



HHS Public Access

Author manuscript

Curr Psychiatr. Author manuscript; available in PMC 2016 February 26.

Published in final edited form as:

Curr Psychiatr. 2012 May ; 11(5): 32–39.

Binge eating disorder: Evidence-based treatments

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Introduction

Binge eating disorder (BED), the most common eating disorder in the United States, has a lifetime prevalence of approximately 3.5 percent.¹ The present update provides clinicians with important insights about emerging changes in diagnostic criteria for BED as well as with base knowledge of currently available evidence-informed treatment options.

Binge eating is defined as the consumption of an unusually large amount of food coupled with a feeling of loss of control over eating. BED is characterized by recurrent episodes of binge eating in the absence of inappropriate compensatory behaviors (e.g., self-induced vomiting; the misuse of laxatives, diuretics, or other agents; exercise). The diagnosis currently falls within the DSM-IV category of “eating disorders not otherwise specified (EDNOS),” but is generally accepted by the clinical community as a distinct clinical phenomenon. According to DSM-IV, an individual would meet criteria for BED if s/he engages in regular binge eating behavior in the absence of compensatory behaviors at least two days per week over the course of six months. Proposed changes for DSM-5 would remove BED from the EDNOS category and promote it to the main manual, reduce the frequency criterion to once per week and the duration criterion to the past three months, and shift the focus from binge days to binge episodes.²

BED can occur in individuals of all body mass indices (BMI), but is common among individuals who are overweight or obese as well as those with depression and type 2 diabetes and can be a treatment-complicating factor in all of these conditions.^{1,3,4} The primary goals of treatment are abstinence from binge eating; improved psychological

functioning as it relates to key features of BED; and, in overweight patients, appropriate weight loss and maintenance.

Our update focuses on studies conducted since September 2005 that included binge frequency, weight, and depression as primary outcomes (please refer to a previous review of BED treatment studies prior to 2005⁵). We report on three approaches to the treatment of BED: medication only, behavioral intervention only, and medication plus behavioral intervention. With the current update, we aim to disseminate clinically useful information about the effectiveness of various BED treatments and, in so doing, provide suggestions and guidelines for clinical practice.

Identification of Relevant Literature

The process of identifying studies for this review has been fully detailed in the Agency for Healthcare Research and Quality report on the management of eating disorders.⁵ Briefly, systematic searches were conducted to identify studies eligible for inclusion based on search terms using standard electronic databases (e.g., MEDLINE®, PsycINFO, Cochrane Collaboration libraries) and hand searched reference lists. The current review was limited to human treatment studies written in English and published since September 2005. As a general requirement, the study population must have had a primary diagnosis of BED, and studies were required to report on at least one of our outcome categories of interest: behavioral, psychiatric/psychological, or biological. We initially focused on randomized controlled trials, but in an effort to capture the most current literature, we modified the search to include two uncontrolled studies of interest. Thus, a total of 23 (of 875 identified) studies met our inclusion criteria: 7 medication only, 5 medication plus behavioral, 11 behavioral only (see Table 1).

Participants

The 23 studies included 2,530 participants (1992 women and 278 men). While the gender distribution of BED tends to only slightly favor women in the general population,¹ the proportion of women presenting for any type of treatment is generally considerably higher than that of men, thus providing a potential explanation for the gender discrepancy. All participants were diagnosed with either sub-threshold or threshold BED according to DSM-IV criteria and the majority of participants were overweight or obese. In those studies that reported on race and/or ethnicity, 1,639 participants were identified as Caucasian, 191 as African-American, 25 as Hispanic, 2 as Asian, 1 as Native American, and 25 as “other.” Ages ranged from 18 to 77 years. Studies were conducted in North America, Europe, and South America.

Measuring BED and Related Psychopathology

For the purposes of this review, we focused on the primary outcome measures including: binge eating frequency (including binge episodes and binge days), weight and/or BMI, and depression. Almost without exception, all studies administered measures of binge eating pathology and depression that have been well-validated and are commonly used in both

research and clinical practice. Weight and BMI were measured either directly or by self-report.

Medication-Only Interventions

In placebo-controlled studies, a high-dose SSRI (escitalopram⁶), two anti-convulsant medications (zonisamide⁷ and topiramate⁸), a stimulant medication (atomoxetine⁹), and an appetite suppressant (sibutramine¹⁰) were all associated with significant decreases in both binge eating frequency, weight, and BMI in overweight/obese patients diagnosed with BED according to DSM-IV criteria. In contrast, in an open-label trial, the commonly prescribed Alzheimer's medication, memantine, was associated with a significant reduction in binge eating but no change in weight;¹¹ and the anti-convulsant, lamotrigine, did not differ significantly from placebo in reducing binge eating or weight, but did show some promise in significantly reducing metabolic parameters such as glucose and triglyceride levels commonly associated with obesity and the development of type 2 diabetes.¹² Given the comorbidity among BED, obesity, and type 2 diabetes, the use of lamotrigine as an augmentation strategy in the treatment of obese individuals with BED warrants further investigation.

Behavioral and Self-Help Interventions

In examining the behavioral interventions for BED, cognitive-behavioral therapy (CBT), which focuses on identifying and modifying unhealthy cognitions that maintain disordered eating behaviors, has been the most widely studied. Other treatments that have been studied include interpersonal psychotherapy (IPT), motivational interviewing (MI), and structured behavioral weight loss (BWL). IPT is a psychodynamically based, time-limited treatment that focuses on the interpersonal context of the disorder and on building interpersonal skills. MI focuses on exploring and resolving ambivalence about treatment, and works to facilitate change through motivational processes within the individual. BWL typically focuses on making dietary and physical activity changes to achieve weight loss. Behavioral treatments have been delivered using various formats, such as in an individual versus group setting, by electronic interface, and using self-help approaches. The majority of studies compared the active treatment to a control group, but in a subset of studies, active treatments have been compared head-to-head.

With respect to binge eating, collectively, studies show that CBT and IPT are effective in reducing the frequency of binge eating, whether measured by the actual number of episodes of binge eating or the number of days a patient reports having engaged in binge eating.^{13–22} However, a few studies suggest that CBT can help a significant number of patients achieve abstinence from binge eating.^{15,19} It appears that the addition of MI to a self-help approach improves binge eating outcomes,²³ and that binge eating can be successfully reduced using individual, group, and CD-ROM delivery formats; in the latter case adding support to the growing body of literature promoting the use of computer-based interventions (e.g., CD-ROM, Internet-based) in the treatment of psychological disorders.²⁰ In direct comparisons, individual CBT outperformed group CBT in helping patients recover (i.e., no longer meeting

diagnostic criteria),¹⁸ and CBT delivered via guided self-help outperformed BWL in helping patients achieve remission.¹⁷

The psychological features of BED typically include low levels of cognitive restraint and high levels of disinhibition, hunger, and shape and weight concerns. Across studies, improvements in these psychological measures were observed with CBT,^{14-19, 21} IPT,²¹ and MI;²³ and, in direct comparisons, self-help CBT demonstrated significantly greater reductions in perceived hunger and disinhibition than self-help BWL,¹⁷ and individual CBT outperformed group CBT in reducing shape and weight concerns.¹⁸ With respect to depression, isolated studies report post-treatment improvements following self-help CBT,¹⁷ and MI,²³ and sustained improvements²¹ following group CBT (6 months) and group IPT (12 months). Additional work is needed to determine whether CBT that is crafted specifically for BED actually improves self-rated depression in this population or if specific enhancements targeting depressive symptoms are required.

The impact of behavioral interventions on weight outcomes in overweight patients has been mixed. While some CBT studies do report a significant decrease in weight,^{16, 18} others suggest that the weight loss among those patients treated with CBT is not superior to those in a waitlist control group¹⁵ or is not significant over the course of treatment.^{19,20} The impact of BWL on weight outcomes in BED have been equally unimpressive: after 12 weeks, self-help BWL was no better than self-help CBT in reducing BMI;¹⁷ after 16 weeks, BWL was better than CBT and IPT in achieving clinically significant (5%) weight loss, but this advantage was not sustained at 1- and 2-year follow up.²² It is difficult to ascertain the reasons for a lack of measurable weight loss in successfully treated BED patients, as one would expect decreases in binge eating to be associated with weight loss. It is possible that calories previously consumed during binge eating episodes are distributed over nonbinge meals or that patients label binges and nonbinge meals differently as a result of treatment.

Medication Plus Behavioral Interventions

In practice, patients are often treated with a combination of psychotherapy and pharmacotherapy. When added to CBT, topiramate was associated with improvements in weight and some psychological outcomes,^{24,25} but fluoxetine was not.^{26,27} Direct comparisons also showed that CBT, alone or in combination with fluoxetine, was better than fluoxetine alone in reducing binge eating.²⁶ For overweight patients with BED, combination therapies involving anti-obesity medications are of interest. When combined with an individualized hypocaloric diet, orlistat reduced weight but had no appreciable effect on binge eating in this population.²⁸ Collectively, the identified studies in this update suggest that combining medication and CBT may improve both binge eating and weight loss outcomes; however, additional trials are necessary to determine more definitively which medications when combined with CBT are best at producing sustained weight loss while reducing binge eating frequency.

Conclusions

Overall, the evidence presented in this review suggests that pharmacological interventions and CBT (both alone and in combination) are effective in reducing binge eating and pharmacological interventions are effective in reducing weight in overweight individuals with BED. Future research is needed to establish the evidence base for IPT and MI. It remains unclear which medications provide the greatest benefit in terms of binge eating remission; however, pharmacological interventions evidence a clear advantage in terms of facilitating short-term weight loss. Confirming previous reviews, CBT continues to demonstrate effectiveness in reducing binge eating and related psychological comorbidities (e.g., eating-related psychopathology and depression) and may confer an additional benefit when combined with medication. In light of these findings, we recommend augmenting psychotherapeutic care with medical management in order to address all relevant psychological and medical domains. Future investigations should address directly the benefits of coordinated psychological and medical care and evaluate the maintenance of treatment gains long-term.

Bottom Line

Both pharmacological and psychological interventions have demonstrated success in reducing binge eating. Clinicians have a variety of options from which to choose in managing binge eating and weight in individuals with this disorder.

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Table 1

	Treatment	Primary Outcome
Medication Only		
Brennan et al., 2008	Memantine (5–20 mg/d) open label for 12 weeks	Memantine associated with decreased binge frequency and related psychological features of binge eating (BE) in open label trial
Guerdjikova et al., 2008	Escitalopram 10–30 mg/d vs. placebo for 12 weeks	Escitalopram significantly better than placebo in reducing weight, BMI, illness severity
Guerdjikova et al., 2009	Lamotrigine 50–400 mg/d vs. placebo for 16 weeks	Lamotrigine not significantly different from placebo
McElroy et al., 2006	Zonisamide 100–600 mg/d vs. placebo for 16 weeks	Zonisamide significantly better than placebo in reducing BE, weight, BMI, various aspects of unhealthy eating behavior
McElroy, Guerdjikova et al., 2007	Atomoxetine 40–120 mg/d vs. placebo for 10 weeks	Atomoxetine significantly better than placebo in reducing BE, weight, BMI, obsessive-compulsive features of binge eating, and in remission
McElroy, Hudson et al., 2007	Topiramate 25–400 mg/d vs. placebo for 16 weeks	Topiramate significantly better than placebo in reducing BE, weight, BMI, and related psychological features of BE
Wilfley et al., 2008	Sibutramine 15 mg/d vs. placebo for 24 weeks	Sibutramine significantly better than placebo in reducing BE, weight, BMI, and related psychological features of BE
Behavioral Only		
Anunziato et al., 2009	2 Groups received CBT and hypocaloric diet for 8 weeks followed by 14 weeks of either: Group 1: Enhanced nutritional program (i.e., reduced consumption of high energy density foods and once daily liquid meal replacement) G2: Control (normal diet)	Enhanced nutritional program not significantly different than control in reducing weight, BE, or related psychological features of BE; variability in adherence to the enhanced nutritional program was identified as a significant effect modifier
Ashton et al., 2009	4 sessions of group CBT in open trial	CBT associated with significant reductions in BE and related psychological features of BE in post-bariatric surgery patients
Cassin et al., 2008	Self-help book + motivational interviewing (SH-MI) vs. Self-help book alone (SH) for 16 weeks	SH-MI significantly better than SH in reducing BE and depression
Dingemans et al., 2007	CBT vs. waitlist control	CBT significantly better than waitlist in reducing BE and related psychological features of BE, and in achieving abstinence from BE
Friederich et al., 2007	15-session CBT supplemented with nutritional counseling and supervised walking program; no control group	Treatment significantly reduced weight, BE, and related psychological features of BE in patients meeting sub-threshold and full criteria for BE disorder
Grilo & Masheb, 2005	Guided self-help CBT (CBT _{gsh}) vs. Guided self-help behavioral weight loss (BWL _{gsh}) vs. non-specific attention control for 12 weeks	CBT _{gsh} significantly better than BWL _{gsh} and control in BE remission; CBT _{gsh} significantly better than BWL _{gsh} , which was significantly better than control, in reducing cognitive restraint; CBT _{gsh} significantly better than control in reducing depression and eating related psychopathology; no differences between groups in BMI change
Ricca et al., 2010	Individual (I-CBT) vs. group CBT (G-CBT) for 24 weeks in patients meeting sub-threshold and full criteria for BE disorder	BE and BMI significantly reduced in both groups at 24 weeks and 3-yr follow up. I-CBT not better than G-CBT in reducing BE or weight at 24 weeks or 3-yr follow up; I-CBT significantly better than G-CBT in reducing eating related psychopathology at 24 weeks and 3-yr follow up; I-CBT significantly better than G-CBT in recovery (i.e., no longer meeting full BE disorder criteria) at 24 weeks but not at 3-yr follow up

	Treatment	Primary Outcome
Schlup et al., 2009	8 weekly sessions of group CBT vs. waitlist control	CBT significantly better than waitlist control in reducing BE and eating concerns and in achieving abstinence at end of treatment; CBT not different than control in reducing BMI; treatment-related reductions in BE and eating concerns maintained at 12-month follow up
Shapiro et al., 2007	10 weekly sessions of group CBT (G-CBT) vs. CD-ROM delivered CBT (CD-CBT) vs. waitlist control	G-CBT and CD-DBT not different from each other but both significantly better than waitlist control in reducing BE
Tasca et al., 2006	Group CBT (G-CBT) vs. Group psychodynamic interpersonal therapy (G-IPT) vs. waitlist control for 16 weeks	G-CBT and G-IPT not different from each other; G-CBT and G-IPT significantly better than waitlist control in reducing BE, cognitive restraint, and interpersonal problems but not BMI; depression significantly reduced in both groups at 6 months but only in G-IPT at 12-month follow up; reductions in BE maintained at 12-month follow up
Wilson et al., 2010	10 sessions of guided self-help CBT (CBT _{gsh}) vs. 20 sessions of interpersonal therapy (IPT) vs. 20 sessions of behavioral weight loss (BWL) over 6 months	BWL significantly better than IPT and CBT _{gsh} in reducing BMI and in number of patients achieving 5% weight loss at post-treatment but effects not sustained over time; BWL significantly better than CBT _{gsh} in increasing dietary restraint
Medication Plus Behavioral		
Brambilla et al., 2009	3 Groups treated for 6 months: Group 1: CBT + topiramate (25–150 mg/d) + reduced caloric diet Group 2: CBT + sertraline (50–150 mg/d) + reduced caloric diet Group 3: CBT + nutritional counseling	Weight, BMI, and related psychological features of BE reduced significantly in Group 1 only
Claudino et al., 2007	Group 1: CBT + topiramate Group 2: CBT + placebo	Significant reductions in BE and depression in both groups; topiramate significantly better than placebo in reducing weight and in BE remission
Devlin et al., 2005	4 Groups, all received behavioral weight control intervention for 16 weeks plus either: Group 1: CBT + fluoxetine Group 2: CBT + placebo Group 3: Fluoxetine Group 4: Placebo (fluoxetine dose 20–60 mg/d)	CBT (group 1 and 2) significantly better than non-CBT groups (3 and 4) in reducing BE and achieving abstinence from BE; fluoxetine significantly better than placebo in reducing depression
Golay et al., 2005	Hypocaloric diet + orlistat (120 mg/d) vs. Hypocaloric diet + placebo for 24 weeks	Orlistat not different from placebo in reducing the number of patients classified with BED; orlistat significantly better than placebo in reducing weight and body fat
Molinari et al., 2005	3 Groups, all received nutritional and diet counseling for 12 months plus either: Group 1: CBT Group 2: Fluoxetine Group 3: CBT + fluoxetine	At 12 months, CBT (Group 1 and 3) associated with lower BE frequency and greater % weight loss than fluoxetine