Treatment of Binge Eating Disorder

Scott Crow, MD

Address

University of Minnesota Medical Center, 2312 S 6th St f256, Minneapolis, MN
55454, USA
Email: crowx002@umn.edu

Published online: 9 October 2014
© Springer International Publishing AG 2014

Keywords Binge eating disorder · Binge eating · Eating disorder · Obesity · Anti-depressants · Weight loss · Cognitive behavioral therapy · Behavioral weight loss

Opinion statement

Binge eating disorder is a common eating disorder that recently has received increasing attention. Goals in treating binge eating disorder typically include controlling binge eating and diminishing excess body weight. A variety of treatment approaches have been used, including diet/lifestyle modification, psychotherapy, and pharmacologic treatment. Diet and lifestyle interventions are somewhat effective in diminishing the binge eating behavior and lead to modest weight loss, but the weight effects are limited and not typically lasting. A number of psychotherapies have been shown to be beneficial, mostly for stopping binge eating, and tend to show little impact on weight loss. Numerous pharmacologic interventions have been developed, with the focus on antidepressants (used for their anti-binge eating effects) and weight loss drugs. Both have been shown to be helpful but again, for antidepressants, bringing about lasting weight loss appears to be difficult. The most effective approach to treating binge eating disorder (if available) is likely psychotherapy combined with medication management as indicated.

Introduction

Binge eating disorder (BED) was first described by Stunkard in 1959 [1]. It is characterized by binge eating, consisting of eating large amounts of food with a sense of loss of control. In BED, there is no compensatory behavior. In addition to those core features, BED is associated with other features, including eating alone due to embarrassment, eating more rapidly, eating until uncomfortably full, eating when not physically hungry, and feeling disgusted with oneself after eating. Onset of BED often occurs in the teens, but presentation for treatment is usually much later, sometimes in the 20s but typically

in the 30s, 40s, or 50s. Obesity co-occurs with BED in most individuals with BED. There is some evidence for increased risk of complications of obesity among obese individuals with BED as compared with non-binge obese, but this question is not firmly settled. Regardless, there is evidence for increased mortality [2]. Psychiatric comorbidity is high, with mood disorders, anxiety disorders, and substance abuse all being quite common.

There are three cornerstones to treatment of BED, as is true for all eating disorders; nutritional therapy, psychotherapy, and medications. With regard to nutritional

therapy, behavior weight loss has been clearly shown to be beneficial. A number of psychotherapies have been studied and shown to provide benefit, including cognitive behavioral therapy (CBT), interpersonal therapy, and dialectic behavior therapy. Other psychotherapies are under development. A wide number of medication trials have been completed. These began with trials of antidepressants (first tricyclic antidepressants, then more recently selective serotonin reuptake inhibitors [SSRIs] and other commonly used agents). One issue with the antidepressant and the psychotherapy trials is that weight loss is a commonly desired outcome of treatment, but very limited weight loss

is usually observed, even with the cessation of binge eating during antidepressant or psychotherapy treatment. Partly for that reason, there has been increased interest in drugs with appetite suppression and weight loss as a main or side effect. This work has included medications previously used for obesity but now taken off the market: dextfenfluramine [3] and sibutramine [4, 5] and, more recently, weight loss agents such as orlistat and drugs with appetite-suppressant side effects, such as topiramate and zonisamide.

Because of the relatively late presentation of BED, relatively little is known about its treatment in adolescents.

Diet/lifestyle

- Behavioral weight loss has been shown to diminish the frequency of binge eating and may lead directly to weight loss.
- This impact on weight loss is of importance because most individuals seeking treatment for BED are obese, and of them, most are seeking both cessation of binge eating and reduction in weight.
- The extent of behavioral weight loss is limited: a weight loss of 5–10 % is commonly observed, but maintenance of this weight loss has consistently proven very difficult.
- In addition, it appears that this degree of weight loss falls well short of what most individuals are seeking.

Psychotherapy

- Psychotherapy is an important intervention in the treatment of BED.
- CBT, interpersonal therapy, and dialectic behavior therapy have all been studied, and show promise in the treatment of BED.
- The interventions appear most effective for frequency of binge eating and perhaps eating disorder cognition (impact on weight is typically negligible, even in individuals who cease binge eating entirely).
- Evidence suggests that combining psychotherapy and pharmacotherapy may lead to modest added benefit.

Pharmacologic treatment

Typically, up to three targets exist for treatment in BED: binge eating behavior, eating disorder cognitions, and weight loss. By and large, the same agents are used to address each of these symptoms.

Fluoxetine

Fluoxetine has been examined in combination with other interventions such as CBT [6, 7] and behavior modification [8]. In general, fluoxetine has shown little added benefit for binge eating, particularly when added to CBT, although there was benefit for weight in one study [8] and for depression in another [6].

Standard dosage	Initial dosage is 20 mg/day; the typical treatment goal is 60–80 mg/day, based on previous work in bulimia nervosa (which is commonly extrapolated to BED), showing greater effect with a 60 mg dose than a 20 mg dose.
Contraindications	None.
Main drug interactions	Fluoxetine is a potent inhibitor of cytochrome P450 (CYP)-2D6, and thus the doses of other drugs metabolized by CYP2D6 should be diminished.
Main side effects	Diminished libido, anorgasmia, insomnia, upset stomach.
Special points	Fluoxetine is US Food and Drug Authority (FDA)-approved for bulimia nervosa, but not for BED.
Cost	Low.
Fluvoxamine	In a 9-week double-blind, placebo-controlled trial, fluvoxamine was more effective than placebo in reducing binge eating behavior [9]. Mean weight loss was also greater with fluvoxamine (2.7 vs. 0.3 lbs).
Standard dosage	Initial dosage is 50 mg/day, with gradual titration to minimize nausea. The typical goal is 150–300 mg/day in a single daily dose.
Contraindications	None.
Main drug interactions	Fluvoxamine is a strong CYP1A2 and 2C9/19 inhibitor, so doses of drugs metabolized by that cytochrome should be diminished.
Main side effects	Nausea, anorgasmia, diminished libido.
Special points	None.
Cost	Low.
Citalopram	In a 6-week placebo-controlled, double-blind trial, citalopram (mean dose 57.9 mg) has been shown to diminish BED symptoms [10]. Among completers, weight loss was greater with citalopram than with placebo (4.7 vs. 0.4 lbs weight gain, respectively).
Standard dosage	Initial dosage is 20 mg/day; increased to 40 mg/day after 1 week. Doses above 40 mg/day are not typically used.
Contraindications	None.
Main drug interactions	As with other SSRIs, citalopram should be used with care in conjunction with triptans.
Main side effects	Diminished libido, anorgasmia.
Special points	Due to a recent FDA warning, doses above 40 mg/day are not typically used out of concern for interference with cardiac conduction and prolongation of the corrected QT interval (QTc).
Cost	Low.

Sertraline

Sertraline (mean dose 187 mg) has been shown to be effective in the treatment of binge eating in a single 6-week double-blind, placebo-controlled,

randomized study [11]. Reduction in body mass index (BMI) was greater in the sertraline group.

Standard dosage	Initial dosage is 50 mg/day; dose is typically titrated to 100–200 mg/day in a single daily dose.
Contraindications	Sertraline should be used with caution in individuals requiring triptans for migraine treatment.
Main drug interactions	Sertraline is a modest inhibitor of CYP450 2D6.
Main side effects	Diminished libido, anorgasmia, diarrhea, insomnia.
Special points	Sertraline is more prone to causing diarrhea than other SSRIs.
Cost	Low.

Topiramate

In three double-blind, placebo-controlled trials, topiramate was shown to be more effective than placebo in the treatment of BED [12, 13, 14••]. Durations varied from 14 to 21 weeks. Mean (or median) doses ranged from 208 to 300 mg per day. Additionally, topiramate conferred significantly more weight loss than placebo. Further, the first of these trials had an open-label extension for 12 months, which suggested that effects were maintained and that weight loss might progress after the first 6 months of treatment.

Standard dosage	Initial dosage is 50 mg/day; titrate gradually over several weeks to 100–200 mg/day.
Contraindications	Angle closure glaucoma, history of kidney stones.
Main drug interactions	Co-administration with carbamazepine lowers topiramate levels by roughly 10 %. Co-administration with other carbonic anhydrase inhibitors (acetazolamide, zonisamide) increases risk for nephrolithiasis. High-dose (>200 mg) topiramate treatment may diminish the effectiveness of oral contraceptives.
Main side effects	Renal stones, sedation, memory loss/difficulties with word finding, paresthesias, change in taste.
Special points	Problems recalling words or names are commonly encountered. The frequency of this side effect may be reduced by titrating gradually over a number of weeks.
Cost	Low.

Zonisamide

One 16-week double-blind, placebo-controlled trial has shown that zonisamide (mean daily dose 436 mg) is effective in the treatment of BED [15]. Greater weight loss was observed in the zonisamide group (10.6 vs. 2.2 lbs).

Standard dosage	200–600 mg/day in divided doses.
Contraindications	Sensitivity to sulfonamides.
Main drug interactions	CYP3A4 inhibitors may increase zonisamide serum concentrations. Co-administration with other carbonic anhydrase inhibitors (acetazolamide, topiramate) may increase nephrolithiasis risk.
Main side effects	Sedation, dizziness, nausea, headache.

Special points As with topiramate, weight loss in this trial was somewhat more pronounced than in antidepressant trials.

Cost Low.

Lamotrigine

One 16-week placebo-controlled, double-blinded study suggests that lamotrigine (mean dose 236 mg) may diminish weight and improve metabolic parameters in BED [16]. However, response rates for binge eating did not, perhaps due to a high placebo response rate.

Standard dosage The initial dosage is 25 mg/day; increase as per rigorously standardized titration schedule to diminish risk of Stevens-Johnson syndrome to 100–200 mg/day in a single dose.

Contraindications History of Stevens-Johnson syndrome.

Main drug interactions The risk of Stevens-Johnson syndrome is increased in someone receiving other anticonvulsants, necessitating the use of a slower dose titration schedule.

Main side effects Sedation, Stevens-Johnson syndrome.

Special points Stevens-Johnson syndrome is a rare, serious side effect that can be associated with lamotrigine, but its frequency is diminished with careful adherence to the slow dose titration schedule for this drug.

Cost Low.

Acamprosate

Acamprosate (666 mg three times daily) was shown in one placebo-controlled, double-blind trial to be potentially useful in the treatment of BED [17•]. Binge day frequency and eating disorder cognitions were substantially better in acamprosate-treated patients than in those treated with placebo.

Standard dosage 666 mg three times daily.

Contraindications Severe renal impairment.

Main drug interactions Naltrexone increased acamprosate levels.

Main side effects Diarrhea, flatulence, headache, fatigue.

Special points Acamprosate has been shown to be effective for reducing alcohol use in people with alcohol dependence.

Cost Medium.

Orlistat

Orlistat (120 mg three times daily), which blocks absorption of ingested fat in the bowel via inhibition of pancreatic lipase, was shown in one placebo-controlled, double-blinded study to produce greater weight loss than placebo in the treatment of BED, but it did not result in a greater decrease in binge eating [18]. In a second study using orlistat or placebo plus guided self-help, orlistat was associated with greater reduction in binge eating at the end of treatment but not at longer-term (3-month) follow-up [19].

Standard dosage 120 mg three times daily.

Contraindications	Co-administration with cyclosporine.
Main drug interactions	Orlistat can diminish absorption of cyclosporine and warfarin.
Main side effects	Oily stools, malabsorption symptoms, diarrhea, flatus.
Special points	Orlistat is available in a lower dose over the counter (60 mg), but this dose has not been studied in BED.
Cost	Low.

Escitalopram

Escitalopram (mean dose 26.5 mg per day) was examined in one double-blind, placebo-controlled trial for BED [20]. In this trial, escitalopram was not more effective than placebo in reducing specific binge eating symptoms, but greater weight loss and greater diminishment in overall severity of illness was seen with the active drug.

Standard dosage	20–40 mg per day.
Contraindications	Concurrent use of monoamine oxidase inhibitors.
Main drug interactions	Risk of serotonin with triptans.
Main side effects	Diminished libido, anorgasmia, insomnia, sedation, headache, nausea.
Special points	Escitalopram is the stereoisomer of citalopram.
Cost	Low.

Atomoxetine

In one 10-week, randomized, double-blind, placebo-controlled trial, atomoxetine (mean dose 106 mg per day) was shown to be effective in reducing binge eating frequency, weight, and overall severity of illness and eating disorder cognitions as compared with placebo [21].

Standard dosage	40–120 mg per day.
Contraindications	Narrow-angle glaucoma, pheochromocytoma.
Main drug interactions	Atomoxetine metabolism is inhibited by potent CYP2D6 inhibitors.
Main side effects	Nausea, low appetite, tiredness, constipation, dry mouth.
Special points	Atomoxetine has been FDA approved for the treatment of attention-deficit hyperactivity disorder.
Cost	Moderate.

Duloxetine

Duloxetine (mean dose 78.7 mg per day) was examined in a 12-week, double-blind, placebo-controlled trial for treatment of BED along with comorbid major depressive disorder [22•]. In this trial, duloxetine had greater impact on frequency of binge eating and overall severity of illness ratings. However, differences were not seen in either BMI, depression, or anxiety.

Standard dosage	60–120 mg per day.
Contraindications	Narrow-angle glaucoma.

Main drug interactions	CYP2D6 inhibitors raise serum duloxetine levels.
Main side effects	Nausea (minimized by slow titration), sexual side effects, withdrawal syndrome.
Special points	Duloxetine has been shown to be useful in treating some pain conditions.
Cost	Moderate.

Pediatric considerations

Little, if any, work has directly addressed treatment interventions for BED in the pediatric population. This is perhaps because BED is most often encountered in the clinical setting well beyond adolescence, even though it typically begins in that time frame.

Compliance with Ethics Guidelines

Conflict of Interest

Scott Crow has received grants from Shire for a BED study.

Human and Animal Rights and Informed Consent

This article does not contain any studies with human or animal subjects performed by any of the authors.

References

Papers of particular interest, published recently, have been highlighted as:

- Of importance
- Of major importance

1. Stunkard AJ. Eating patterns and obesity. *Psychiatr Q*. 1959;33:284–95.
2. Crow SJ, Peterson CB, Swanson SA, et al. Increased mortality in bulimia nervosa and other eating disorders. *Am J Psychiatry*. 2009;166(12):1342–6.
3. Stunkard A, Berkowitz R, Tanrikut C, et al. d-fenfluramine treatment of binge eating disorder. *Am J Psychiatr*. 1996;153(11):1455–9.
4. Appolinario JC, Bacaltchuk J, Sichieri R, et al. A randomized, double-blind, placebo-controlled study of sibutramine in the treatment of binge-eating disorder. *Arch Gen Psychiatry*. 2003;60(11):1109–16.
5. Wilfley DE, Crow SJ, Hudson JI, et al. Efficacy of sibutramine for the treatment of binge eating disorder: a randomized multicenter placebo-controlled double-blind study. *Am J Psychiatry*. 2008;165(1):51–8.
6. Devlin MJ, Goldfein JA, Petkova E, et al. Cognitive behavioral therapy and fluoxetine for binge eating disorder: two-year follow-up. *Obesity (Silver Spring)*. 2007;15(7):1702–9.
7. Grilo CM, Masheb RM, Wilson GT. Efficacy of cognitive behavioral therapy and fluoxetine for the treatment of binge eating disorder: a randomized double-blind placebo-controlled comparison. *Biol Psychiatry*. 2005;57:301–9.
8. Marcus MD, Wing RR, Ewing L, et al. A double-blind, placebo-controlled trial of fluoxetine plus behavior modification in the treatment of obese binge-eaters and non-binge-eaters. *Am J Psychiatry*. 1990;147(7):876–81.
9. Hudson JI, McElroy SL, Raymond NC, et al. Fluvoxamine in the treatment of binge-eating disorder: a multicenter placebo-controlled, double-blind trial. *Am J Psychiatr*. 1998;155(12):1756–62.
10. McElroy SL, Hudson JI, Malhotra S, et al. Citalopram in the treatment of binge-eating disorder: a placebo-controlled trial. *J Clin Psychiatry*. 2003;64(7):807–13.

11. McElroy SL, Casuto LS, Nelson EB, et al. Placebo-controlled trial of sertraline in the treatment of binge eating disorder. *Am J Psychiatr*. 2000;157(6):1004–6.
 12. Claudino AM, de Oliveira IR, Appolinario JC, et al. Double-blind, randomized, placebo-controlled trial of topiramate plus cognitive-behavior therapy in binge-eating disorder. *J Clin Psychiatry*. 2007;68(9):1324–32.
 13. McElroy SL, Arnold LM, Shapira NA, et al. Topiramate in the treatment of binge eating disorder associated with obesity: a randomized, placebo-controlled trial. *Am J Psychiatr*. 2003;160(2):255–61.
 - 14.●● McElroy SL, Hudson JL, Capece JA, et al. Topiramate for the treatment of binge eating disorder associated with obesity: a placebo-controlled study. *Biol Psychiatry*. 2007;61(9):1039–48.
- Large trial demonstrating benefit of topiramate for both binge eating and weight
15. McElroy SL, Kotwal R, Guerdjikova AI, et al. Zonisamide in the treatment of binge eating disorder with obesity: a randomized controlled trial. *J Clin Psychiatry*. 2006;67(12):1897–906.
 16. Guerdjikova AI, McElroy SL, Welge JA, et al. Lamotrigine in the treatment of binge-eating disorder with obesity: a randomized, placebo-controlled monotherapy trial. *Int Clin Psychopharmacol*. 2009;24(3):150–8.
 - 17.● McElroy SL, Guerdjikova AI, Winstanley EL, et al. Acamprosate in the treatment of binge eating disorder: a placebo-controlled trial. *Int J Eat Disord*. 2011;44(1):81–90. Trial looking at use of alcohol dependence agent for BED.
 18. Golay A, Laurent-Jaccard A, Habicht F, et al. Effect of orlistat in obese patients with binge eating disorder. *Obes Res*. 2005;13(10):1701–8.
 19. Grilo CM, Masheb RM, Salant SL. Cognitive behavioral therapy guided self-help and orlistat for the treatment of binge eating disorder: a randomized, double-blind, placebo-controlled trial. *Biol Psychiatry*. 2005;57:1193–201.
 20. Guerdjikova AI, McElroy SL, Kotwal R, et al. High-dose escitalopram in the treatment of binge-eating disorder with obesity: a placebo-controlled monotherapy trial. *Hum Psychopharmacol*. 2008;23(1):1–11.
 21. McElroy SL, Guerdjikova A, Kotwal R, et al. Atomoxetine in the treatment of binge-eating disorder: a randomized placebo-controlled trial. *J Clin Psychiatry*. 2007;68(3):390–8.
 - 22.● Guerdjikova AI, McElroy SL, Winstanley EL, et al. Duloxetine in the treatment of binge eating disorder with depressive disorders: a placebo-controlled trial. *Int J Eat Disord*. 2012;45(2):281–9.
- Trial examining the role of an antidepressant commonly used for BED