

Management and Outcomes of Binge-Eating Disorder in Adults: Current State of the Evidence

Focus of This Summary

This is a summary of a systematic review evaluating the evidence regarding the effectiveness, comparative effectiveness, and adverse effects of treatments for adults with binge-eating disorder (BED). The review assessed psychological interventions, behavioral weight-loss treatment, and pharmacological interventions. The systematic review included 57 studies and one systematic review published through January 19, 2015. The full report, listing all studies, is available at www.effectivehealthcare.ahrq.gov/binge-eating-disorder. This summary is provided to assist in informed clinical decisionmaking. However, reviews of evidence should not be construed to represent clinical recommendations or guidelines.

Background

In May 2013, the American Psychiatric Association (APA) recognized BED as a distinct eating disorder in the fifth edition of the *Diagnostic and Statistical Manual of Mental Disorders* (DSM-5). In the shift from provisional to formal diagnosis of BED, the APA changed the criteria for frequency and duration of BED based on the expanded peer-reviewed literature, thereby bringing both criteria in line with those for bulimia nervosa (see the full DSM-5 criteria in Appendix 1 below).

The lifetime prevalence of BED among adults in the United States is 2.8 percent based on DSM-IV criteria; it is likely to be slightly higher based on DSM-5 criteria. BED tends to be slightly more common in women and is more common among individuals who are overweight or obese.

BED is associated with significant impairment in roles related to education or employment and dissatisfaction with personal relationships. It is also considered a substantial health problem separate from obesity and may be independently related to chronic pain, other psychiatric disorders, and diabetes.

BED treatment includes various approaches that target the core behavioral and psychological features of the condition and mood regulation. Psychological and behavioral therapy interventions include cognitive behavioral therapy (CBT), interpersonal psychotherapy (IPT), and dialectical behavior therapy (DBT). Descriptions of all these interventions are given in Appendix 2. In January 2015, the U.S. Food and Drug Administration (FDA) approved lisdexamfetamine, a central nervous system stimulant, as a treatment for BED. Other commonly used pharmacological interventions include anticonvulsants and antidepressants.

Conclusions

Psychological and Behavioral Therapy Interventions

Evidence for the effectiveness of psychological and behavioral interventions comes from both efficacy and comparative effectiveness studies. Efficacy studies only measured outcomes at the end of treatment (8 weeks to 6 months) and had no long-term followup. However, most comparative effectiveness studies had long-term followup (at 6 months, at 12 months, and up to 6 years in some cases).

- Meta-analysis provided strong evidence that therapist-led CBT reduced binge-eating frequency and increased binge-eating abstinence.[†]
- CBT has been compared with behavioral weight-loss (BWL) treatment. Moderate-level evidence demonstrates that BWL decreased body mass index (BMI) more than CBT at the end of treatment. However, it should be recognized that BWL was not clearly associated with improvement in binge-eating behaviors.
- Evidence was insufficient to determine with confidence the effectiveness of other psychological interventions; however, studies of IPT and DBT have been promising.

Pharmacological Interventions

Efficacy studies of pharmacological interventions only measured outcomes at the end of treatment (6 to 16 weeks) and had no long-term followup.

- Meta-analyses provided strong evidence that lisdexamfetamine increased binge-eating abstinence and that second-generation antidepressants increased binge-eating abstinence, reduced binge-eating frequency, and reduced eating-related obsessions and compulsions.
- Qualitative assessments provided additional evidence that lisdexamfetamine and topiramate reduced binge-eating frequency, eating-related obsessions and compulsions, and weight. Topiramate also increased binge-eating abstinence.
- Adverse effects of BED treatments were mainly associated with medications and were rarely severe.

[†] Because of uncertainty about the definition of BED remission and recovery, the term “abstinence” is used to mean 0 binge-eating episodes in the most recent assessment period (usually the past month). In doing so, the term “remission” is reserved to reflect a more sustained, global state of change marked by the absence not only of binge-eating episodes but also of other BED criteria for an extended period.

Overview of Clinical Research Evidence

Strength of Evidence Scale*

- High: ●●● High confidence that the evidence reflects the true effect. Further research is very unlikely to change our confidence in the estimate of effect.
- Moderate: ●●○ Moderate confidence that the evidence reflects the true effect. Further research may change our confidence in the estimate of effect and may change the estimate.
- Low: ●○○ Low confidence that the evidence reflects the true effect. Further research is likely to change our confidence in the estimate of effect and is likely to change the estimate.
- Insufficient: ○○○ Evidence either is unavailable or does not permit a conclusion.

* Owens DK, Lohr KN, Atkins D, et al. AHRQ series paper 5: grading the strength of a body of evidence when comparing medical interventions—Agency for Healthcare Research and Quality and the Effective Health-Care Program. *J Clin Epidemiol.* 2010 May;63(5):513-23. PMID: 19595577.

Table 1: Summary of Key Findings for the Efficacy and Comparative Effectiveness of Interventions To Treat BED

Intervention and Comparator	N RCTs	N Subjects	Outcomes and Findings	Strength of Evidence
Psychological and Behavioral Therapy Interventions				
Therapist-led CBT^a vs. waitlist^b	4 (MA ^c)	295	CBT increased binge-eating abstinence (RR 4.95; 95% CI 3.06 to 8.00).	●●●
	3 (MA ^c)	208	CBT decreased the frequency of binge-eating episodes per week (MD -2.32; 95% CI -4.56 to -0.09).	●●●
	5	344	CBT decreased eating-related psychopathology. No differences were found in BMI or symptoms of depression.	●●● ●●○
Partially therapist-led CBT vs. waitlist^b	2	162	CBT increased binge-eating abstinence and decreased binge-eating frequency. No differences were found in BMI or symptoms of depression.	●○○ ●○○
Structured self-help CBT vs. waitlist^b	2	162	CBT decreased binge-eating frequency. No differences were found in BMI or symptoms of depression.	●○○ ●○○
Guided self-help CBT vs. waitlist^b	2	122	CBT increased binge-eating abstinence. CBT decreased binge-eating frequency and eating-related psychopathology.	●○○ ●○○
Therapist-led CBT vs. partially therapist-led CBT	2	158	No differences were found in binge-eating abstinence or frequency, eating-related psychopathology, BMI, or symptoms of depression.	●○○
Therapist-led CBT vs. structured self-help CBT	2	158	No differences were found in eating-related psychopathology, BMI, or symptoms of depression.	●○○
Partially therapist-led CBT vs. structured self-help CBT	2	164	No differences were found in binge-eating abstinence or frequency, eating-related psychopathology, BMI, or symptoms of depression.	●○○
	2	170	BWL decreased BMI more than CBT at the end of treatment.	●●○
			CBT decreased binge-eating frequency more than BWL at the end of treatment and up to 12 months of followup.	●○○
			No differences were found in binge-eating abstinence, eating-related psychopathology, or symptoms of depression.	●○○
Pharmacological Interventions				
Lisdexamfetamine^d (a CNS stimulant) vs. placebo	3 (MA ^c)	966	Lisdexamfetamine increased binge-eating abstinence (RR 2.61; 95% CI 2.04 to 3.33).	●●●
	3	966	Lisdexamfetamine decreased binge-eating days per week, weight, and eating-related obsessions and compulsions, as measured by the YBOCS-BE total score.	●●●
Second-generation antidepressants (as a class) vs. placebo	8 (MA ^c)	416	Antidepressants increased binge-eating abstinence (RR 1.67; 95% CI 1.24 to 2.26).	●●●
	7 (MA ^c)	331	Antidepressants decreased the frequency of binge-eating episodes per week (MD -0.67; 95% CI -1.26 to -0.09).	●●●
	3 (MA ^c)	122	Antidepressants decreased the frequency of binge-eating days per week (MD -0.90; 95% CI -1.48 to -0.32) and eating-related obsessions and compulsions (MD in YBOCS-BE total score -3.84, 95% CI -6.56 to -1.13; MD in YBOCS-BE obsessions score -1.53, 95% CI -2.69 to -0.37; MD in YBOCS-BE compulsions score -2.31, 95% CI -3.85 to -0.76).	●●○
	3 (MA ^c)	142	Antidepressants decreased symptoms of depression (MD -1.98; 95% CI -3.67 to -0.28).	●○○
	4 (MA ^c)	182	No difference was found in weight (MD -3.91 kg; 95% CI -10.14 to 2.32).	●○○
	6 (MA ^c)	297	No difference was found in BMI (MD -1.05; 95% CI -2.64 to 0.55).	●○○
Topiramate (an anticonvulsant) vs. placebo	2	468	Topiramate increased binge-eating abstinence.	●●○
			Topiramate decreased binge-eating frequency, weight, and eating-related obsessions and compulsions.	●●○
	1	407	Topiramate improved general and eating-related psychological functioning ^e and decreased impulsivity and disability in family and other social domains.	●○○

95% CI = 95-percent confidence interval; BMI = body mass index; BWL = behavioral weight loss; CBT = cognitive behavioral therapy; CNS = central nervous system; MA = meta-analysis; MD = mean difference; N = number; RCT = randomized controlled trial; RR = risk ratio; YBOCS-BE = Yale-Brown Obsessions and Compulsions Scale modified for binge eating

^a See Appendix 2 for descriptions of each type of CBT.

^b Waitlist refers to patients who received no treatment at all.

^c For quantitative synthesis, meta-analyses to estimate overall effect sizes were conducted using Comprehensive Meta-Analysis software, version 3.2.

^d Lisdexamfetamine is not indicated by the FDA for weight loss. The FDA notes that use of other sympathomimetic drugs for weight loss has been associated with serious cardiovascular adverse events, and the safety and effectiveness of lisdexamfetamine for the treatment of obesity have not been established.

^e Indicated by increases in cognitive control of eating and decreases in symptoms of psychological distress, susceptibility to hunger, and disinhibition of control over eating.

Overview of Clinical Research Evidence (Continued)

Table 2: Summary of Key Findings for Adverse Effects of Pharmacological Interventions

Intervention and Comparator	N RCTs	N Subjects	N Reported Events (Intervention vs. Placebo)	Outcomes and Findings	Strength of Evidence
Lisdexamfetamine vs. placebo	3 (MA ^a)	938	78 (11% vs. 5%)	Lisdexamfetamine was associated with greater insomnia (RR 2.66; 95% CI 1.63 to 4.31).	●●●
			111 (14% vs. 9%)	Lisdexamfetamine was associated with a greater risk of headache (RR 1.63; 95% CI 1.13 to 2.36).	●●●
	3	938	119 (88 vs. 31)	Lisdexamfetamine was associated with a higher number of events related to GI upset.	●●○
			342 (283 vs. 59)	Lisdexamfetamine was associated with a higher number of events related to sympathetic nervous system arousal.	●●○
			66 (53 vs. 13)	Lisdexamfetamine was associated with decreased appetite.	●●○
Fluvoxamine vs. placebo	2	105	24 (18 vs. 6)	Fluvoxamine was associated with a higher number of events related to GI upset.	●○○
			22 (15 vs. 7)	Fluvoxamine was associated with a higher number of events related to sympathetic nervous system arousal.	●○○
			57 (42 vs. 15)	Fluvoxamine was associated with a higher number of events related to sleep disturbance.	●○○
Topiramate vs. placebo	2	468	243 (181 vs. 62)	Topiramate was associated with a higher number of events related to sympathetic nervous system arousal.	●●○
			199 (152 vs. 47)	Topiramate was associated with a higher number of other adverse events, including upper respiratory tract infection, taste perversion, difficulty with attention and memory, dizziness, confusion, and back pain.	●●○
			73 (37 vs. 36)	No difference was found in the number of headaches.	●●○
			94 (52 vs. 42)	No difference was found in the number of events related to GI upset.	●○○
			89 (48 vs. 41)	No difference was found in the number of events related to sleep disturbance.	●○○

95% CI = 95-percent confidence interval; BMI = body mass index; BWL = behavioral weight-loss; GI = gastrointestinal; MA = meta-analysis; RCT = randomized controlled trial; RR = risk ratio
^a For quantitative synthesis, meta-analyses to estimate overall effect sizes were conducted using Comprehensive Meta-Analysis software, version 3.2.

Table 3: FDA Medication Warnings

<p>The FDA lists the following warnings:</p> <ul style="list-style-type: none"> ■ CNS stimulants (amphetamines and methylphenidate-containing products), including lisdexamfetamine, have a high potential for abuse and dependence. ■ Lisdexamfetamine can cause sudden death, stroke, and myocardial infarction in adults. Avoid use in patients with known structural cardiac abnormalities, cardiomyopathy, serious heart arrhythmia, or coronary artery disease. 	<ul style="list-style-type: none"> ■ Topiramate is classified as pregnancy category D, and use during pregnancy can cause cleft lip, cleft palate, or both. Lisdexamfetamine and second-generation antidepressants are classified as pregnancy category C. ■ There is an increased risk of suicidal thinking and behavior in children, adolescents, and young adults taking antidepressants. These patients should be monitored for emergence and worsening of suicidal thoughts and behaviors.
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Table 4: Other Findings of the Review

<p>Treatment</p> <ul style="list-style-type: none"> ■ Evidence was inconclusive about the comparative effectiveness of pharmacological interventions to improve BED outcomes. (○○○) ■ Evidence was inconclusive about the effectiveness of any combination of pharmacological and psychological treatments to improve BED outcomes. (○○○) 	<p>Course of Illness</p> <ul style="list-style-type: none"> ■ A study (measuring attempted suicides) and a review article of three studies (measuring suicides) found no increased risk of suicide among patients with BED 5 years after treatment. (●●○) ■ Evidence was inconclusive for all other course-of-illness symptoms for patients with BED. (○○○)
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Gaps in Knowledge and Limitations of the Evidence Base

The report identified several gaps and limitations in the evidence base:

- A critical gap exists in long-term efficacy and harms; this deficiency is most evident for pharmacological and combination treatments.
- The evidence base for treatment efficacy was very limited for all medications (except lisdexamfetamine, topiramate, and second-generation antidepressants), all psychological interventions (except various approaches to CBT delivery), and all combination treatments.
- Evidence was insufficient to permit conclusions about the comparative effectiveness of pharmacological interventions or the effectiveness of any specific combination of treatments to improve outcomes in patients with BED.
- No trials compared a single pharmacological intervention with a single behavioral or psychological therapy intervention.
- Because studies did not uniformly collect or report adverse events, serious adverse events, and study discontinuations clearly attributable to adverse events, comparisons of harms across medications were limited.
- Psychological trials rarely reported harms related to treatment.
- No studies addressed differences in treatment outcomes among important subgroups defined by age, sex, race, ethnicity, or other relevant patient characteristics.
- Despite current interest in complementary and alternative medicine, nutraceuticals, and mindfulness-based interventions for regulating appetite, eating behavior, and weight, the literature is deficient regarding these types of interventions for BED.

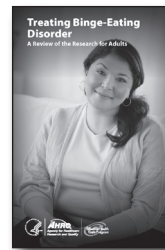
Applicability

- Most studies were conducted in supervised settings generally associated with academic research and medical centers, where medication treatment was likely managed by a psychiatrist and psychological and behavioral therapy treatments were likely delivered by highly trained personnel. Whether the findings of this report apply to treatment settings more generally is unclear.
- The number of therapists with expertise in CBT for BED is limited.

What To Discuss With Your Patients

- Treatment options for BED
- Evidence on the effectiveness of CBT, BWL, and other types of psychological or behavioral therapy in treating BED
- Evidence on the effectiveness of medications to treat BED
- Potential adverse effects associated with medications and the importance of talking with their health care professionals if any adverse effects develop
- Patient treatment preferences and factors that may impact access to or adherence to treatment

Resource for Patients



Treating Binge-Eating Disorder: A Review of the Research for Adults is a free companion to this clinician research summary. It can help patients and their caregivers talk with their health care professionals about treatments for BED.

Ordering Information

For electronic copies of *Treating Binge-Eating Disorder: A Review of the Research for Adults*, this clinician research summary, and the full systematic review, visit www.effectivehealthcare.ahrq.gov/binge-eating-disorder. To order free print copies of the patient resource, call the AHRQ Publications Clearinghouse at 800-358-9295.

Source

The information in this summary is based on *Management and Outcomes of Binge-Eating Disorder, Comparative Effectiveness Review No. 160*, prepared by the RTI International–University of North Carolina Evidence-based Practice Center under Contract No. 290-2012-00008-I for the Agency for Healthcare Research and Quality, December 2015. Available at www.effectivehealthcare.ahrq.gov/binge-eating-disorder. This summary was prepared by the John M. Eisenberg Center for Clinical Decisions and Communications Science at Baylor College of Medicine, Houston, TX.

Appendix 1: DSM-IV and DSM-5 Diagnostic Criteria for BED

Category	Definition
Criterion 1	Recurrent episodes of binge eating. An episode of binge eating is characterized by both of the following: <ol style="list-style-type: none"> Eating, in a discrete period of time (e.g., within any 2-hour period), an amount of food that is definitely larger than most people would eat in a similar period of time under similar circumstances Feeling a lack of control over eating during the episode (e.g., sensing that one cannot stop eating or control what or how much one is eating)
Criterion 2	Binge-eating episodes are associated with three (or more) of the following: <ol style="list-style-type: none"> Eating much more rapidly than normal Eating until feeling uncomfortably full Eating large amounts of food when not feeling physically hungry Eating alone because of embarrassment by how much one is eating Feeling disgusted with oneself, depressed, or very guilty after overeating
Criterion 3	Marked distress regarding binge eating is present.
Criterion 4	The binge eating occurs, on average: <ol style="list-style-type: none"> At least 2 days a week for 6 months (DSM-IV frequency and duration criteria) At least 1 day a week for 3 months (DSM-5 frequency and duration criteria)
Criterion 5	Binge eating is not associated with the regular use of inappropriate compensatory behavior (e.g., purging, fasting, excessive exercise) and does not occur exclusively during the course of anorexia nervosa or bulimia nervosa.
Severity Grading	DSM-IV does not include a BED severity grading scale. Applicable to DSM-5 only, BED severity is graded as follows: <ul style="list-style-type: none"> ■ Mild: 1 to 3 episodes per week ■ Moderate: 4 to 7 episodes per week ■ Severe: 8 to 13 episodes per week ■ Extreme: 14 or more episodes per week

BED = binge-eating disorder; DSM = *Diagnostic and Statistical Manual of Mental Disorders*

Appendix 2: Psychological and Behavioral Therapy Interventions for BED

Cognitive behavioral therapy (CBT)

Psychotherapy that focuses on identifying relationships among thoughts, feelings, and behaviors and aims to change negative thoughts about oneself and the world and, by doing so, reduce negative emotions and undesirable behavior patterns. CBT is delivered in various ways—for example, therapist-led individual and group sessions, structured self-help, and guided self-help.

Therapist-led CBT

CBT in which a therapist is present for the duration of each group or individual session to provide psychoeducation, teach new skills, and support participants.

Partially therapist-led CBT

CBT that involves group or individual sessions in which participants first watch a psychoeducational video that is similar to what would be presented in person by a therapist. The therapist then joins the second half of the session.

Structured self-help CBT

CBT in which participants are given a treatment manual that walks them through each session that a therapist would present. Participants typically meet in groups for each session and watch a psychoeducational video tailored to the session. A group member then facilitates discussion for the second half of the session.

Guided self-help CBT

CBT in which participants are given a treatment manual that walks them through each session that a therapist would present. Participants typically have brief meetings with a facilitator (in person or on the Internet) to supplement the self-help approach.

Dialectical behavioral therapy (DBT)^a

Psychotherapy that helps participants understand how negative feelings can lead to binge eating as a coping mechanism. DBT focuses on mindfulness, emotion regulation, and distress tolerance. DBT is delivered in individual sessions or as group therapy.

Interpersonal psychotherapy (IPT)^a

Psychotherapy that helps participants understand how problems with social interactions can lead to binge eating as a coping mechanism. IPT helps participants learn to cope better with negative emotions stemming from problems with social interactions. It also helps participants develop healthy interpersonal skills. IPT is delivered in individual sessions or as group therapy.

Behavioral weight-loss therapy

Treatment that incorporates various behavioral strategies, such as caloric restriction and increased physical activity, to promote weight loss.

^a Iacovino JM, Gredysa DM, Altman M, et al. Psychological treatments for binge eating disorder. *Curr Psychiatry Rep.* 2012 Aug;14(4):432-46. PMID: 22707016.