


A pilot open trial of UNITE-BED: A couple-based intervention for binge-eating disorder

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Abstract

Objective: To evaluate the feasibility, acceptability, and preliminary efficacy of a couple-based intervention for binge-eating disorder (BED), called UNiting couples In the Treatment of Eating disorders-BED edition (UNITE-BED).

Method: In an open pilot trial, 11 couples in which one or both adult partners had a diagnosis of DSM-5 threshold or sub-threshold BED participated in 22 weekly sessions of UNITE-BED. Patients also received individual treatment, outside of the context of the trial. Couples completed measures on treatment satisfaction, eating disorder symptom severity, depression, anxiety, emotion regulation, and relational functioning at post-treatment and 3-month follow-up. Statistical analyses were conducted to identify change over the course of treatment.

Results: UNITE was feasible and acceptable to the majority of couples (9% dropout; high satisfaction ratings). Objective binge abstinence was 81.8% and subjective binge abstinence was 45.5% by post-treatment. Patient binge-eating symptomatology reduced over the course of treatment with results maintained at follow up. Patients' depression symptoms decreased and patients' emotion regulation improved at both time points.

Discussion: Including partners in treatment for BED may be beneficial. Results support further evaluation of the efficacy of couple-based interventions for BED in larger randomized-controlled trials.

KEYWORDS

binge eating, binge-eating disorder, couple, intervention, treatment

1 | INTRODUCTION

Eating disorders (EDs) exact an emotional and financial toll on patients, families, and partners (Agh et al., 2016). Family-based treatment leverages families in improving outcomes for youth EDs (Lock, 2015); however, typical treatment for adult EDs is individual psychotherapy and outcomes remain modest (Grilo, 2017).

To expand intervention options for adult EDs, we created a suite of couple-based treatments incorporating partners in a developmentally appropriate manner. Our first treatment, "Uniting Couples in the treatment of Anorexia Nervosa (UCAN)" (Baucom et al., 2017), yielded

lower drop-out (10%) than most adult anorexia nervosa trials (~25%; Bulik, Berkman, Brownley, Sedway, & Lohr, 2007); increased weight gain notably; decreased anxiety and depression; and improved relationship functioning. Herein, we present pilot results of "UNiting couples In the Treatment of Eating disorders-Binge-Eating Disorder edition (UNITE-BED)."

Up to 77% of individuals with BED are married or cohabitating (Schlup, Meyer, & Munsch, 2010). Emerging data suggest that BED is associated with interpersonal challenges (Arcelus, Haslam, Farrow, & Meyer, 2013; Blomquist, Ansell, White, Masheb, & Grilo, 2012), and emotion regulation deficits that may influence symptom maintenance or relapse (Jones, Lindekilde, Lübeck, & Clausen, 2015; Leehr et al., 2015). In clinical studies of ED outcomes, pre-treatment interpersonal

problems predict poorer treatment response and higher dropout (Jones et al., 2015). In addition, interpersonal stressors are common binge triggers (Hilbert, Vogeles, Tuschen-Caffier, & Hartmann, 2011). Notably, such stressors frequently occur in women with BED, as they report lower marital satisfaction, less frequent positive interaction, and increased negative interaction in their relationships than non-ill women (Whisman, Demetyeva, Baucom, & Bulik, 2012). Partners also experience challenges as they find it difficult to understand EDs, struggle with ED-related secrecy, and express powerlessness and ineffectiveness (Linville, Cobb, Shen, & Stadelman, 2015).

Partners need guidance on how to facilitate change constructively. Couple-based treatments target potentially detrimental interpersonal dynamics and may improve outcomes, reduce relapse (Linville et al., 2015), and improve patient and partner quality of life (Macdonald et al., 2014). UNITE-BED targets BED psychopathology, co-occurring symptoms, and relationship functioning (Kirby, Runfola, Fischer, Baucom, & Bulik, 2015; Kirby, Runfola, Fischer, Baucom, & Bulik, 2016) by integrating core cognitive-behavioral therapy (CBT) for BED principles (Fairburn, Cooper, & Shafran, 2003) with cognitive-behavioral couple therapy interventions (CBCT; Epstein & Baucom, 2002). For details of UNITE-BED, see online Supplementary Information UNITE-BED Subheaders I-II.

We tested UNITE-BED in an open pilot trial, hypothesizing that it would be feasible and acceptable to couples, and would yield low dropout [based on UCAN (Baucom et al., 2017)]. We predicted significant patient improvement at post-treatment and 3-month follow-up in: (a) binge-eating frequency and overall ED severity; (b) depression, anxiety, and emotion regulation; and (c) relationship functioning. We also expected partner improvement on depression, anxiety, and relationship functioning.

2 | METHOD

We included 11 couples with an index patient with DSM-5 (APA, 2013) BED or sub-threshold BED, who were in a committed relationship for ≥ 6 months. The study was approved by the University of North Carolina at Chapel Hill Institutional Review Board.

2.1 | Treatment

Participants received UNITE-BED at the UNC Center of Excellence for Eating Disorders. All participants with BED were enrolled in individual treatment independent of the trial and met with the study psychiatrist to verify medical stability. Additional detail on the rationale for individual treatment is available in Supplementary Information UNITE-BED Subheader III. Participants could also continue nutritional counseling and medication management. Study clinicians coordinated care with other providers as needed.

2.1.1 | UNITE-BED

UNITE-BED is a manualized, weekly 22-session couple-based intervention, incorporating topics relevant to BED and couple functioning (see Supplementary Information Table S1 for a list of UNITE manual components by session). UNITE-BED therapists were licensed

psychologists or advanced doctoral students with specialized training in ED treatment, CBCT, and UNITE-BED. To ensure treatment fidelity, all sessions were recorded and reviewed by a supervising clinician (JK or DB) who conducted weekly individual and group supervision.

3 | MATERIALS

Patients and partners were assessed at pre-treatment, post-treatment, and 3-month follow-up. Couples received \$50 for assessments. Height and weight were measured for body mass index [BMI (kg)/(m²)].

All measures met ICMJE guidelines (2010) inclusion criteria and sources for all measures used are available in Supplementary Information UNITE-BED Subheader IV. To establish psychiatric diagnoses in patients and partners, we used the *Structured Clinical Interview for DSM-IV-Patient Edition and SCID-Nonpatient Edition* with an expanded Module H (updated for DSM-5).

3.1 | Eating-disorder pathology

Eating-Disorder Examination (EDE); *Binge-Eating Scale* (BES); and the *Yale-Brown Obsessive Compulsive Scale Modified for Binge Eating* (Y-BOCS-BE). EDE items assessing the number of objective (OBE) and subjective (SBE) binge episodes determined binge-eating abstinence (no episodes over 28 days) and binge-eating remission (no episodes over the prior 3 months) at post-treatment and 3-month follow-up.

3.2 | Mood and psychological functioning

Beck Depression Inventory-II (BDI-II); *Beck Anxiety Inventory* (BAI); *Difficulties in Emotion Regulation Scale* (DERS)—8-item modified version (DERS-partner) assessed perceptions of one's partner's emotion regulation ability. Higher scores reflect greater emotion regulation difficulties.

3.3 | Relationship adjustment and communication

Dyadic Adjustment Scale effectively predicts relationship dissolution; *Communication Patterns Questionnaire Short Form* (CPQ-SF) measures demand/withdraw roles and constructive communication (adapted for BED); *Marital Satisfaction Inventory, Revised* (MSI-R)-Problem-solving and Affective Communication subscales. On DAS-32, a total < 100 suggests clinically significant relationship distress; higher scores indicate less distress.

3.4 | Treatment satisfaction and acceptability

Client Satisfaction Questionnaire-Revised (CSQ-8-Revised). High scores indicate greater satisfaction.

3.5 | Statistics

We applied paired sample *t* tests for patient measures and two-way, within-subjects ANOVAs for measures completed by patients and partners. Significant interactions in ANOVAs were decomposed using post hoc paired sample *t* tests separately for patients and partners. All

analyses were intent-to-treat ($N = 11$) (White, Horton, Carpenter, & Pocock, 2011), when data were available (one couple did not complete all post-treatment measures). We adopted a p -value of $<.05$. Effect sizes were calculated (see Table 1 footer for details).

4 | RESULTS

Patients' mean age was 48.3 years ($SD = 12.85$); 9/11 were women and 10/11 were Caucasian. All had at least a college education (7/11 had post-graduate degrees). Individual incomes ranged from $<\$5,000$ to $\$100\text{--}250,000/\text{year}$. All were in heterosexual relationships and together for a mean of 17.3 years ($SD = 14.5$), with seven married, and 10 cohabitating. Mean patient BMI was 37.3 kg/m^2 ($SD = 12.8$). Patient baseline assessment revealed the following lifetime (current) comorbid diagnoses: major depressive disorder 72.7%(18.2%); dysthymia 9.1%(0%); alcohol abuse disorder 36.4%(0%); generalized anxiety disorder (27.3% current only); panic disorder 19.2%(0%); social phobia 27.3%(27.3%); specific phobia 18.2%(18.2%); post-traumatic stress disorder 9.1%(9.1%). Personality disorders were not assessed.

4.1 | Feasibility and acceptability

Over 1 year, 23 couples inquired, and 11 were enrolled (See Supplementary Information Figure S1 for CONSORT diagram). Ten couples completed treatment (≥ 18 sessions), and one (9%) who had an undisclosed diagnosis rendering treatment untenable dropped out. UNITE was acceptable to the majority of couples. Mean CSQ-8 score for patients and partners was 27.44, SD 4.92 (Figure 1). All participants reported that UNITE-BED helped them deal more effectively with BED and support one another in the recovery process; 81.8% of participants reported the amount of treatment was just right. Free text items revealed unanimously positive responses to the focus on communication skills. Other than reducing survey burden, no consistent themes for improving UNITE-BED emerged.

4.2 | Preliminary efficacy

4.2.1 | Eating disorder psychopathology

At baseline, 10/11 patients reported recurrent OBEs in the last month. One patient had only SBEs in the last month (with OBEs in the recent past). For participants who reported recurrent OBEs at baseline ($N = 10$), 80% were OBE abstinent at post-treatment and 80% were OBE remitted (both 60% at follow-up) (see definitions in Method above). The patient with SBEs only was in SBE remission at post-treatment and reported only one SBE at 3-month follow-up. The total number of OBEs in the prior 28 days decreased significantly from pre-to post-treatment (EDE, $M = 11.4$, $SD = 11.02$ vs. $M = .9$, $SD = 2.51$, t [9], 3.35, $p = .009$). SBEs did not change significantly (EDE, $M = 2.10$, $SD = 4.70$ vs. $M = 1.20$, $SD = 1.48$, t [9] = .62, $p = .55$). General ED symptom severity (EDE, BES, and Y-BOCS-BE) decreased significantly across all time points (Table 1).

4.2.2 | Patient and partner mood and emotion regulation

Patient BDI-II scores decreased significantly from pre- to post-treatment and from pre-treatment to 3-month follow-up. Both

patients and partners reported that the patients' emotion regulation significantly improved from pre- to post-treatment, and patients reported improvement from pre-treatment to follow-up. BAI scores did not change significantly for patients across time.

Partners displayed no significant shifts in BDI, BAI, or self-reported DERS scores across time. However, patients reported that partners significantly improved on emotion regulation (DERS-P) from pre- to post-treatment, although not at follow-up. Partners' pre-treatment mean BDI and BAI scores were in the healthy range except for one partner who improved from mild at baseline to minimal at post-treatment. No partners had above normal anxiety scores.

4.2.3 | Interpersonal functioning

Patients and partners reported significantly improved affective communication from pre- to post-treatment. Relationship adjustment and other communication domains did not change significantly across time. Pre-treatment mean scores in the "satisfied" range (10/11) were maintained across treatment. One couple transitioned from "dissatisfied" at pre-treatment to "satisfied" at post-treatment.

5 | DISCUSSION

This is the first report on feasibility and acceptability of a couple-based intervention for BED. UNITE-BED was feasible and highly acceptable to couples. Dropout (9%) was on the low end of psychotherapy trials for BED (4–34%) (Brownley, 2016; de Zwaan et al., 2017; Safer, Robinson, & Jo, 2010).

Although we cannot attribute all observed change to UNITE-BED since patients were in individual treatment of varying intensity and quality, UNITE-BED may contribute to clinical improvement. Binge-eating abstinence and remission rates were good at post-treatment and follow-up. When considering only threshold BED cases ($N = 10$), the OBE abstinence rate of 80% is encouraging, and higher than reported in larger trials (50.9 total weighted percentage; Linardon, 2018). UNITE-BED also may have benefits beyond the ED. Whereas CBT for BED typically is not associated with significant reductions in depression (Brownley et al., 2016), our patients had significantly decreased BDI scores from pre- to post-treatment that were maintained at follow-up. Patients and partners also reported improved emotion regulation in patients. Given the high comorbidity between BED and depression (Welch et al., 2016) and the role of intense emotions in binge eating (Lehr et al., 2015), improvements in these domains are promising.

Partners did not demonstrate changes in emotional well-being, likely due to being non-distressed at pre-treatment and remaining stable over time. Likewise, couples were generally satisfied in their relationships at pre-treatment and remained so throughout. However, patients and partners reported feeling more satisfied with the amount of affection and understanding expressed by their partners. As helping couples better listen to and support one another around the ED was a primary goal, improvements in this domain are encouraging.

Overall, UNITE-BED may be a beneficial treatment for couples affected by BED. Involving partners may facilitate patients' improvements in several ways. First, partners may offer support and accountability in terms of remaining in treatment. Second, by educating

TABLE 1 Mean scores (standard deviations) on treatment outcome variables from pre- to post-treatment and 3-month follow up, test statistics (paired sample *t* tests for patient only continuous variables, two-way ANOVAs for measures completed by both partners, effect sizes) and Cronbach's alphas for each measure by time point

Outcome	Pre M (SD) [Cronbach's alpha]	Post M (SD) [Cronbach's alpha]	Pre vs. post test Statistic ^a , 95% CI [U, L], ES ^b	3 Month follow up M (SD) [Cronbach's alpha]	Pre vs. 3 Month follow-up test Statistic ^a , 95% CI [U, L], ES ^b
Eating disorder psychopathology					
EDE global score-patient (23 items)	3.02 (1.22) [α = .90]	1.55 (.95) [α = .89]	<i>t</i> (10) = 4.83**, 95% CI [.71, 1.94], <i>d</i> = 1.48	1.95 (1.16) [α = .89]	<i>t</i> (11) = 3.60**, 95% CI [.42, 1.72], <i>d</i> = 1.03
BES-patient (16 items)	28.18 (9.16) [α = .91]	13.70 (8.69) [α = .91]	<i>t</i> (9) = 3.87**, 95% CI [5.44, 20.76], <i>d</i> = 1.22	15.09 (9.65) [α = .92]	<i>t</i> (10) = 4.98**, 95% CI [7.23, 18.95], <i>d</i> = 1.50
YBOCS-BE-patient (10 items)	19.00 (5.13) [α = .81]	9.36 (6.93) [α = .94]	<i>t</i> (10) = 4.31**, 95% CI [4.26, 13.37], <i>d</i> = 1.36	8.83 (7.37) [α = .89]	<i>t</i> (11) = 5.77***, 95% CI [6.29, 14.04], <i>d</i> = 1.76
Other psychopathology					
BDI-patient (21 items)	17.45 (11.35) [α = .92]	8.00 (7.13) [α = .86]	<i>t</i> (9) = 3.44**, 95% CI [2.29, 11.11], <i>d</i> = 1.07	11.00 (14.94) [α = .98]	<i>t</i> (10) = 2.68*, 95% CI [1.08, 11.82], Cohen's <i>d</i> = .89
BDI-partner (21 items)	5.64 (4.95) [α = .87]	5.52 (4.13) [α = .77]	<i>t</i> (9) = .49, <i>p</i> = .64, 95% CI [-2.49, 3.86], <i>d</i> = .15	5.00 (4.54) [α = .86]	<i>t</i> (10) = .39, <i>p</i> = .70, 95% CI [-2.96, 4.23], <i>d</i> = .11
BAI-patient (21 items)	9.82 (11.23) [α = .94]	6.50 (5.84) [α = .85]	<i>F</i> (1, 9) = .82, <i>p</i> = .39, η ² = .008	12.64 (15.38) [α = .97]	<i>F</i> (1, 10) = 1.67, <i>p</i> = .23, η ² = .003
BAI-partner (21 items)	2.45 (3.45) [α = .85]	1.40 (1.78) [α = .50]		1.91 (4.46) [α = .96]	<i>F</i> (1, 10) = 1.67, <i>p</i> = .23, η ² = .003
DERS-patient (36 items)	92.00 (26.35) [α = .95]	68.7 (20.38) [α = .93]	<i>t</i> (9) = 4.32**, 95% CI [8.81, 28.19], <i>d</i> = 1.37	77.55 (29.50) [α = .97]	<i>t</i> (10) = 3.17*, 95% CI [4.29, 24.61], <i>d</i> = .97
DERS-partner (36 items)	59.64 (6.92) [α = .61]	61.70 (13.92) [α = .87]	<i>t</i> (9) = -.47, <i>p</i> = .65, 95% CI [-11.02, 7.23], <i>d</i> = -.16	62.64 (20.09) [α = .96]	<i>t</i> (10) = -.54, <i>p</i> = .60, 95% CI [-15.36, 9.36], <i>d</i> = -.20
DERS-P-patient (8 items)	13.45 (4.16) [α = .31]	11.40 (3.41) [α = .84]	<i>F</i> (1, 9) = 12.63**, η ² = .046	11.82 (3.28) [α = .73]	<i>F</i> (1, 10) = .79, <i>p</i> = .40, η ² = .006
DERS-P-partner (8 items)	16.45 (5.28) [α = .86]	15.00 (4.81) [α = .86]		16.55 (5.34) [α = .80]	
Interpersonal functioning					
DAS-patient (4 items)	109.46 (12.46) [α = .88]	115.80 (6.55) [α = .63]	<i>F</i> (1, 9) = 2.08, <i>p</i> = .18, η ² = .031	107.45 (13.68) [α = .90]	<i>F</i> (1, 10) = .53, <i>p</i> = .49, η ² = .008
DAS-partner (4 items)	112.91 (9.74) [α = .83]	112.80 (8.80) [α = .66]		111.00 (8.75) [α = .60]	
CPQdw-patient (6 items)	18.91 (7.82) [α = .60]	15.40 (9.83) [α = .87]	<i>F</i> (1, 9) = 3.91, <i>p</i> = .08, η ² = .044	17.82 (8.84) [α = .86]	<i>F</i> (1, 10) = .35, <i>p</i> = .57, η ² = .003
CPQdw-partner (6 items)	16.18 (10.00) [α = .78]	13.60 (6.93) [α = .77]		15.27 (9.65) [α = .93]	
CPQcomm-patient (5 items)	32.82 (9.69) [α = .84]	35.30 (6.29) [α = .60]	<i>F</i> (1, 9) = .64, <i>p</i> = .44, η ² = .011	33.09 (8.88) [α = .91]	<i>F</i> (1, 10) = .43, <i>p</i> = .53, η ² = .004
CPQcomm-partner (5 items)	36.73 (6.92) [α = .77]	37.40 (4.72) [α = .75]		34.45 (6.42) [α = .69]	
MSIpsc-patient (19 items)	6.82 (5.83) [α = .93]	4.60 (3.10) [α = .76]	<i>F</i> (1, 9) = .56, <i>p</i> = .47, η ² = .007	4.73 (4.15) [α = .86]	<i>t</i> (10) = 1.87; <i>p</i> = .09, 95% CI [-1.39, 4.58], <i>d</i> = .62
MSIpsc-partner (19 items)	5.55 (5.37) [α = .92]	5.10 (4.82) [α = .90]		7.45 (6.02) [α = .93]	<i>t</i> (10) = -1.36, <i>p</i> = .20, 95% CI [-5.03, 1.21], <i>d</i> = -.41
MSIafc-patient (12 items)	5.00 (3.74) [α = .87]	3.1 (2.69) [α = .75]	<i>F</i> (1, 9) = 17.61**, η ² = .062	3.64 (3.59) [α = .87]	<i>F</i> (1, 10) = 2.36, <i>p</i> = .16, η ² = .011
MSIafc-partner (12 items)	3.00 (2.93) [α = .82]	2.00 (2.31) [α = .76]		3.00 (2.76) [α = .78]	

Note. EDE = Eating Disorders Examination; BES = Binge-Eating Scale; YBOCS-BE = Yale Brown Obsessive Compulsive Scale Modified for Binge Eating; BDI = Beck Depression Inventory; BAI = Beck Anxiety Inventory; DERS = Difficulties in Emotion Regulation Scale; DAS = Dyadic Adjustment Scale; CPQ = Communication Patterns Questionnaire (-dw = demand withdrawal; -comm = constructive communication); MSI = Marital Satisfaction Index (-psc = problem solving communication; -afc = affective communication).

^a All hypotheses were tested using 2 (patient vs. partner) × 2 (time) repeated-measures ANOVAs. *F*-test statistics reported in the table are main effects for time. If the time X patient interaction emerged as significant in a repeated-measure ANOVA, the interaction was decomposed using paired samples *t* tests, which are reported in the table. *p* < .05. ** *p* < .01 *** *p* < .001.

^b ES = Effect Size. Effect sizes were calculated using eta squared for repeated measures ANOVAs (Olejnik & Algina, 2003) and Cohen's *d* with Morris and DeShon's (2002) Equation 8 applied for paired samples *t* tests. See Cohen, 1988 for interpretation of effect sizes. Given the small sample size, effect sizes may be upwardly biased (Ferguson, 2009).

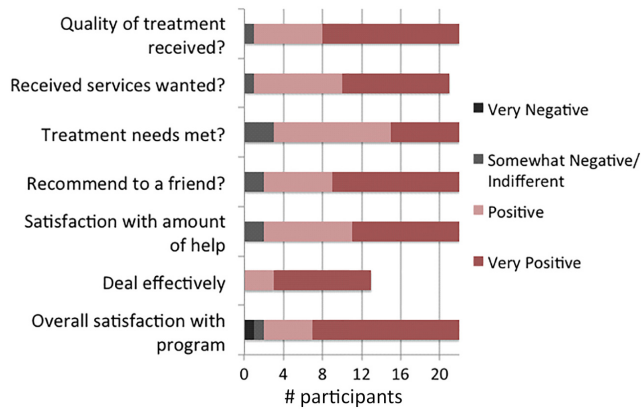


FIGURE 1 Acceptability: Post-treatment feedback survey results (N = 22) Footer: The numbers on the horizontal axis indicate the number of participant responses to an individual item. Pink indicates a positive response, and grey indicates a negative response. Both patient and partner responses are included, except for the item about the individual dealing effectively with BED which only includes patient responses. Partners were asked an equivalent question with data presented in text [Color figure can be viewed at wileyonlinelibrary.com]

partners on BED treatment targets and guiding targeted couple discussions, the broader eating context is addressed and may help reduce restriction and binge-eating triggers. Third, UNITE-BED focuses on improving couples' ability to communicate around the ED, sharing thoughts and feelings, and making decisions as a team, which help couples counter avoidance of the disorder. By skillfully sharing emotional experiences with partners, patients may feel less isolated or overwhelmed by urges and feelings and be less likely to binge eat to regulate emotions. Whether other family members could be engaged in adult ED treatment is unknown, although we are studying the feasibility of this approach (Reyes-Rodríguez, Baucom, & Bulik, 2014).

Our findings are tentative given the small sample size, absence of a control group, and inclusion of independent individual treatment. We cannot attribute all improvements to UNITE-BED rather than the individual treatment received or simply greater therapist contact. We aim next to compare UNITE-BED as a stand-alone treatment to individual CBT. Further, our sample may not reflect the general BED population given these were stable relationships and included couples who self-selected to participate. In conclusion, pilot results of UNITE-BED are very promising and support larger controlled investigations including partners in BED treatment.

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SUPPORTING INFORMATION

Additional supporting information may be found online in the Supporting Information section at the end of the article.

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