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Group Dialectical Behavioral Therapy for Binge-Eating Disorder:
Outcomes from a Community Case Series

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1 **Group Dialectical Behavioral Therapy for Binge-Eating Disorder:**

2 **Outcomes from a Community Case Series**

3

4 **Abstract**

5 **Objective:** Whilst there is evidence to support the use of group dialectical behavioral therapy
6 (DBT) in the treatment of binge-eating disorder (BED), few studies have reported on its
7 effectiveness when delivered in routine clinical practice. This study addressed this gap by
8 exploring the effectiveness of group DBT for BED when delivered in a community eating
9 disorder service.

10 **Method:** Participants were 56 adults who presented with BED, and were offered a 20-week
11 DBT group. Eight groups were conducted. Measures of eating disorder pathology, anxiety,
12 depression and emotion regulation were completed at start and end of treatment, and one-
13 month follow-up.

14 **Results:** The attrition rate was 16.1%. Abstinence rates (no objective binges in the previous
15 month) were approximately 60% at the end of treatment and 50% at follow-up. There were
16 significant reductions in eating disorder psychopathology (but not in mood) by end of treatment
17 and improvements were maintained at follow-up.

18 **Discussion:** Group DBT is an acceptable and effective treatment for adults with BED when
19 delivered in a routine community setting. Findings are broadly comparable with those from
20 research trials. The lack of significant effect on mood suggests that DBT can be effective by
21 teaching new emotion-regulation skills, rather than changing mood per se.

22

23

24 Keywords: binge-eating disorder; dialectical behavioral therapy; group therapy; outcomes

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Group Dialectical Behavioral Therapy for Binge-Eating Disorder:
Outcomes from a Community Case Series

Binge-eating disorder (BED) is characterised by recurrent episodes of objective binge eating that are associated with marked levels of distress (American Psychiatric Association, 2013). It is also associated with comorbid psychiatric symptoms, such as depression, impaired social functioning and obesity (Wilfley, Wilson, & Agras, 2003). Although psychological therapies (e.g., cognitive behavioral therapy; interpersonal psychotherapy) have been used to treat BED (Wilfley et al., 2002), remission rates show that these fail to help a significant proportion of patients (Wilson, Grilo, & Vitousek, 2007). A number of factors have been identified as impacting treatment response, including low mood (Stice et al., 2001) and comorbid Cluster B personality disorders (Wilfley et al., 2000).

There is clear evidence of a link between binge eating and poor emotion regulation (Leehr et al, 2015). Treatments that focus on supporting the development of more adaptive emotion regulation skills have been adapted for BED. One such treatment is dialectical behavioral therapy (DBT). Assuming that binge eating serves as a dysfunctional affect regulation strategy (Telch, Agras & Linehan, 2001), DBT aims to reduce binge eating by improving adaptive emotion-regulation skills. In an initial uncontrolled trial, Telch et al. (2000) evaluated the effectiveness of a 20-session group treatment, adapted from Linehan's DBT manual (e.g., Linehan, 1993). At the end of treatment, 82% of participants were abstinent from binge eating, and outcomes were maintained at follow-up. These findings were supported in controlled trials (Safer, Robinson & Jo, 2010; Telch et al., 2001), where the rates of abstinence and retention were more positive in those who received DBT.

Whilst a growing number of studies have demonstrated the potential effectiveness of DBT for BED, these have largely been delivered by the developers of the intervention in academic settings. Only one study to date has investigated the feasibility of delivering this treatment in a routine clinical setting. Klein, Skinner and Hawley (2012) delivered group-based DBT for people who binge eat in a community college setting. However, that study had substantial limitations. While treatment completers showed a significant reduction in weekly

binge frequency, the drop-out rate was high (50%). The study also had a very small sample (n = 5 treatment completers) and included mixed diagnoses (40% BED, 40% sub-threshold BED, and 20% bulimia nervosa), both of which limit the generalisability of the findings.

Consequently, there is still a need for evidence that DBT for BED is effective in routine clinical practice, with positive outcomes and strong levels of acceptability and patient retention. Therefore, the present study aims to build on previous work by exploring the effectiveness of a group-based DBT intervention for BED when delivered in a routine out-patient community eating disorders service. Unlike the study by Klein et al. (2012), this paper reports on the clinical outcomes of a large group of patients who presented with a DSM-5 diagnosis of BED. It also includes follow-up data.

Method

Ethical considerations

Using the UK National Health Service (NHS) National Research Ethics Service guidance (National Health Service Health Research Authority, 2011), this case series was deemed to be service evaluation, and therefore was not submitted for ethical approval. Issues related to use of service evaluation data and participant consent were discussed with our Organisation's Information Governance Department. All patients were informed that their clinical data would be used for evaluation purposes, and that there would be no breach of confidentiality as a result, as all data were de-identified.

Patient group

The sample consisted of 56 patients (50 women and six men) who had been referred to a specialist NHS community eating disorder service. Each was diagnosed using DSM-5 criteria (American Psychiatric Association, 2013), following assessment using the diagnostic items of the Eating Disorders Examination, version 16 (Fairburn, 2008) or a semi-structured-interview (Waller et al., 2007). All patients met DSM-5 diagnostic criteria for BED. The mean age of the sample was 37.96 years (SD = 11.57, range = 21 - 73 years). Mean BMI at the start of treatment was 42.2 (SD = 8.73) and at follow-up it was 41.8 (SD = 6.83), indicating no significant change over therapy (Intention to treat analysis: t = 0.74; NS). All participants were

1 enrolled in a 20-week DBT-BED skills training group between 2014 - 2016.

2 **Measures**

3 Measures of eating disorder pathology, anxiety, depression and emotion regulation
4 were collected at the start and end of the group, and at one-month follow-up.

5 **The Eating Disorders Examination Questionnaire** (EDE-Q, version 6; Fairburn,
6 2008). The EDE-Q is a self-report questionnaire, assessing eating disorder psychopathology
7 and behaviors. It measures the frequency of key eating disorder behaviors (including objective
8 binge-eating over the past 28 days), as well as attitudinal subscales of dietary restraint, weight
9 concerns, shape concerns and eating concerns. These subscales can be averaged to produce
10 a global attitudinal score. The EDE-Q has good psychometric properties and has been found
11 to be suitable for use with BED patients (Reas, Grilo & Masheb, 2006).

12 **Hospital Anxiety and Depression Scale** (HADS; Zigmond & Snaith, 1983). The
13 HADS is a self-report questionnaire measuring anxiety and depression. Total scores on each
14 subscale indicate the presence of mild (0-8), moderate (11-15) or severe (16-21) anxiety or
15 depression.

16 **Binge Eating Scale** (BES; Gormally, Black, Daston & Rardin, 1982). The BES is a
17 self-report measure of binge eating pathology with scores ranging from 0-46. The BES has
18 good psychometric properties and a moderate association with binge eating severity as
19 measured by food records (Timmerman, 1999).

20 **Emotional Eating Scale** (EES; Arnow, Kenardy & Agras, 1995). The EES is a 25-item
21 self-report questionnaire assessing the tendency to use eating to cope with negative affect. It
22 has three subscales measuring anger, anxiety and depression. Questions are scored on a 5-
23 item Likert scale, ranging from 'no desire to eat' (0) to 'an overwhelming urge to eat' (4). The
24 EES has good psychometric properties and discriminant validity, and has been shown to
25 correlate significantly with self-reported binge frequency (Arnow, Kenardy & Agras, 1995).

26 **Procedure**

27 Participants completed the EDE-Q, HADS, BES and EES at the start and end of
28 treatment (20 weekly sessions), and at one-month follow-up. These measures were

administered as part of routine clinical practice, to monitor treatment effectiveness. Participants were given time to complete assessment measures at these time points.

Intervention

The DBT delivered in this group followed that described in a standardised manual (Safer, Telch & Chen, 2009). As part of treatment, all participants commit to addressing, in order of priority: any therapy-interfering behaviors; binge-eating; mindless eating; urges to binge-eat; capitulating (wilfully shutting off all options other than to binge-eat); and apparently irrelevant behaviors (which might have a surface-level justification, but in fact increase the likelihood of binge-eating). Participants used tools such as chain analysis to identify the factors prompting them to engage in these behaviors, and to replace problem behaviors with more adaptive coping skills.

Each group session was two hours and included an hour of structured feedback regarding target behaviors and skills use, followed by an hour of new skills teaching. The skills taught included mindfulness, emotion regulation and distress tolerance. Participants completed diary cards weekly, indicating the number of target behaviors (e.g., binges, mindless eating, urges to binge, therapy interfering behaviors) that had occurred in the previous week. Participants also completed a record of their skills practice each week. Each group consisted of 5-8 participants and ran weekly for 20 weeks. Participants also attended an individual pre-group review and a one-month follow-up session.

Each group was led by a clinical psychologist or eating disorders therapist, and was co-facilitated by an assistant psychologist. All lead facilitators were DBT trained and attended monthly peer DBT supervision. In order to promote consistency and treatment adherence, session recordings were routinely used in supervision and skills were taught following written agendas. Supervision was provided by one of the authors (GA), who has 10 years' experience of delivering and supervising DBT.

Data Analysis

Symptom change was measured by comparing scores on the EDE-Q, BES, EES and HADS at baseline, end of treatment and one-month follow-up. In order to ensure that the

1 outcomes were not affected by attrition, the analyses were conducted using Intention to Treat
2 methods (multiple imputation, with ten imputations). Paired t-tests were used to compare
3 differences from the start of therapy to the end, and from the end of therapy to the one-month
4 follow-up. Cohen's *d* was used to determine effect sizes ($d \geq 0.8$ is regarded as a 'large' effect).
5 To ensure that behavior change was maintained for a meaningful length of time, abstinence
6 from binge eating was defined as no reported objective binge episodes in the previous month,
7 as indicated on the EDE-Q.

8 **Results**

9 **Attrition from treatment**

10 Of the 56 participants who entered the DBT groups, all attended at least one session.
11 Nine dropped out of treatment before completing the group, giving an attrition rate of 16.1%
12 over the 20 weeks. Of the remaining 47 patients, four were lost to follow-up. Therefore, drop-
13 out at one-month follow-up was 23% (13/56).

14 **Abstinence from binge eating**

15 Abstinence from binge eating at the end of treatment was defined as no reported
16 objective binge episodes in the past four weeks, as reported on the EDE-Q. Of the 47
17 treatment completers, 29 (61.7%) were abstinent from bingeing at the end of treatment. At
18 one-month follow-up, 23 (53.5%) reported having been abstinent from binge eating, and a
19 further 11 (19.7%) reported having binged less than once a week over the previous month
20 (i.e., below the DSM-5 criterion for BED). Intent-to-treat analysis abstinence rates were similar,
21 at 60.7% (34/56) at the end of treatment and 51.8% (29/56) at follow-up.

22 **Treatment outcomes for eating and pathology and mood**

23 Table 1 shows the intention-to-treat analyses. There were significant reductions from
24 the beginning to end of treatment in all of the EDE-Q scales, in the frequency of objective
25 binges and in the BES. The effects ranged from small-medium to very large. However, there
26 were no significant reductions in pathology on the remaining scales, indicating that DBT was
27 more effective in changing eating pathology than the underlying emotional factors. Completer
28 analyses (see Supplementary Material A) showed a similar pattern for the eating variables,

1 but indicated more of an impact on the emotional factors, suggesting that the loss of
2 participants resulted in apparent over-inflation of the emotional impact of DBT-BED.

3 ________________________________

4 Inset Table 1 about here

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6

7 **Discussion**

8 This study aimed to explore the effectiveness of group-based DBT for BED when
9 delivered in a routine clinical setting. In order to promote treatment fidelity, all therapists
10 received regular group supervision and were actively encouraged to follow the treatment
11 protocol outlined in the manual (Safer et al., 2009). The attrition rate (16%) was very similar
12 to the 18% reported by Telch et al. (2001) (18%) and was notably lower than the 50% reported
13 by Klein et al. (2012). Therefore, this intervention had a high level of acceptability when
14 delivered in routine clinical practice.

15 The outcomes were broadly comparable to previously published studies (Safer et al.,
16 2010; Telch et al., 2000, 2001), though the abstinence rate was slightly lower than that
17 reported by Telch et al (2000, 2001) but similar to that reported by Safer et al (2010). Effect
18 sizes indicate that there were medium to large improvements in eating disorder symptoms.
19 These changes were comparable with previously published outcomes (Safer et al., 2010;
20 Telch et al., 2001). However, while there were changes in the expected direction for emotions
21 and emotional eating, they were not significant in the main analyses. The differences in the
22 Completer analyses (Supplementary Material A) appear to be an artefact of the pattern of
23 attrition. These findings are in keeping with the limited level of change in mood in previous
24 studies (Safer et al., 2010; Telch et al., 2000), indicating that while DBT for BED teaches
25 effective emotion-regulation skills, it does not change the underlying emotional state. This
26 finding contrasts with those from cognitive-behavioral therapy for eating disorders, which
27 reduces both eating pathology and comorbid mood (e.g., Turner et al., 2016).

28 The present study has a number of limitations that should be addressed in future

research. In particular, patients were only followed up for one month after completing treatment. This is a shorter follow-up period than in previous efficacy studies (e.g., Safer et al., 2010; Telch et al., 2000, 2001), preventing conclusions being drawn about the longer-term efficacy of the intervention. At least a six-month follow-up would have been preferable. Furthermore, this was an uncontrolled study. Future work would benefit from having a control condition, and from greater detail regarding those who did not opt-in to treatment. Consideration might also be given to using emotional measures that are designed to be responsive to change in the short term during treatment, such as the PHQ-9 (Kroenke et al., 2001) and GAD-7 (Spitzer et al., 2006). However, the paper also has a number of strengths. In particular, this study was conducted in a routine community setting and had a relatively large sample size. The use of a manualised treatment by clinicians who did not develop the manual is a further strength. In addition, the participants all had a DSM-5 diagnosis of BED, in contrast with other community studies (e.g., Klein, Skinner & Hawley, 2012).

Given the need to explore whether therapies can be delivered more efficiently and in a less costly way (e.g., Waller et al., 2018), the duration of DBT should be considered. Such research should consider whether early change is a strong predictor of outcome, as shown in other therapies (e.g., Turner et al, 2015), as a lack of such change might indicate the need to change therapeutic approach. At 20 sessions, DBT for BED is a relatively long treatment, and given emerging evidence for DBT guided self-help (e.g., Carter et al, 2020), future research might usefully explore whether a shorter group version could be delivered without loss of clinical effectiveness. In light of COVID-19, future research might also usefully explore whether this type of intervention can be effectively delivered via telemedicine.

In conclusion, this study supports findings from previous efficacy research. DBT is an effective treatment for BED in routine clinical practice, with high acceptability and strong outcomes. However, it is important to note that this is a relatively long therapy, so briefer versions of DBT merit consideration. Finally, comparison with other therapy types is needed, to determine whether they have different impact on emotional and other comorbidities.

Authors' declaration of interest

The authors have no interests to declare.

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Data statement

The data used are available from the corresponding author on reasonable request

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Table 1 – Levels of eating pathology (EDE-Q scores), binge eating (BES scores), emotional eating (EES scores) and mood (HADS scores) among patients who started Dialectical Behavior Therapy for binge-eating disorder (Intention to treat; *N* = 56)

	Measurement Point						Paired t-tests					
	Start		End		Follow-Up		Start-End			End-follow up		
	M	*(SE)*	*M*	*(SE)*	*M*	*(SE)*	*T*	*P*	*d*	*t*	*P*	*d*
Eating Disorders Examination – Questionnaire												
Restraint	1.88	(0.23)	0.83	(0.30)	0.93	(0.32)	3.04	.004	0.643	0.24	*NS*	-
Eating Concerns	4.29	(0.22)	1.20	(0.20)	1.73	(0.25)	11.5	.001	1.490	1.99	*NS*	-
Shape Concerns	4.90	(0.11)	2.78	(0.25)	2.79	(0.27)	8.97	.001	1.231	0.04	*NS*	-
Weight Concerns	4.66	(0.14)	2.52	(0.25)	2.63	(0.24)	8.58	.001	1.175	0.44	*NS*	-
Global	3.93	(0.14)	1.85	(0.18)	2.03	(0.17)	11.1	.001	1.476	1.06	*NS*	-
Objective binges per 28 days	18.6	(1.72)	1.34	(5.94)	6.29	(34.3)	2.81	.009	0.379	0.16	*NS*	-
Binge Eating Scale												
Total	34.4	(0.85)	11.7	(6.48)	13.5	(5.70)	2.91	.009	0.465	0.11	*NS*	-
Emotional Eating Scale												
Anger	2.93	(0.10)	1.47	(1.13)	1.25	(1.60)	1.29	*NS*	-	0.11	*NS*	-
Anxiety	2.54	(0.12)	1.22	(0.92)	0.93	(1.27)	1.43	*NS*	-	0.18	*NS*	-
Depression	3.30	(0.09)	2.04	(2.12)	1.95	(1.92)	0.60	*NS*	-	0.04	*NS*	-
Hospital Anxiety and Depression Scale												
Anxiety	12.5	(0.55)	8.69	(4.88)	10.8	(8.37)	0.79	*NS*	-	0.33	*NS*	-
Depression	10.0	(0.49)	6.08	(4.11)	5.48	(5.03)	0.96	*NS*	-	0.16	*NS*	-

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2

Supplementary Material A – Levels of eating pathology (EDE-Q scores), binge eating (BES scores), emotional eating (EES scores) and mood (HADS scores) among patients who completed DBT for binge-eating disorder (*N* = 43-45)

	Measurement Point						ANOVA			
	Start		End		Follow-Up					
	M	*(SD)*	*M*	*(SD)*	*M*	*(SD)*	*F*	*P*	*Partial eta* ^{2}	*LSD tests (P < .05)*
Eating Disorders Examination - Questionnaire										
Restraint	1.80	(1.72)	0.81	(1.03)	0.92	(1.13)	8.74	.001	.289	S > E = FU
Eating Concerns	4.20	(1.32)	1.15	(1.15)	1.61	(1.40)	85.0	.001	.802	S > FU > E
Shape Concerns	4.91	(0.82)	2.80	(1.66)	2.89	(1.67)	50.2	.001	.700	S > E = FU
Weight Concerns	4.71	(1.04)	2.62	(1.50)	2.59	(1.57)	55.3	.001	.720	S > E = FU
Global	3.87	(0.93)	1.82	(1.10)	2.00	(1.21)	71.9	.001	.774	S > E = FU
Objective binges per 28 days	19.7	(11.6)	1.76	(3.50)	3.71	(7.20)	53.5	.001	.728	S > FU > E
Binge Eating Scale										
Total	34.7	(6.04)	13.7	(9.04)	15.2	(11.3)	90.6	.001	.846	S > E = FU
Emotional Eating Scale										
Anger	2.95	(0.69)	1.29	(0.91)	1.42	(1.04)	55.4	.001	.730	S > E = FU
Anxiety	2.49	(0.79)	1.15	(0.86)	1.17	(0.89)	54.5	.001	.727	S > E = FU
Depression	3.31	(0.65)	1.84	(1.27)	1.93	(1.15)	40.8	.001	.655	S > E = FU
Hospital Anxiety and Depression Scale										
Anxiety	12.3	(4.08)	7.84	(4.02)	8.04	(5.03)	29.3	.001	.577	S > E = FU
Depression	9.58	(3.50)	4.44	(3.67)	4.53	(4.04)	40.3	.001	.652	S > E = FU

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