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Therapeutic alliance in Enhanced Cognitive Behavioural Therapy for Bulimia Nervosa:

Probably necessary but definitely insufficient

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Abstract

The present paper assessed therapeutic alliance over the course of Enhanced Cognitive Behavioural Therapy (CBT-E) in a community-based sample of 112 patients with a diagnosis of bulimia nervosa (BN) or atypical BN. Temporal assessment of alliance was conducted at three time points (the start, middle and end of treatment) and the relationship between alliance and treatment retention and outcome was explored. Results indicated that the alliance between patient and therapist was strong at all stages of CBT-E, and even improved in the early stages of treatment when behaviour change was initiated (weekly in-session weighing, establishing regular eating, and ceasing binge-eating and compensatory behaviours). The present study found no evidence that alliance was related to treatment retention or outcomes, or that symptom severity or problematic interpersonal styles interacted with alliance to influence outcomes. Alliance was also unrelated to baseline emotional or interpersonal difficulties. The study provides no evidence that alliance has clinical utility for the prediction of treatment retention or outcome in CBT-E for BN, even for individuals with severe symptoms or problematic interpersonal styles. Early symptom change was the best predictor of outcome in CBT-E. Further research is needed to determine whether these results are generalizable to patients with anorexia nervosa.

Keywords: therapeutic alliance, CBT-E, bulimia nervosa

Therapeutic alliance in Enhanced Cognitive Behavioural Therapy for Bulimia Nervosa: Probably necessary but definitely insufficient

Manual-based treatments, such as Enhanced Cognitive Behavioural Therapy (CBT-E), are amongst the most effective treatments for bulimia nervosa (BN) currently available. Yet a prevailing view is that treatment outcome is related to individual therapist differences over and above therapeutic approach (e.g., Luborsky et al., 1986; Messer & Wampold, 2002) and that manual-based treatment approaches are less caring, less intuitive, less authentic, and even inappropriate for 'real-world clients' (Addis & Krasnow, 2000). Empirical research provides no evidence that therapeutic alliance is adversely affected by implementing manual-based treatments for BN, with patients rating the alliance favourably in randomised controlled trials (RCTs; Loeb et al., 2005) and naturalistic clinic settings (Waller et al., 2012).

Therapeutic alliance (hitherto referred to as "alliance") can be defined as establishing shared goals between patient and therapist; accepting the tasks that each needs to perform; and the attachment bond between the patient and therapist (Bordin, 1979). Beyond eating disorders, the finding of a relationship between alliance and psychotherapy outcomes prevails across different measures and definitions of alliance and across different interventions (Horvath & Symonds, 1991; Krupnick et al., 1996). The association between alliance and treatment outcomes has been observed to be small but robust, with meta-analyses reporting effect sizes ranging from 0.22 to 0.26 (weighted correlation coefficient e.g., Horvath & Bedi, 2002).

There is mixed evidence regarding the relationship between alliance and treatment outcome in eating disorders. Alliance has been shown to be associated with changes in eating disorder symptoms in anorexia nervosa (AN; e.g., Isserlin & Couturier, 2012; Pereira, Lock & Oggins, 2006) and in BN (e.g., Constantino, Arnow, Blasey, & Agras, 2005; Treasure et al., 1999). In a large RCT, stronger early (session 4) and mid-treatment (session 12) alliance

was associated with fewer purge episodes at the end of CBT for BN, after accounting for baseline purge frequency (Constantino et al., 2005). Other studies fail to find that alliance is associated with change in eating disorder symptoms (e.g., Brown, Mountford, & Waller, 2013; Loeb et al., 2005; Waller, Evans, & Stringer, 2012). In a clinical trial comparing interpersonal psychotherapy (IPT) and CBT for BN, alliance at sessions 6, 10, or 18 failed to predict post-treatment purge frequency in either treatment condition, after accounting for baseline purge frequency (Loeb et al., 2005). There is also evidence that improvements in eating disorder symptoms may precede improvements in alliance ratings. In CBT for AN, Brown et al. (2013) observed that early weight gain preceded improvements in alliance ratings. In IPT for BN, Loeb et al. (2005) observed that reductions in episodes of vomiting preceded improvements in alliance ratings. In BN, Wilson et al. (1999) found that higher alliance was associated with greater likelihood of achieving full remission across four treatment conditions (CBT, supportive psychotherapy, anti-depressant medication, and placebo), however temporal analysis indicated that early symptom improvement was more reliably associated with subsequent higher alliance ratings than vice-versa. These findings invite the conclusion that symptom improvement might drive more positive ratings of alliance and highlight the importance of considering temporal factors (particularly early symptom change)[1], when considering the relationship between alliance and treatment outcome in eating disorders.

Few studies have investigated the relationship between alliance and treatment retention in manual-based treatments for eating disorders. Brown et al. (2013) found no evidence that alliance at session 6 predicted retention in CBT for AN. Carter et al. (2012) failed to find an

[1] Research investigating different definitions of "early" response to treatment has concluded that any positive response to treatment occurring in the first half of therapy is associated with superior treatment outcomes and can be considered an early rapid response (Busch, Kanter, Landes, & Kohlenberg, 2006).

association between early alliance and retention in CBT-E with a transdiagnostic sample. There is no research on the relationship between alliance and retention in CBT-E for BN.

A limitation of existing studies is that the earliest measure of alliance occurs well after symptom change has commenced. In several studies the earliest measure of alliance has been at session 6 (e.g., Brown et al., 2013; Loeb et al., 2005; Waller et al., 2012), and Loeb et al. (2005) noted that 74% of the change in BN symptoms in CBT occurred prior to session 6. This leaves the possibility that an earlier measure of alliance might better predict treatment outcome and retention, with Waller et al. (2012) recommending that future studies measure the alliance from the earliest time point in therapy. One study found no evidence that alliance at session two predicted drop-out from CBT-E in a transdiagnostic sample of eating disorder patients (Carter et al., 2012). This study did not explore the relationship between alliance and treatment outcome or temporal patterns of alliance over the course of CBT-E, and conclusions are limited due to the heterogeneous nature of the clinical sample.

The importance of developing a strong alliance in terms of treatment outcomes may be influenced (i.e., moderated) by individual patient characteristics. For instance, a strong alliance might be more difficult to establish for patients with a history of problematic interpersonal relationships, and yet paradoxically having a strong alliance might be particularly important for optimising outcomes for these individuals. A strong alliance may increase engagement for such patients and thus provide a powerful therapeutic context for identifying and modifying problematic behaviours. Additionally, a strong alliance might be particularly important for patients with more severe symptoms as they endure the emotional rigours of engaging in behavioural change. In a transdiagnostic sample of eating disorder patients, Waller et al. (2012) found that patients with higher levels of emotional distress (anxiety, depression, and interpersonal sensitivity) were more likely to report that the goals of therapy were less well shared with the therapist at session 6. Patients with higher scores on

psychoticism, depression, and interpersonal sensitivity scales also reported less positive attachments with their therapist at session 6. Constantino et al. (2005) observed that patients with more interpersonal difficulties at baseline had poorer alliance in the middle of treatment in IPT but not CBT. When exploring the relationship between alliance and outcomes in manual-based treatments for BN, it is therefore important to consider the potential influences of factors such as anxiety, depression, and interpersonal difficulties. Importantly, the question of whether problematic interpersonal styles and symptom severity interact with therapeutic alliance to predict symptom improvement is yet to be answered.

The current paper examined alliance in a community-based sample of patients with BN or atypical BN participating in individual CBT-E. Alliance was measured at the start (session two), middle (week 10), and end of treatment. The paper evaluated patient ratings of alliance over the course of CBT-E and examined the relationship between alliance and treatment outcome and retention. No studies have investigated very early alliance in BN or alliance in CBT-E for BN. The first hypothesis was that alliance would be high throughout treatment, as established in previous studies of manual-based treatments for eating disorders. The second hypothesis was that alliance would be related to treatment retention and baseline anxiety, depression, and interpersonal difficulties. Finally, we examined whether problematic interpersonal styles or symptom severity, and their interaction with alliance, were associated with outcome. The third hypothesis was that alliance would be particularly important for individuals with higher levels of interpersonal problems and with more severe eating disorder symptoms.

Method

Participants

Participants were 112 individuals (16+ years) with a diagnosis of BN (n = 92; Diagnostic and Statistical Manual for Mental Disorders – Fourth Edition; DSM-IV, American

Psychiatric Association, 1994) or atypical BN (*n* = 20; who met criteria for the full diagnosis of BN with the single exception that less than 12 episodes of binge-eating and compensatory behaviours had occurred in the 3 months prior to assessment). All patients were referred by a medical professional (general practitioner or psychiatrist) to the CBT-E treatment program at the Centre for Clinical Interventions (CCI) in Western Australia. CCI is a state-wide, specialist public mental health service with a dedicated outpatient eating disorders program. Individuals are routinely excluded from the service and referred elsewhere if they have current acute psychosis, schizophrenia or schizoaffective disorder, or significant alcohol or substance abuse/dependence. Only participants who provided written informed consent for use of their data in subsequent research were included. Participants were mostly female (99%), single (66%), born in Australia (86%), and employed (61%). Ten percent did not complete high school, 40% completed high school only, 37% had a university degree, and 13% had a trade qualification.

Procedure

As part of routine clinical practice, patients attended two to three assessment sessions with a Clinical Psychologist. Assessment included administration of the Eating Disorder Examination (EDE Version 12; Fairburn & Cooper, 1993), widely considered the "gold standard" interview to assist in yielding a reliable eating disorder diagnosis. Assessing clinicians specialized in eating disorder treatment and were trained in the administration of the EDE by a senior clinician (A.F. or S.B.) for at least 12 months after clinical qualification. Patients' diagnoses and any ambiguous responses to EDE items were discussed with the eating disorder team at weekly clinical meetings. The EDE has good convergent and concurrent validity, good inter-rater reliability, and discriminates well between groups with and without an eating disorder (Berg, Peterson, Frazier & Crow, 2012). Intake assessment also included completion of self-report questionnaires assessing eating disordered and related

pathology. Patients completed a self-report measure of alliance at session two, week 10, and post-treatment. At treatment completion (defined as successful transition through all four stages of CBT-E, with mutual termination of treatment by the therapist and patient after the final stage) patients again completed self-report measures of eating-disordered and related pathology. Body mass index (BMI: kg/m^2) was assessed at intake by a clinician who weighed the patient (shoes off, wearing indoor clothes) and measured height. Clinicians weighed the patient at each subsequent treatment session including the final treatment session.

Measures

Eating disorder psychopathology, binge eating, and purging. The global scale of the EDE-Q (Fairburn & Beglin, 1994) measured severity of eating disorder psychopathology and frequency of episodes of objective binge-eating and purging in the previous 28 days. The EDE-Q was administered at assessment, mid-treatment (week 10), and at the end of treatment. The global EDE-Q has acceptable reliability and validity and compares favourably with the clinician-rated version (Berg et al., 2012). The internal reliability of EDE-Q Global in the present sample was high ($\alpha = .91$).

Helping Alliance Questionnaire – Revised Edition (HAQ-II; Luborsky et al., 1996). The HAQ-II is a patient self-report measure designed to assess the degree to which the patient experiences the therapist and therapy as being helpful. The 19 items in the HAQ-II are rated on a 6-point Likert scale ranging from 1 ("I strongly feel it is not true") to 6 ("I strongly feel it is true"). The scale has been shown to comprise two factors: Positive Alliance (e.g., "I feel the therapist understands me") and Negative Alliance (e.g., "the procedures used in therapy are not well suited to my needs") although the Total score is most commonly reported in research studies due to its high internal consistency, test-retest reliability and convergent validity, and the small number of items that comprise the Negative Alliance subscale (Luborsky et al., 1996). As such, the Total score is reported in the present paper. It

is notable that Positive and Negative Alliance subscale scores were highly correlated in the present sample at session 2 (Pearson's $r = .61$, $p < .001$) and at mid-treatment ($r = .62$, $p < .001$) and moderately correlated at post-treatment ($r = .38$, $p = .003$).

Anxiety and depression. The depression (DASS-D) and anxiety (DASS-A) subscales of the Depression Anxiety Stress Scales (Lovibond & Lovibond, 1995) measured depressive and anxious symptomatology at baseline and treatment completion. The DASS has acceptable reliability and validity and the factor structure conforms to the proposed scales (Lovibond & Lovibond, 1995). Internal reliability of the DASS-D ($\alpha = .92$) and DASS-A ($\alpha = .80$) within the eating disorder sample at this clinic have previously been shown to be high (McEvoy et al., 2013a).

Interpersonal difficulties. Interpersonal difficulties were assessed using the Inventory of Interpersonal Problems – Short Form (IIP-32; Barkham, Hardy & Startup, 1996), a 32-item self-report measure with that yields a total score and 8 subscale scores reflecting different interpersonal difficulties. The eight-factor structure is robust, has high internal reliability ($\alpha = .81$) across clinical samples including patients with eating disorders (McEvoy et al., 2013b), and the subscales are associated with eating disorder symptoms (Lampard, Byrne & McLean, 2011). The internal reliability of the IIP-32 Total in the present sample was high ($\alpha = .87$).

Enhanced Cognitive Behavioural Therapy (CBT-E)

CBT-E was administered individually by Clinical Psychologists experienced in the treatment of eating disorders. All clinicians were supervised in CBT-E by a senior clinician (A.F. or S.B.) for at least 12 months after clinical qualification, and most had attended a workshop with the primary developer of CBT-E (Christopher Fairburn). CBT-E is a manual-based treatment (Fairburn, 2008) that has demonstrated efficacy for the treatment of eating disorders. Treatment for patients with BN optimally consists of 20 individual 50-minute outpatient sessions over 20 weeks (see Fairburn, 2008 for full treatment description). Given

the naturalistic setting, treatment length in the present study varied slightly with treatment completers receiving an average of 22.3 (SD = 9.9) sessions.

Statistical analysis

The EDE interview was used only for the purpose of diagnosis, while the EDE-Q was used for all statistical analyses. Changes in mean eating disorder symptom (EDE-Q Global) and alliance (HAQ-II Total) scores over time were explored using repeated-measures ANOVA with follow-up paired-sample *t*-tests and standardized effect sizes (Cohen's *d*). Associations between variables were examined using Pearson correlation coefficients. To account for the role of early symptom change, all correlational analyses were conducted controlling for baseline eating disorder severity (EDE-Q Global). Logistic regression was used to compare treatment completers and drop-outs, with all participants included in the analysis of treatment retention.

Two series of linear regression analyses were performed to assess the impact of alliance, symptom severity, interpersonal problems, and their interactions on symptom severity at mid- and post-treatment. For the first series of analyses mid-treatment eating disorder symptoms was the criterion variable (Models 1a, 1b, and 1c). The first model (1a) investigated whether baseline eating disorder symptoms or early alliance was the strongest unique predictor of mid-treatment symptoms by simultaneously entering early (session 2) alliance and baseline eating disorder symptoms as predictors. The second model (1b) examined whether the relationship between early alliance and mid-treatment symptoms was stronger for individuals with more severe baseline eating disorder pathology by adding the interaction between baseline symptom severity and early alliance to model 1a. Moderation was assessed by examining the statistical significance of the interaction term (Hayes, 2013). The third model (1c) examined whether the strength of the relationship between early alliance and mid-treatment symptoms depends on the level of interpersonal problems. For this

moderation analysis, the predictors were baseline interpersonal problems, early alliance, and the interaction between early alliance and interpersonal problems. Baseline eating disorder symptoms was included in this analysis as a covariate.

For the second series of analyses post-treatment eating disorder symptoms was the criterion variable (Models 2a, 2b, and 2c). The first model (2a) investigated whether mid-treatment eating disorder symptoms or mid-treatment alliance was the strongest unique predictor of post-treatment symptoms by simultaneously entering mid-treatment alliance and mid-treatment eating disorder symptoms as predictors. Baseline eating disorder symptoms and early alliance were entered as covariates. The second model (2b) examined whether the relationship between mid-treatment alliance and late symptom change depends on the severity of symptoms at mid-treatment by adding the interaction between mid-treatment symptom severity and mid-treatment alliance to model 2a. The final model (2c) examined whether baseline interpersonal problems moderate the relationship between mid-treatment alliance and late symptom change. The predictors were baseline interpersonal problems, mid-treatment alliance, and their interaction. The covariates were baseline eating disorder symptoms and early alliance. All regression analyses were conducted in SPSS and fit using ordinary least squares estimation. The regression coefficients reported are fully standardized (Hayes, 2013). In other words, all variables were converted to z scores *prior* to the computation of interaction terms, and the models were fit using the standardized variables.

Results

Alliance over CBT-E (HAQ-II Total). Temporal analysis of alliance over the course of treatment was conducted for patients with HAQ-II Total scores available at all three time points (n = 55). The mean alliance score at session two, as a percentage of the maximum alliance score on this measure (M = 89%), was at least as high as the mean reported in a meta-analysis of studies using this measure (M = 85%; Tryon, Blackwell, & Hammel, 2008).

Repeated measures ANOVA indicated a significant main effect of Time on HAQ-II Total, $F(2, 53) = 9.51$, $p < .001$. Post-hoc comparisons indicated a modest increase in alliance between early ($M = 97.95$, $SD = 8.56$) and mid-treatment ($M = 101.16$, $SD = 8.70$), $t(54) = -3.95$, $p < .001$, $d = .37$, but little change in alliance between mid- and post-treatment ($M = 102.04$, $SD = 8.79$), $t(54) = -1.02$, $p = .32$, $d = .10$. Early alliance was strongly correlated with alliance at mid- and post-treatment (Table 1).

Eating disorder symptoms over CBT-E. Temporal analysis of eating disorder symptoms over the course of treatment was conducted for the same patients (*n* varies slightly due to missing data). The mean score on EDE-Q Global at baseline ($M = 4.10$, $SD = 1.0$) was at least as high as studies using this measure with comparable BN/atypical BN samples ($M = 3.75$, $SD = 1.27$; Waller et al., 2012). Eating disorder symptoms improved substantially from baseline to mid-treatment ($M = 2.69$, $SD = 1.37$), $t(49) = 8.41$, $p < .001$, $d = 1.07$, and continued to improve from mid- to post-treatment ($M = 1.66$, $SD = 1.26$), $t(46) = 6.91$, $p < .001$, $d = .78$.

Associations between alliance and BN symptoms. Pearson's correlations were calculated between alliance and eating variables for all patients who completed treatment. All correlations between alliance (early, mid-treatment, post-treatment) and baseline or post-treatment eating disorder symptoms (EDE-Q Global, BMI, frequency of binge-eating or purging over the past 28 days) were small, ranging from .01 to .18, and none were statistically significant.[2]

After controlling for baseline eating disorder symptoms, there was a modest inverse correlation between mid-treatment alliance and mid-treatment symptoms, $r = -.30$, $p < .05$. Patients who were less symptomatic at mid-treatment rated the alliance more positively at

[2] Associations between alliance (session two), and baseline eating variables (EDE-Q Global, BMI, binge episodes, and purge episodes) were also computed for the full sample of patients (regardless of whether or not they completed treatment) however this had no impact on the significance of results (all *p*-values > .28)

mid-treatment. After controlling for baseline symptoms, there was also a modest inverse association between mid-treatment alliance and post-treatment symptoms, r = -.29, p = .05. Patients who rated the alliance more positively at mid-treatment were less symptomatic at the end of CBT-E. After controlling for baseline symptoms, the association between post-treatment alliance and post-treatment symptoms, r = -.27, p = .07, was similar in magnitude to that observed at mid-treatment.

Associations with related pathology. All associations between alliance and baseline measures of mood (DASS-D or DASS-A) or interpersonal difficulties (IIP-32 Total) were small and non-significant, ranging from .01 to .11 (Table 1). The pattern of results was similar irrespective of whether early, mid-, or post-treatment alliance scores were used in the analysis.

Alliance and treatment retention. Treatment completion was defined as a dichotomous variable, as described in previous studies of CBT-E (e.g., Carter et al., 2013). Patients who successfully transitioned through all four stages of CBT-E, with mutual termination of treatment by the therapist and patient after the final stage, were classified as completers and all other patients were classified as drop-outs. Two patients were transferred to another treatment setting and were not included in the analysis of treatment retention. For the remaining patients (n = 110), logistic regression was performed on treatment completion (completers vs. drop-outs) as outcome and two predictors: HAQ-II Total at session two and HAQ-II Total at week 10. In total, 71% (n = 78) of the sample completed treatment and 29% (n = 34) dropped out. A test of the full model failed to reach statistical significance[3], χ^2 (2, n

[3] As a further check, logistic regression was repeated with change in HAQ-II scores (from session 2 to week 10) entered as the predictor variable however this had no impact on the pattern of results reported.

= 110) = 1.94, p = .38, providing no evidence that treatment completion was affected by early or mid-treatment alliance.[4]

Alliance and treatment outcome. The first regression analysis (Model 1a, Table 2) considered whether early alliance or baseline symptoms was a more important predictor of mid-treatment symptoms. Baseline symptoms were a statistically significant predictor of mid-treatment symptoms, whereas early alliance was not. Baseline symptoms uniquely explained 24% of variance in mid-treatment symptoms, whereas early alliance only explained 2% of the variance. The second regression analysis (model 1b) found that the effect of early alliance on mid-treatment symptoms did *not* depend on baseline symptom severity. The interaction between early alliance and interpersonal problems was not statistically significant, the regression coefficient was very close to zero, and the interaction term explained only 1% of extra variance, over and above model 1a. The results of regression model 1c were similar. The regression coefficient for the interaction between baseline interpersonal problems and early alliance was small and nonsignificant, suggesting that interpersonal problems did not moderate the relationship between early alliance and mid-treatment symptoms.

The next series of regressions used post-treatment symptoms as the criterion variable. The first regression analysis (Model 2a, Table 2) considered whether mid-treatment alliance or mid-treatment symptoms is a more important predictor of post-treatment symptoms, after controlling for early alliance and baseline symptoms. Mid-treatment symptoms were a statistically significant predictor of post-treatment symptoms, whereas mid-treatment alliance was not. Mid-treatment symptoms uniquely explained 22% of variance in post-treatment symptoms, whereas mid-treatment alliance explained less than 1% of the variance. The second regression analysis (model 2b) found that the effect of mid-treatment alliance on post-

[4] Logistic regression revealed no significant differences between treatment completers and drop-outs on age, chronicity of eating disorder, eating disorder symptoms (EDE-Q Global, binge episodes, purge episodes, or BMI) or related pathology (DASS-D, DASS-A, or IIP-32 Total) (all p-values > 0.8).

treatment symptoms did *not* depend on mid-treatment symptom severity. The interaction between mid-treatment alliance and interpersonal problems was not statistically significant, the regression coefficient was very close to zero, and the interaction term explained less than 1% of extra variance, over and above model 2a. The results of regression model 2c were similar. The regression coefficient for the interaction between baseline interpersonal problems and mid-treatment alliance was small and nonsignificant, suggesting that interpersonal problems did not moderate the relationship between mid-treatment alliance and post-treatment symptoms.[5]

Discussion

The present paper investigated therapeutic alliance during CBT-E for BN. As predicted, a strong alliance was observed at each time point (early, mid-treatment, and post-treatment). The strength of the alliance at the start of treatment was significantly correlated with the strength of the subsequent alliance (mid-treatment and post-treatment), consistent with the view that early alliance is a good predictor of later alliance (Brown et al., 2013). In the present study, scores on HAQ-II Total were at least as high as the mean reported in a meta-analysis of studies using this same measure (Tryon et al., 2008), providing no evidence that CBT-E for BN has a deleterious effect on the relationship between therapist and client.

The finding of a strong alliance at all stages of CBT-E for BN adds to the existing research demonstrating that patients with eating disorders rate the alliance positively in manual-based treatment programs (e.g., Waller et al., 2012). Clinicians familiar with CBT-E will not be surprised by this finding given that CBT-E explicitly focuses on developing a strong alliance, in accordance with Bordin's (1979) definition, as a necessary but insufficient

[5] Logistic regression revealed no significant differences between treatment completers who had post-treatment data from those who did not have data on baseline variables of age, chronicity of eating disorder, eating disorder symptoms (EDE-Q Global, binge episodes, purge episodes) or related pathology (DASS-D, DASS-A, or IIP-32 Total) (all p-values > 0.19). Treatment completers who had post-treatment data had a slightly higher baseline BMI (M = 23.3, SD = 3.3) than completers who did not have post-treatment data (M = 21.3, SD = 2.5) ($p < .02$).

condition of treatment effectiveness. For example, early treatment sessions include techniques such as instilling hope, clearly outlining the role of the therapist and client over treatment, establishing shared treatment goals, collaboratively developing a formulation of factors maintaining the disorder, and explicitly identifying barriers to progress.

Alliance ratings were high at the start of CBT-E, improved significantly by mid-treatment and were maintained at this peak until the end of treatment. The finding that alliance improved significantly over the first half of treatment suggests that CBT-E is associated with an increase in alliance. This result may be surprising given that the first stage of CBT-E focuses explicitly on early behavioural change (e.g., weekly in-session weighing, establishing regular eating, and ceasing binge-eating and compensatory behaviours). Waller et al. (2012) have suggested that it might be this explicit focus on behavioural change that increases trust in the alliance. Clinicians who are reluctant to implement techniques such as in-session weighing from the outset of therapy can be reassured that the early focus on behavioural change is associated with improved alliance in CBT-E.

A potential confound of previous studies has been that the earliest measure of alliance was administered after most of the symptom change has occurred (e.g., Loeb et al., 2005). In the present study, even a very early measure of alliance, taken at session two, was unrelated to symptom reduction. Regression analyses indicated that BN patients with more severe eating disorder symptoms at baseline were at greater risk of having more severe symptoms at mid-treatment, and patients with more severe symptoms at mid-treatment had poorer outcomes at post-treatment. Early and late alliance and interpersonal problems were unrelated to outcomes, and the relationship between alliance and outcome was not moderated by severity of eating disorder symptoms or interpersonal problems. Thus, there was no evidence in this study that alliance was related to outcomes in CBT-E or that it was more

important for individuals with more severe eating disorder symptoms or interpersonal problems with respect to outcomes.

Consistent with our study, other studies that have accounted for symptom change prior to the measurement of alliance have failed to observe a relationship between alliance and outcome in BN (Wilson et al., 1999). This contrasts with some studies that have found a relationship between alliance and symptom change in BN (Constantino et al., 2005; Treasure et al., 1999). The present findings may shed light on this discrepancy – a significant association was observed between mid-treatment alliance and outcome in correlational analysis whereas regression analysis indicated that only mid-treatment symptoms (when controlling for pre-treatment symptoms) predicted outcome in CBT-E. Patients who achieved greater symptom reduction by mid-treatment felt better about the alliance and also went on to achieve better outcomes in CBT-E. The finding that severity of eating disorder symptoms at mid-treatment (after controlling for baseline symptom severity) predicted post-treatment symptom severity in the present study is consistent with a growing body of research indicating that early improvement in symptoms is the best predictor of optimal outcome in manual-based treatments for eating disorders (e.g., Agras et al., 2000; Doyle et al., 2010; Fairburn et al., 2004; le Grange, Doyle, Crosby & Chen, 2008), including CBT-E (Raykos et al., 2013). Notably, none of the studies that reported an association between alliance and outcome in BN accounted for the role of early symptom change (Constantino et al., 2005; Treasure et al., 1999).

Early alliance (session two) also failed to discriminate patients who completed CBT-E from those who dropped out. To date, research studies have found no evidence that alliance has clinical utility for the prediction of treatment retention in manual-based treatments for eating disorders (e.g., Brown et al., 2013; Loeb et al., 2005). Other factors, such as lowest reported weight, the tendency to avoid affect, and time spent on the wait list for treatment

have greater utility in predicting drop-out (Carter et al., 2012). Together with the observation that alliance was unrelated to outcome, the present study failed to provide any evidence that alliance predicts treatment response to CBT-E for BN.

There was no evidence of a relationship between alliance at any time point and baseline measures of anxiety, depression, or interpersonal difficulties. Constantino et al. (2005) also found no relationship between interpersonal difficulties and alliance at session 6 in CBT for BN. The authors did, however, find a relationship between alliance at session 6 and interpersonal difficulties in IPT, and others have observed links between initial emotional and interpersonal factors and alliance at session 6 in CBT with a transdiagnostic sample (Waller et al., 2012). Given that the Working Alliance Inventory used by Waller et al. (2012) has been widely shown to be correlated with the present HAQ-II (Gaston, 1990), this discrepancy is unlikely to be due to measurement differences. Alternatively, the relationship between alliance and interpersonal difficulties may differ in the present BN/atypical BN sample compared with the transdiagnostic sample used by Waller et al. (2012).

There are some limitations to the present study. Not all treatment completers provided post-treatment data, which may have introduced attrition biases and rendered some of our analyses underpowered to detect small but important effects. Overall, baseline characteristics (on eating-disordered and related pathology) did not differ between treatment completers who provided post-treatment data and completers who did not provide post-treatment data, the only exception being that patients who completed treatment and provided post-treatment data had a slightly higher baseline BMI. Systematic differences between completers and drop-outs on BMI or other unmeasured variables may affect the generalizability of the completer analyses. The reliance on patient self-report measures of alliance might also be seen as a limitation, however studies of multi-method approaches to the measurement of alliance have concluded that patient perceptions of the alliance are more consistent over treatment than

clinician-rated or independent-rated measures of alliance (e.g., Martin, Garske & Davis, 2000), and that the predictive validity of the alliance is strongest when assessed by the patient (e.g., Barber et al., 1999; Horvath & Symonds, 1991; Treasure et al., 1999). It is also important to note that scores on the HAQ-II likely reflected the general quality of the alliance at the three assessment time points, rather than the dynamic relational interplay between the therapist and client within and across sessions. It is also notable that although there was a significant increase in alliance scores from baseline to mid-treatment, only an 11% increase was possible given that alliance ratings were already high at baseline. In contrast, EDE-Q Global scores decreased by 34% from baseline to mid-treatment and by 60% from baseline to post-treatment. The difference in the amount of change possible in these two measures over the course of treatment may have affected the moderation analyses by potentially constraining the strength of the relationships, although the high early alliance meant that any large *reductions* in alliance could have been observed if in fact CBT-E had been detrimental to alliance. Finally, alternative conceptualisations of therapeutic alliance have been proposed (e.g., collaborative empiricism), which may facilitate therapeutic change but were not adequately assessed by the HAQ-II (Kazantzis & Kellis, 2012; Kazantzis, Cronin, Dattilio, & Dobson, 2013). It may be that future research using these alternative conceptualisations, in concert with methodologies capable of capturing dynamic processes within the therapeutic relationship, will identify key aspects of the alliance that are important for facilitating symptom change (see also Hoffart, Borge, Sexton, Clark, & Wampold, 2012).

The present paper is the first study of alliance over the course of CBT-E for BN. Strengths of the study include a large and homogenous sample of BN/atypical BN patients in routine clinical practice, inclusion of a very early measure of alliance (session two), and temporal assessment of alliance over CBT-E. Findings suggest that the alliance between patient and therapist is strong at all stages of CBT-E and even improves in the early stages of

CBT-E, but there is no evidence that alliance has clinical utility for the prediction of treatment retention or outcome in CBT-E for BN, even for individuals with more severe symptoms or interpersonal problems. Further research is needed to determine whether these findings are generalizable to patients with AN/atypical AN diagnoses in CBT-E. Early improvement in eating disorder symptoms remains one of the most promising predictors of optimal outcome in treatments for eating disorders.

Conflict of Interest

All authors declare that they have no conflicts of interest.

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