on post-treatment BAI was significant (β = .90, SE = .33, *t* = 2.76, *p* < .01, 95% CI = .25- 1.55) with higher pre-treatment IIP-32 scores being associated with higher post-treatment BAI scores. The total indirect effect was not significant (β = -.04, SE = .07, bootstrapped 95% CI = -.27 – .05), so the HAq-II did not mediate this relationship.

The relations between pre-treatment IIP-32, late (i.e., post-treatment) helping alliance, and post-treatment BAI were examined next. For the whole sample (n = 113), the IIP-32 and late HAq-II together explained 6% of the variance in post-treatment BAI, *F*(2, 111) = 3.67, *p*

< .05). After controlling for pre-treatment BAI, the total effect of IIP-32 on post-treatment BAI was not significant (β = .17, SE = .30, *t* = 0.58, *p* = .56, 95% CI = -.42 – .77), so the direct and indirect effects were also non-significant. For those receiving individual treatment (n = 40) the pattern of findings was the same, so they are not reported here. For those receiving group treatment (n = 73), the total effect of IIP-32 on post-treatment BAI was significant (β = .74, SE = .34, *t* = 2.18, *p* < .05, 95% CI = .06 – 1.41): the direct effect of pre-treatment IIP-32 on post-treatment BAI was significant (β = .73, SE = .34, *t* = 2.14, *p* < .05, 95% CI = .05 – 1.41), but the total indirect effect was not significant (β = .01, SE = .07, bootstrapped 95% CI = -.12 – .18).

Discussion

This study aimed to examine the associations between pre-existing interpersonal problems, early and late therapeutic alliance, treatment adherence, and symptom change for patients receiving either individual or group CBT for emotional disorders. The first hypothesis was that poorer helping alliance early in therapy would be associated with higher treatment attrition in both individual and group therapy, which was partially supported. For those receiving individual therapy, those with a stronger early therapeutic alliance were more likely to complete treatment, whereas symptom severity and pre-treatment interpersonal problems were not significantly related to attrition. In contrast, for those receiving group therapy, the strength of early therapeutic alliance was unrelated to attrition, whereas those with more severe depression and anxiety symptoms and more severe pre-treatment interpersonal problems were more likely to discontinue treatment. These findings suggest that therapeutic alliance, symptom severity, and pre-existing interpersonal problems have different effects on therapeutic engagement depending upon the treatment modality. It may be that within the context of individual therapy, with clinicians trained to work therapeutically with interpersonal skills deficits and who have the flexibility to target

processes relevant to more complex presentations, clients are likely to persevere with treatment if the therapeutic alliance is strong. In contrast, within group therapy, where the opportunities to work with an individual's interpersonal problems are more limited, the patient is required to relate effectively to other patients who may also have interpersonal problems, therapeutic alliance is somewhat diluted across group members, and content cannot be as easily individualized, then pre-treatment interpersonal problems and symptom severity may be more detrimental to perseverance with therapy.

The second hypothesis was that more severe pre-treatment interpersonal problems would result in poorer helping alliance which, in turn, would result in higher post-treatment symptoms after controlling for pre-treatment symptoms. This hypothesis was not supported. After controlling for pre-treatment symptoms, the indirect effect of pre-treatment interpersonal problems on post-treatment symptoms via early and late helping alliance was not significant. Moreover, pre-treatment interpersonal problems were unrelated to post-treatment depression and anxiety symptoms for those receiving individual therapy. In contrast, pre-treatment interpersonal problems were significantly related to post-treatment depression and anxiety symptoms for those receiving group therapy, suggesting that more severe pre-existing interpersonal problems were associated with less symptom change during group therapy. Therefore, consistent with the third hypothesis, for those receiving group therapy pre-existing interpersonal problems were associated with higher attrition and poorer outcomes for treatment completers. For those receiving individual therapy, stronger therapeutic alliance was associated with treatment completion but not with superior outcomes in terms of depression or anxiety symptoms.

Our finding that poorer early alliance increased the risk of dropout among those receiving *individual* therapy is consistent with a recent meta-analysis, which found a moderate relationship between alliance and dropout (d=.55, Sharf et al., 2010), and with a

large body of research demonstrating that a therapeutic alliance is a necessary precursor for symptom change processes in CBT (see Castonguay et al., 2010, for an overview). Raue and Goldfried (1994) compared the alliance's role in therapy to the use of anaesthesia to prepare a patient for surgery – it is insufficient to produce symptom change in a patient, but without it the treatment cannot progress. Our finding that patients reporting more severe interpersonal problems were at a higher risk dropout from *group* therapy is also consistent with previous findings. MacNair-Semands (2002) examined the relationship between interpersonal problems and attendance at group therapy in a sample of patients (N=310) receiving treatment at two university counselling centers. Interpersonal problems related to being anxious, inhibited, or hostile predicted poor group attendance.

Our finding that more severe pre-treatment interpersonal problems were associated with less symptom change for those completing *group* therapy is consistent with previous studies which have also found that higher levels of interpersonal problems are related to poor outcomes (Gurtman, 1996; Gurtman & Balakrishnan, 1998). Renner et al. (2012) explored the relationship between interpersonal problems, alliance and symptom improvement for patients (N=523) receiving cognitive therapy for depression and found that higher levels of interpersonal problems before treatment were negatively related to improvement in depression symptoms. However, Renner at al. also found that higher levels of interpersonal problems predicted poor alliance, while the present study found alliance did not mediate the relationship between interpersonal problems and symptom change. The discrepancy in these findings may be a function of lower power to detect a mediation effect due our smaller sample size. However, the lack of a mediation effect for early and late alliance is consistent with previous research suggesting that clients' interpersonal problems at intake may not determine the quality of the helping alliance for the duration of treatment. For example, Puschner and colleagues (2005) found that interpersonal problems were related to clients'

early perceptions of the helping alliance such that "too hostile" patients reported relatively poor initial helping alliance, whereas "too friendly" patients rated the relationship to the therapist more favourably. Interestingly, pre-treatment interpersonal problems did not predict the helping alliance later in therapy. It seems that while initial ratings of helping alliance may be related to client's interpersonal problems that these ratings are subject to change during the course of therapy in a way that is not predicted by interpersonal problems.

It is possible that some of the inconsistencies in past research exploring the relationship between alliance and treatment outcome in group therapy are related to a lack of clarity in conceptualising the therapeutic alliance in group treatment settings. Conceptualising helping alliance in group treatment formats creates additional complexity when compared to individual therapy, as there are many relationships to consider. When working in groups patients are required to relate not only to the therapist(s), but also other patients, and the group as a whole. There is a lack of consensus regarding how to differentiate group climate and group cohesion from the helping alliance (for an overview see Piper & Ogrodniczuk, 2010) and, as such, it has been suggested that group therapy researchers begin simply by considering alliance as the relationship between individual patients and therapists (Piper & Ogrodniczuk, 2010), as was done in this study.

This study has several limitations that must be acknowledged. First, allocation to individual and group therapy was not random and thus selection bias was likely to have impacted on our findings. For instance, assessing clinicians may have referred patients to individual therapy if they demonstrated interpersonal problems deemed likely to have interfered with engagement in group treatment. Alternatively, clinicians may have preferentially allocated patients to a more structured group therapy prior to individual therapy as a stepped-care strategy if they were unsure of the patient's commitment to change (and therefore using less clinician resources), or as an introduction to treatment principles before

identifying idiosyncratic obstacles to change within individual therapy. The rationale for each treatment allocation was not assessed for this study, so our findings must be interpreted within the context of a naturalistic design. Second, some of our subgroup analyses were powered to only detect large effect sizes. Our study needs to be replicated with larger samples so that potentially important albeit small to moderate effects can be identified. Third, a substantial minority of patients did not complete treatment or provide post-treatment data. Although treatment completers are a legitimate subsample to investigate with regard to mechanisms of change, the loss to post-treatment may have introduced attrition biases thereby limiting the generalizability of our post-treatment analyses to only those who complete CBT. Fourth, a number of studies suggest that specific interpersonal problems differentially predict outcomes (e.g., Borkovec et al., 2002; McEvoy, Burgess, & Nathan, 2013), which is consistent with the conceptual view that interpersonal problems are not a monolithic construct and are unlikely to be accurately represented by a total score alone. Thus, given that IIP-32 subscales seem to have associations with patient symptoms and outcomes that are informative beyond IIP-32 total scores, it will likely be informative to consider how individual IIP subscales relate to therapeutic alliance and outcomes in future research. Finally, helping alliance was rated highly for those receiving individual and group therapy, so range restriction may have obscured or attenuated the strength of the relationships between helping alliance, attrition and outcomes. A sample with a lower mean and thus more variance may demonstrate stronger relationships between alliance and outcomes.

Our findings suggest that patients with more severe symptoms and interpersonal problems may require more intensive individual therapy to enable the clinician to formulate idiosyncratic obstacles to persevering with treatment and optimize outcomes. Moreover, our findings suggest that a strong therapeutic alliance is particularly important to promote treatment completion for those receiving individual therapy.

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Table 1. Demographic characteristics of those receiving individual and group treatment

	Individual	Group	Chi-square/t-test
Number	84	115	
Women (%)	68	71	$\chi^2(1)=.27$, *ns*
Mean age (SD)	35.4 (12.6)	38.6 (12.4)	$t(198) =1.83$, *ns*
Principal diagnosis (%)			
Depression	54	80	$\chi^2(1)=15.81$, $p<.001$
Anxiety	46	20	
Mean no. sessions (SD)	11.1 (6.9)	8.6 (2.2)	$t(193) = 3.60$, $p<.001$
Medication use (%)	60	80	$\chi^2(1)=9.72$, $p<.01$
Highest qualification (%)			
Did not complete high school	14	12	$\chi^2(4)=2.95$, *ns*
Completed high school	26	34	
Trade	20	24	
Tertiary	35	27	
Other	5	3	
Marital status (%)			
Single	51	38	$\chi^2(1)=5.90$, *ns*
Married	22	23	
De facto/live in	14	15	
Separated	3	8	
Divorced	9	14	
Widowed	1	2	

Table 2. Comparisons between those receiving individual and group treatment

	Individual		Group			
	Mean (SD)	n	Mean (SD)	n	Test statistics	*d*
Pre-treatment						
BDI-II	24.06 (12.24)	85	28.60 (10.59)	115	*t*(197)=2.80**	-.40
BAI	19.33 (11.70)	83	19.75 (12.14)	114	*t*(195)=.24	-.04
HAq-II	98.33 (9.54)	84	88.43 (10.02)	115	*t*(197)=-7.03*** †	1.01
IIP-32 total	1.62 (.58)	84	1.73 (.55)	115	*t*(197)=1.35	-.20
Post-treatment						
BDI-II	11.36 (10.27)	50	14.60 (13.23)	88	*t*(136)=-1.50	-.28
BAI	9.04 (9.28)	48	11.74 (11.55)	89	*t*(135)=-1.40	-.26
HAq-II	103.53 (9.67)	45	94.75 (8.46)	78	*t*(121)=5.26*** †	.97
IIP-32 total	1.02 (.53)	47	1.27 (.53)	76	*t*(121)=-2.60* †	-.47

Note. † Difference remained significant after controlling for demographic and clinical differences between groups (age, principal diagnosis, number of sessions, medication use)

BDI-II = Beck Depression Inventory-II, BAI = Beck Anxiety Inventory, HAq-II = Helping Alliance Questionnaire-II, IIP-32 = Inventory of Interpersonal Problems-32.

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

Table 3. Comparisons between completers and dropouts receiving individual or group treatment

Treatment format	Completers		Dropouts			
	Mean (SD)	n	Mean (SD)	n	Test Statistics	*d*
Individual						
BDI-II pre	23.27 (12.40)	62	26.27 (11.76)	22	*t*(82) = -0.99	-.25
BAI pre	18.47 (11.16)	62	21.86 (13.15)	21	*t*(81) = -1.15	-.28
HAq-II pre	99.73 (8.97)	62	94.41 (10.22)	22	*t*(82) = 2.30*	.55
IIP-32 total pre	1.56 (0.55)	62	1.79 (0.64)	22	t(82) = -1.65	-.39
Group						
BDI-II pre	27.53 (10.32)	96	34.00 (10.54)	19	*t*(113) = 2.48*†	-.62
BAI pre	18.51 (12.25)	95	25.95 (9.62)	19	*t*(112) = 2.50**†	-.68
HAq-II pre	88.71 (10.20)	96	87.00 (9.14)	16	*t*(113) = -0.68	.18
IIP-32 total pre	1.68 (0.53)	96	1.98 (0.61)	19	*t*(113) = 2.20*†	-.53

Note. † All differences remained significant after controlling for gender.

BDI-II = Beck Depression Inventory-II, BAI = Beck Anxiety Inventory, HAq-II = Helping Alliance Questionnaire-II, IIP-32 = Inventory of Interpersonal Problems-32. * $p < .05$ ** $p < .01$ *** $p < .001$

Table 4. Pearson bivariate correlation coefficients for scale scores at pre- and post-treatment for the whole sample

	Pre-treatment				Post-treatment		
	BDI-II	BAI	HAq-II	IIP-32 total	BDI-IIsqrt	BAIsqrt	HAq-IIsqrt
Pre-treatment							
BDI-II	-	-	-	-	-	-	-
BAI	.48***	-	-	-	-	-	-
HAq-II	-.25***	-.01	-	-	-	-	-
IIP-32 total	.50***	.29***	-.14[a]	-	-	-	-
Post-treatment							
BDI-IIsqrt	.56***	.40***	-.25**	.29**	-	-	-
BAIsqrt	.32***	.52***	-.11	.27**	.61***	-	-
HAq-IIsqrt	-.12	-.07	.68***	-.17	-.25**	-.13	-
IIP-32 total	.34***	.28**	-.25**	.59***	.64***	.53***	-.33***

Note. BDI-II = Beck Depression Inventory-II, BAI = Beck Anxiety Inventory, HAq-II = Helping Alliance Questionnaire-II, IIP-32 = Inventory of Interpersonal Problems-32.

[a] $p = .06$ * $p < .05$ ** $p < .01$ *** $p < .001$