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Examination of Early Group Dynamics and Treatment Outcome in a Randomized Controlled Trial of Group Cognitive Behavior Therapy for Binge Eating Disorder

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Abstract

This study examined whether perceptions of group dynamics early in treatment predicted eating disorder outcomes in a sample of adults (N = 190) with binge eating disorder (BED) who participated in a 15-session group cognitive behavior therapy (gCBT) treatment with differing levels of therapist involvement (therapist led, therapist assisted, and self-help). The group dynamic variables included the Engaged subscale of the Group Climate Questionnaire – Short Form and the Group Attitude Scale, measured at session 2 and session 6. Treatment outcome was assessed in terms of global eating disorder severity and frequency of binge eating at end of treatment, 6-month, and 12-month follow-up. Session 2 engagement and group attitudes were associated with improved outcome at 12-month follow-up. No other group dynamic variables were significantly associated with treatment outcome. Group dynamic variables did not differ by levels of therapist involvement. Results indicate that early engagement and attitudes may be predictive of improved eating disorder psychopathology at 12 month follow-up. However, the pattern of mostly insignificant findings indicates that in gCBT, group process variables may be less influential on outcomes relative to other treatment components. Additionally, participants were able to engage in group treatment regardless of level of therapist involvement.

Keywords

Binge eating disorder; eating disorder; group therapy; cognitive-behavioral therapy

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Introduction

Binge eating disorder (BED) is characterized by recurrent episodes of binge eating (eating an unusually large amount of food accompanied by a sense of loss of control) that are associated with marked distress, in the absence of compensatory behaviors (American Psychiatric Association, 2013). Cognitive behavior therapy (CBT) is the most extensively studied psychotherapeutic treatment for BED (Wilson, Grilo, & Vitousek, 2007) and received the highest rating by the National Institute for Clinical Excellence (NICE, 2004). CBT has been adapted for either individual or group delivery in BED (e.g., Mitchell, Devlin, de Zwaan, Crow, & Peterson, 2008; Wilfley et al., 1993). CBT for BED focuses on targeting behavioral stimuli and cognitions associated with binge eating, as well as addressing self-esteem, mood enhancement, body image, and relapse prevention (Mitchell et al., 1993).

CBT for BED has been associated with decreases in binge eating frequency and associated eating disorder pathology when delivered individually and in groups (Grilo, Masheb, & Wilson, 2005; Peterson, Mitchell, Crow, Crosby, & Wonderlich, 2009; Peterson et al., 2001; Wilfley et al., 2002). Group psychotherapy has the additional advantage of being more cost-effective than individual interventions, making group CBT (gCBT) for BED an especially appealing treatment for further study. However, despite the relative efficacy of this group intervention, 20–50% of participants receiving gCBT do not achieve abstinence from binge eating (Hilbert et al., 2012; Peterson, et al., 2009; Wilfley, et al., 2002). Additionally, gCBT suffers from unexplained high dropout rates (Brownley, Berkman, Sedway, Lohr, & Bulik, 2007).

One unique characteristic of group psychotherapy is that it fosters the interplay of complex interpersonal dynamics, including those among members and between members and leaders. Thus, these interactional dimensions (e.g., group dynamics) may influence treatment outcomes. However, relatively few studies have investigated the association of various elements of group dynamics (e.g., group climate[1], group cohesion[2]) with treatment outcomes in interventions for those with BED, including gCBT. The predictive validity of group dynamics on treatment outcomes in this population is therefore not well established.

An initial study ($N = 65$) of group dynamics in a gCBT for BED treatment which consisted of 12, 90-minute long sessions found that perceptions of a positive group climate early in treatment, defined as session 2 or 3, discriminated treatment responders (i.e., those who were abstinent from binge eating with stable weights and adherence to a regular exercise program) from non-responders (Castonguay, Pincus, Agras, & Hines, 1998). Additionally, positive perceptions of the group early in treatment were associated with reduced binge eating frequency at post-treatment. Although this study provided initial support for the hypothesis that early group dynamics may be associated with end of treatment outcome in BED, the findings were limited by the small sample size and not including follow-up data.

[1]Group climate captures perceptions of engagement, conflict, and avoidance of group members (MacKenzie, 1983).
[2]Group cohesiveness describes a sense of belongingness to a group at both an individual and group level (Yalom & Lesczc, 2005)and is a factor of group engagement (MacKenzie, 1983).

In a larger study of 162 participants with BED comparing gCBT to group interpersonal therapy, both of which consisted of 20, 90-minute long sessions (Wilfley, et al., 2002), scores from the Group Climate Questionnaire Scale (GCQ) and the Group Attitude Scale (GAS) at session 6 and session 10 were used to predict treatment outcome at follow-up (Hilbert et al., 2007). Whereas GCQ scores did not predict treatment outcomes, group attitudes, as measured by the GAS, were significantly related to one-year follow-up outcomes. Specifically, participants who endorsed less positive group attitudes during the early and middle phases of treatment were significantly less likely to respond to treatment. Therefore, in addition to group attitudes potentially influencing positive treatment outcomes, the lack of positive group attitudes may also contribute to negative outcomes. However, this study only included participants who were still attending treatment at session 6, and thus was unable to examine the association of earlier treatment group dynamics with treatment outcome.

The present study used data from a large, multicenter randomized controlled trial of outpatient gCBT for adults with BED which compared differing levels of therapist involvement (self-help, therapist assisted, and therapist led; Peterson, et al., 2009). The primary aim of the present study was to identify whether group dynamics, specifically facets of group climate as well as group attitudes, early in treatment was associated with eating disorder symptomatology at end of treatment and at follow-up. Specifically, we were interested in the predictive validity of early group dynamics on treatment outcomes and hypothesized that perceptions of group dynamics early in treatment would significantly predict outcomes at end of treatment and follow-up, with more positive group dynamics predicting better outcomes. We also included an exploratory analysis to determine whether group dynamics were associated with treatment retention. If group dynamics assessed early in treatment are predictors of reductions in post-treatment eating pathology or treatment retention, this could inform the development of more efficacious treatments emphasizing early group dynamics that may lead to a greater number of individuals benefitting from treatment.

The secondary aim of the study was to examine group dynamics with respect to the varying levels of therapist involvement. This aim is a novel addition to the literature on group dynamics and treatment outcomes, and is particularly compelling given that group cohesion may actually be greater in self-help groups than therapist-led groups (Toro, Rappaport, & Seidman, 1987). Given this, we hypothesized that participants in the self-help condition would report more positive group dynamics compared to participants in the therapist-led and therapist-assisted groups.

Method

Participants

Of the 259 participants who were enrolled in the main study (Peterson, et al., 2009), 190 participants were in an active treatment condition and completed either the GAS and GCQ-S at session 2 and/or session 6 and were included in the present study.

Measures

Group Attitude Scale (GAS; Evans & Jarvis, 1986)—The GAS is a 20-item questionnaire using a 9-point Likert scale ranging from *agree* (1) to *disagree* (9) to measure an individual's self-reported attraction to their therapy group, with scores ranging from 20–180. The coefficient alpha in the present study was 0.87.

Group Climate Questionnaire – Short Form (GCQ; MacKenzie, 1983)—This frequently used self-report measure of group climate consists of 12 items using a seven-point Likert scale ranging from *not at all* (0) to *extremely* (6). The GCQ yields three factor-analytically derived scales: Engaged, which indicates a positive working group atmosphere and group cohesion; Conflict, which reflects anger and tension in the group; and Avoiding, which describes behaviors indicating avoidance of personal responsibility of group work by members. Subscale scores range from 0–6. One previous study found good to high alpha coefficients for the three subscales (.94, Engaged; .92, Avoiding; .88, Conflict; Kivlighan Jr & Goldfine, 1991); however, others have found alpha coefficients in the poor to good range (.74, Engaged; .40 Avoiding; and .75, Conflict; Johnson, Spitzer, & Williams, 2001). In the present study, we found the coefficient alpha to be good for the Engaged subscale (.74) but unacceptable for Avoiding (.17) and poor for Conflict (.52). Thus, we elected to only use the Engaged subscale (GCQ-E) in the analyses.

Eating Disorder Examination (EDE; Fairburn & Cooper, 1993; Fairburn, Cooper, & O'Conner, 2008)—The EDE is a widely-used clinician-administered interview comprised of four subscales (Restraint, Eating Concern, Shape Concern, & Weight Concern) reflecting the severity of specific dimensions of eating disorder psychopathology, as well as a Global score. A recent review of the psychometric properties of the EDE indicates that scores on this measure exhibit adequate reliability and that the measure demonstrates validity for the assessment of eating disorder symptoms (Berg, Peterson, Frazier, & Crow, 2012; Fairburn, et al., 2008). The EDE has demonstrated good test-retest reliability in a sample of BED patients, with correlations ranging from .50 to .88 (Grilo, Masheb, Lozano-Blanco, & Barry, 2004). A random sample (20%) of audio recordings from the full sample (N = 259) used for the current study were coded for inter--rater reliability, which ranged from 0.955 to 0.982 for the subscales and Global scores (Peterson, et al., 2009). The EDE also measures frequency of objective bulimic episodes (OBEs) in the past four weeks (28 days).

Treatment Outcome—Treatment outcome was assessed two ways, both of which were derived from the EDE. The treatment outcome measures included 1) EDE Global score and 2) number of OBEs in the past 28 days. Treatment outcome was assessed at three time points (end of treatment, 6-month and 12-month follow-up).

Procedure

The main study has previously been described in detail (Peterson, et al., 2009). Participants were randomized to one of four conditions: waiting list (WL; n = 69), self-help treatment group (SH; n = 67), therapist-assisted treatment group (TA; n = 63), or therapist-led treatment group (TL; n = 60). Treatment consisted of 15, 80-minute gCBT sessions over 20

weeks, and the content of all sessions across active treatment groups was identical so that only the level of therapist involvement differed. The first half of every session consisted of psychoeducation about a specific topic (e.g., cognitive restructuring, behavioral activation, meal planning), regardless of treatment group. The second half of all sessions was comprised of homework review and group discussion. A therapist facilitated this process in person for both the TL and TA groups (i.e., a therapist joined the TA groups halfway through each session after the video completed). The SH groups conducted their own discussions and reviews of homework, with group members rotating facilitation duties on a weekly basis.

The EDE was administered at baseline, end of treatment (or 20 weeks after randomization for the WL group), and six- and 12-months after treatment completion. Participants in the WL condition did not complete follow-up evaluations because they were instead offered the TL treatment after their 20-week waiting period; therefore, no data from the WL condition were included in the present study. The GAS and GCQ were administered before sessions 2, 6, 10, 12, and 14 (i.e., monthly throughout treatment) to all treatment groups.

Data Analysis

Analyses were completed using SPSS - Version 21.0 (Statistics, 2012), including all frequencies, summary statistics, and models.

Linear mixed models with random intercepts were used to identify whether group dynamic variables predicted EDE Global score. Separate models were run for each group dynamic variable (GCQ-E and GAS) at each session (session 2 and 6) and at each time point (end of treatment, six month follow-up, and 12 month follow-up). Models included main effects of treatment group, baseline EDE Global score, and the group dynamic variable (GCQ-E or GAS at session 2 or 6). Group dynamic variables were centered. All analyses were based on an intent-to-treat sample. Where post-treatment or follow-up data were missing, consistent with the main outcome paper (Peterson et al., 2009), the baseline value was carried forward.

Next, a series of negative binomial models using generalized estimating equations were run to examine the associations between each group dynamic variable and number of OBEs at each time point. Models included main effects of treatment group, baseline frequency of OBEs, and the group dynamic variable.

Additionally, we ran a series of negative binomial models using generalized estimating equations to examine the associations between each of the group dynamic variables and number of sessions attended. Models included the treatment group and the group dynamic variable.

A one-way analysis of variance (ANOVA) was calculated at sessions 2 and 6 to determine whether there were significant differences in mean group dynamics ratings between treatment conditions (TL, TA, and SH).

Results

Descriptive Statistics

The mean age of participants was 47.2 years (*SD* = 10.1) and the majority were female (88.1%). Most identified their race as white (95.9%), were married or cohabitating (61.7%), and identified their primary role as a wage earner (77.6%). There were no significant differences between treatment groups or treatment sites for age, race, marital status, or primary role. Further details about the study population can be found in the main outcome paper (Peterson, et al., 2009). GAS and GCQ-E were significantly correlated at session 2 (r = 0.34, $p < 0.01$) and session 6 (r = 0.34, $p < 0.01$) with small effect sizes.

Do early group dynamics predict treatment outcome and retention?

GAS at session 2 was not significantly associated with EDE Global score at end of treatment ($p = 0.31$), six month follow-up ($p = 0.56$) or 12 month follow-up ($p = 0.42$). Similarly, GAS at session 6 was not associated with EDE global score at end of treatment ($p = 0.74$), six month follow-up ($p = 0.15$) or 12 month follow-up ($p = 0.39$). GCQ-E at session 2 was not associated with EDE Global score at end of treatment ($p = 0.35$) or six month follow-up ($p = 0.23$). However, GCQ-E at session 2 was negatively associated with EDE Global score 12 month follow-up ($p = 0.005$). Thus, higher engagement at session 2 was associated with lower EDE Global score at 12 month follow-up (see Table 1 for model). There were no associations between GCQ-E at session 6 and EDE global score at end of treatment ($p = 0.28$), six month follow-up ($p = 0.24$), or 12 month follow-up ($p = 0.54$).

There was no significant association between GAS at session 2 and the number of OBEs at end of treatment ($p = 0.44$) or six month follow-up ($p = 0.13$). However, GAS at session 2 was negatively associated with number of OBEs at 12 month follow-up ($p = 0.036$, see Table 1). GAS at session 6 and GCQ-E at session 2 and session 6 were not associated with number of OBEs at end of treatment, six month follow-up, or 12 month follow-up (all *p*s > 0.05).

Lastly, there were no significant associations between GAS at session 2 or session 6 or GCQ-E at session 2 or session 6 in total number of sessions attended (all *p*'s > 0.05).

Is amount of therapist involvement associated with group dynamics?

Early group attitudes, as measured by the GAS, were relatively high at session 2 in the SH (*M* = 151.67, *SD* = 18.76), TA (*M* = 151.47, *SD* = 16.89) and TL (*M* = 152.99, *SD* = 17.50) treatment conditions and remained high at session 6 (SH, *M* = 157.11, *SD* = 22.95; TA, *M* = 156.10, *SD* = 15.84; TL, *M* = 153.29, *SD* = 18.42). There were no treatment differences in group attitudes at session 2 ($F(2, 161) = 0.12$, $p = .881$) or session 6 ($F(2, 106) = 0.41$, $p = .62$). Similarly, early group engagement at session 2, as measured by the GCQ-E, was relatively high in the SH (*M* = 3.89, *SD* = 0.92), TA (*M* = 3.67, *SD* = 0.87) and TL (*M* = 3.70, *SD* = 0.77) treatment conditions and remained relatively high at session 6 (SH, *M* = 4.33, *SD* = 0.99; TA, *M* = 4.06, *SD* = 0.98; TL, *M* = 4.20, *SD* = 0.83). There were no differences between treatment conditions for the GCQ-E subscale at either session 2 ($F(2, 156) = 0.41$, $p = .66$) or session 6 ($F(2,106) = 0.73$, $p = 0.49$).

Discussion

This study aimed to determine whether group dynamics measured early in treatment (i.e., sessions 2 and 6) predicted eating disorder outcomes in a two-site, 15-session, gCBT treatment for adults with BED. Stronger group engagement at session 2 was associated with greater improvements in global eating disorder psychopathology at 12 month follow-up. Additionally, more positive group attitudes at session 2 were associated with greater reductions in binge eating frequency at 12 month follow-up. However, none of the other group dynamic variables were associated with improved outcomes at any time point. Due to the poor psychometrics of the avoiding and conflict subscales, we did not examine those constructs.

The findings that engagement and group attitudes at session 2 were associated with improved outcome at 12 month follow-up but no other time point was interesting and somewhat perplexing. However, this is not an entirely novel finding, as one other previous study found an association between group attitudes and BED outcome at one year follow-up but not at end of treatment (Hilbert et al., 2007). Interestingly, that finding was based on group attitudes measured at session 6, which was not associated with outcome at any time point in the present study.

The lack of association with group dynamics at session 6 and either outcome at any time point in the present study suggests that engagement and group attitudes in the first few sessions of treatment may be particularly instrumental in fostering behavioral changes that are heavily emphasized in the early phases of gCBT and predictive of better treatment outcomes (i.e., rapid response; Grilo & Masheb, 2007; Grilo, Masheb, & Wilson, 2006; Safer & Joyce, 2011). Although engagement was specifically measured in relation to the therapy group, it may also reflect higher overall engagement in treatment. Therefore, another possibility is that participants who were more engaged in treatment and had more positive attitudes about their group may have been more willing to attempt the suggested cognitive and behavioral changes, thus resulting in better outcomes. Indeed, data from the present sample suggest that adherence to self-monitoring throughout treatment is associated with treatment outcome (Berg et al., 2015). However, actively engaging in treatment may also be a more cognitive process than merely completing self-monitoring. It could also be that early symptom change predicted stronger group engagement and attitudes, even in the first few sessions of treatment. Future studies should closely examine the temporal relationship between behavioral change and group dynamics in this population. Additionally, given that other studies have found an association between group dynamics at session 6 and outcome, our null findings need to be replicated.

Aside from two significant findings with session 2 group dynamics on 12 month outcome, none of the other measured group dynamic variables were associated with global eating disorder outcomes, frequency of binge eating, or treatment retention. In a highly structured treatment such as gCBT, where the focus is on behavioral techniques and psychoeducation, group dynamics may not be important predictors of behavioral treatment outcomes (e.g., binge eating frequency) relative to other treatment components (e.g., cognitive restructuring). These findings suggest that in such highly structured treatments, the content

of the treatment being delivered may be more influential on treatment outcomes than group dynamics. While it may be useful for therapists to focus on early group dynamics, emphasizing effective delivery of the treatment materials more than fostering group dynamics may be more beneficial for treatment retention and treatment outcomes.

Additionally, this study found that participants with BED reported high positive group attitudes and engagement in three delivery methods of gCBT including self-help, therapist-led, and therapist-assisted groups, and that the variables did not differ across delivery methods. These results suggest that group members were generally engaged with one another and felt positively about their groups regardless of the level of therapist involvement; in this treatment, therapists did not appear to be instrumental in establishing positive group dynamics. As the group dynamic variables did not differ across therapist level of involvement and the three conditions did not differ on rates of abstinence from binge eating at treatment follow-up (Peterson, et al., 2009), the results from the present study, together with the main outcome paper, indicate that gCBT for BED may be delivered with reduced or no therapist involvement without significant detrimental effects for group members on their experience in the group or on their treatment outcomes.

Strengths and Limitations

This study had several strengths, including the use of a large, multi-site sample, rigorous assessment procedures, and a highly structured treatment. However, several limitations should be noted. The relative homogeneity of the sample may affect the generalizability of findings to individuals in the community with BED. Effectiveness studies of gCBT for BED should be conducted using more diverse samples that more closely resemble individuals in the community seeking treatment for BED. The group dynamic variables were self-reported at the individual level. The study would be strengthened by behavioral measures of group dynamics or therapists ratings. Additionally, we were unable to test two of our hypotheses due to the poor psychometric qualities of two subscales of the GCQ in our sample.

Conclusion

There is a small but accumulating body of literature on group dynamics and treatment outcomes in gCBT for BED, with some evidence to support the influence of group dynamics on treatment outcomes. Results from the present study indicate that perceived group engagement and group attitudes in the first two sessions of gCBT is associated with better eating disorder outcome at 12 month follow-up. However, the lack of other significant findings indicate that, in a highly structured group treatment for BED, group dynamics may be less influential on treatment outcomes relative to other treatment components. Additionally, participants perceive their groups as positive and engaging even without a therapist directly facilitating treatment. Future studies should examine the temporal relationship between group dynamics and behavioral change during the course of treatment and examine the salience of group dynamics in gCBT effectiveness studies.

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Highlights

- Examined impact of group processes on outcome in binge eating disorder treatment
- Early engagement associated with reduced eating disorder severity
- Early group climate not associated with eating disorder outcomes
- Group process variables did not differ by level of therapist involvement

Table 1

The association between group dynamics at session 2 and eating disorder symptomatology at 12 month follow-up

Predictors	Estimate	SE	Test statistic	*p*	Estimate	SE	Test statistic	*p*
	EDE Global Score				Frequency of Binge Eating			
Predictor: GAS								
Intercept	0.31	0.22	1.40	0.163	1.89	0.23	2221.46	**0.001**
Group 1	−0.33	0.15	−2.25	**0.026**	−0.35	0.17	3.37	**0.034**
Group 2	−0.16	0.14	−1.11	0.270	−0.08	0.13	0.36	**0.547**
Baseline	0.77	0.08	10.76	**0.001**	0.04	0.00	96.20	**0.001**
GAS	−0.00	0.00	−0.81	0.420	−0.01	0.00	4.40	**0.035**
Predictor: GCQ-E								
Intercept	0.26	0.22	1.18	0.240	1.81	0.13	201.23	**0.001**
Group 1	−0.31	0.14	−2.14	**0.034**	−0.35	0.17	3.07	**0.044**
Group 2	−0.20	0.15	−1.23	0.220	−0.08	0.14	0.32	**0.569**
Baseline	0.78	0.07	11.01	**0.001**	0.04	0.00	96.02	**0.001**
GCQ-E	−0.20	0.07	−2.84	**0.005**	−0.11	0.08	2.16	0.142

Note: Models predicting global eating disorder psychopathology, as measured by the Eating Disorder Examination Global score and predicting frequency of objective binge eating in the past 28 days, as measured by the Eating Disorder Examination; Baseline refers to the baseline level of the outcome variable (EDE Global Score or Frequency of Binge Eating); GAS = Group Attitude Scale; GCQ-E – Group Climate Questionnaire – Short Form Engaged Subscale; Group 1 = Self-Help; Group 2 = Therapist Assisted; Group 3 = Therapist Led; GAS and GCQ-E were each centered.