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Emerging Psychological Treatments in Eating Disorders

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SUMMARY

Although there are currently several evidence-based treatments for EDs, a significant percentage of individuals who receive these interventions drop out of treatment or do not achieve remission at the end of treatment, highlighting the need for novel approaches to fill these gaps. Several promising treatments have recently been adapted or developed to treat EDs based on research exploring emotion regulation, interpersonal factors, and neurocognitive factors that underlie the development and maintenance of ED symptoms. Further research is needed to determine the efficacy and effectiveness of these approaches. Crucial next steps include testing proposed mediators of treatment response to identify clinical targets that confer maximum benefit, and examining moderators of treatment response that may be used to determine optimal patient-specific interventions.

Keywords

Anorexia nervosa; Bulimia nervosa; Binge-eating disorder; Psychotherapy; Mindfulness; Neuromodulation

INTRODUCTION

Evidenced-based treatments for eating disorders (EDs) include cognitive-behavioral therapy (CBT) and interpersonal psychotherapy for bulimia nervosa (BN) and binge-eating disorder (BED), family-based treatment for adolescent anorexia nervosa (AN), with some evidence supporting CBT for adult AN.^{1,2} However, research findings suggest a strong need for improvements in treatment retention and outcome. Over the past decade, there has been an increase in research aimed at identifying the mechanisms contributing to the development and maintenance of ED symptoms and behaviors that can be targeted in treatment. As a result, several existing psychological treatments originally developed to address other forms of mental illness have been adapted for use in the treatment of EDs, and newer models of ED maintenance have spurred the development of novel treatment approaches. These

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treatments have expanded traditional cognitive and interpersonal psychotherapies to directly address emotion regulation. Further, an increased understanding of cognitive neuroscience has led to the development and application of neurocognitive and neuromodulation treatments.

DIALECTICAL BEHAVIOR THERAPY

Theoretic Model

Dialectical behavior therapy (DBT) was originally developed to treat borderline personality disorder (BPD) and chronically suicidal individuals.³ The biosocial theory underlying DBT posits that BPD develops when an individual's biological temperament consists of an increased sensitivity to emotional stimuli as well as a slow return to baseline in the context of an emotionally invalidating environment.³ Therefore, enhancing patients' ability to adaptively regulate affective responses is a significant focus of treatment. Notably, problems in emotion regulation, emotion identification, and emotion awareness have been observed in EDs, and ED behaviors have been hypothesized to serve an emotion regulation function.⁴⁻⁷ Further, overeating and restriction appear to exacerbate an individual's vulnerability to emotion dysregulation. As a result of both theoretic and empirical support, DBT has been adapted for EDs with a focus on cultivating healthy emotion-regulation skills, a balanced approach to eating, and living a life worth living.⁸

Structure of the Treatment

Phases/stages—DBT generally consists of 4 structural elements: individual therapy, skills group, coaching calls, and consultation group for therapists. However, some adaptations of DBT for EDs only use a subset of these elements. Group sessions are largely didactic in nature and cover the skills of *mindfulness* (which is considered the “core” skill of DBT), *emotion regulation*, *distress tolerance*, and *interpersonal effectiveness*. Individual therapy seeks to assist patients in applying these skills to specific behavioral targets, which are addressed in order of priority. Target 1 includes life-threatening behaviors such as suicide and parasuicide. Target 2 includes therapy-interfering behaviors such as not completing diary cards, refusing to be weighed, and substance abuse. Target 3 includes quality-of-life-interfering behaviors such as restrictive eating, binge eating, and purging. ED behaviors may be moved to Target 1 if the behaviors are potentially life-threatening (eg, ipecac use). Coaching calls are used between sessions to facilitate skill use in challenging real-life situations. Therapist consultation groups serve to enhance protocol adherence and provide a context for nonjudgmental professional feedback.

Clinical targets/techniques—The primary goal of DBT for EDs is to eliminate maladaptive ED behaviors (eg, binge eating, purging), and to work toward building a more fulfilling life. DBT is a structured treatment that includes teaching the core *skills* and reviewing *diary cards*, which are assigned as homework to monitor symptoms and skill use. *Behavior chain analyses* are used to review antecedents and consequences of ED behaviors and identify alternative adaptive behaviors. Throughout treatment, the therapist uses a dialectical model that balances accepting the patient for who they are in the moment while pushing for change toward a better life. Therapists use this dialectic to balance validation

and warmth with irreverence. *Motivation and commitment strategies* are explicitly used in the pretreatment phase and throughout the course of treatment as individuals' motivation for change waxes and wanes. *Problem-solving strategies* are used in a 2-stage process of first accepting that there is a problem to address and then generating alternative adaptive responses.

Clinical materials/manuals—DBT has been adapted for BN and binge eating in a therapist manual that includes patient handouts.⁹ However, the authors recommend first reading the DBT for BPD manuals.^{3,10} DBT for binge eating has also been adapted into a guided self-help format.¹¹

Empirical Support

Accumulating data provide preliminary support of the efficacy of DBT for BN and BED.¹² To date, there have been no randomized controlled trials (RCTs) of DBT for AN. There have been 2 RCTs in BN, 3 RCTs in BED, and 2 RCTs using transdiagnostic ED samples investigating both a full therapist-led DBT and an abbreviated guided self-help DBT.¹² DBT has been shown to produce better outcomes than wait-list control conditions at the end of treatment,^{11,13–16} although there were no differences found at follow-up between DBT and active comparisons.¹²

ACCEPTANCE AND COMMITMENT THERAPY

Theoretic Model

Acceptance and Commitment Therapy (ACT) identifies attempts to escape or avoid distressing internal experiences (eg, thoughts, feelings, or sensations) as a key maintenance factor for psychological disorders.¹⁷ Although many forms of psychotherapy seek to adjust the content of patients' internal experiences as a necessary precursor to behavior change, ACT attempts to shift a patient's relationships with these experiences to facilitate engagement in behaviors more congruent with one's long-term values and goals, even in the presence of aversive internal experiences. As ED behaviors have been conceptualized as maladaptive methods of escaping unpleasant internal states,^{18,19} ACT may be particularly well-suited to addressing the observed links between distressing thoughts (eg, "I'm fat") or emotions (eg, negative affect) and ED behaviors.

Structure of the Treatment

Phases/stages—Although ACT explicitly identifies specific psychological processes to be addressed within the course of treatment, the exact order in which these clinical targets are approached is highly flexible and guided by the patient presentation.

Clinical targets/techniques—The primary goal of ACT is to increase psychological flexibility, defined as the ability to continuously adjust one's behaviors in the service of one's chosen values, even when experiencing internal distress. Six therapeutic processes are targeted in pursuit of this goal. *Experiential acceptance* involves embracing one's internal experiences without attempting to change or avoid them. *Defusion* involves creating psychological distance from one's internal momentary experiences. *Present-moment*

awareness involves the application of active and flexible attention to the present without judging experiences as good or bad. *Self-as-context*, also referred to as transcendent self-awareness, describes cultivation of a comprehensive sense of self that transcends the idiosyncratic self-images elicited by individual experiences, beliefs, or roles. In other words, individual experiences of the self do not dominate or limit one's overall self-image. *Values clarity* involves identification of one's long-term values (eg, relationships, well-being), which are used as signposts to help guide behaviors toward greater engagement in valued domains. Finally, *committed action* involves setting goals consistent with one's chosen values. Metaphors and experiential exercises are commonly used throughout treatment to help illustrate each of these concepts and assist patients in moving toward greater psychological flexibility.

Clinical materials/manuals—Although ACT has not yet been formally manualized for the treatment of EDs, several helpful texts provide guidance on the delivery of ACT for patients with AN and BN. The 2011 book *Acceptance and Commitment Therapy for Eating Disorders: A Process-Focused Guide to Treating Anorexia and Bulimia* by Sandoz and colleagues²⁰ provides a thorough review of ACT and EDs as conceptualized by the treatment model, discussion of specific treatment targets and associated exercises, a sample protocol, and various relevant assessments and therapeutic worksheets. A briefer introduction to these concepts can be found in the 2016 compendium *Mindfulness and Acceptance for Treating Eating Disorders and Weight Concerns*, by Haynos and colleagues,²¹ which includes an article dedicated to the application of ACT in EDs. Finally, although Heffner and Eifert's²² 2004 *The Anorexia Workbook: How to Accept Yourself, Heal Your Suffering, and Reclaim Your Life* is written in a self-help format, the patient-friendly text is likely to provide a helpful adjunct to individual or group ACT treatment of individuals with restrictive eating.

Empirical Support

ACT is not currently regarded as an evidenced-based treatment for EDs.¹² Although case series studies suggest that ACT leads to symptom improvement in patients with AN,²³ an RCT found that ACT was not more effective than treatment as usual (TAU) in this population.²⁴ Similarly, ACT did not outperform TAU among individuals with AN- and BN-spectrum disorders.²⁵ Finally, a pilot study examining an adaptation of ACT for BED, which incorporates several elements of CBT and DBT, reported posttreatment binge-eating abstinence rates similar to those observed with CBT alone.²⁶ In sum, the small body of available data suggests that acceptance-based treatments may hold promise as an alternative therapy for EDs. However, the approach has not been demonstrated to be superior to existing treatments, including CBT. Further research is needed to examine the effectiveness of this approach in Eds.

INTEGRATIVE COGNITIVE-AFFECTIVE THERAPY

Theoretic Model

Integrative cognitive-affective therapy (ICAT) offers both a model of ED onset and a separate model for ED maintenance. The model of onset highlights how temperamental

variations interact with several factors, such as relationships with others (eg, interpersonal factors) and relationships with the self (self-evaluation, self-regulation) to increase the risk for affective disturbances. It is further posited that such affective disturbances increase the chance of developing ED symptoms. The ICAT maintenance model is momentary in nature and attempts to account for the persistence of ED symptoms over time. Similar to the model of ED onset, interpersonal experiences, situations involving negative self-evaluation, and situations involving hostile and controlling self-regulation strategies are thought to increase momentary emotional dysregulation. Furthermore, it is posited that in the presence of cognitive expectancies, that ED behaviors can reduce the experienced negative affect, ED symptoms are likely to occur. Importantly, it is also predicted that ED symptoms actually do reduce levels of negative affect, but that such reductions are relatively short lived.

Structure of the Treatment

Phases/stages—ICAT has been empirically tested with a 21-session treatment structure spread across 4 phases of treatment. Phase 1, which typically involves 2 to 3 sessions, is focused on enhancing patient education and engagement. Phase 2, which typically includes approximately 5 to 6 sessions, is focused on modifying dietary patterns and managing urges for binge eating and/or purging. Phase 3, which typically involves 10 to 12 sessions, is focused on modifying factors that increase negative emotional arousal, such as problematic relationship patterns, excessive self-evaluation deficits (eg, self-criticism, perfectionism), and maladaptive self-regulation strategies (eg, self-criticism, self-neglect, excessive self-control). Finally, Phase 4, which consists of approximately 2 sessions, is focused on relapse prevention.

Clinical targets/techniques—There are 7 primary targets in ICAT with explicit interventions directed at each. Much of the intervention involves developing skills to engage the target in session, and practicing these skills outside of session. *Emotion identification and awareness skills* involve helping patients to recognize and tolerate different emotional states. *Meal-planning* modules assist patients in reducing meal avoidance and adopting a regular eating pattern. *Binge-eating inhibition skills* are used to help patients engage in adaptive behaviors (eg, self-calming, problem solving) during moments when they are at increased risk of ED behaviors. *Interpersonal skills* are used to assist patients in correcting maladaptive interpersonal patterns (eg, submissiveness, withdrawal) that contribute to ED behaviors. *Self-evaluation skills* support patients in reducing extreme self-evaluation standards in favor of more realistic expectations. *Self-regulation skills* focus on improving patients' self-directed behavior and increasing self-acceptance by reducing patterns of self-criticism, self-neglect, and self-control. *Impulse control and relapse-prevention skills* are incorporated into the final phase of treatment to promote posttreatment management of ED urges and behaviors.

Clinical materials/manuals—The clinical materials used in ICAT include 2 components. The first is a clinician manual, which guides the clinician through the ICAT treatment phases and clinical techniques, using specific instructions and clinical examples.²⁷ The manual also includes detailed descriptions of the 8 ICAT core skills. In addition to the clinician manual, there is a full complement of patient worksheets included in the published version of the

ICAT manual.²⁷ Patient worksheets are organized according to phase of treatment and provide examples of strategies for promoting target-related change, including an incorporation of affect awareness and meal planning, as well as various self-oriented and other-oriented skills that promote emotion regulation. Mobile versions of the core skills that provide real-time assistance in the natural environment can be downloaded from the Web site at Guilford Publishing (Available at: <https://www.guilford.com/books/Integrative-Cognitive-Affective-Therapy-for-Bulimia-Nervosa/Wonderlich-Peterson-Smith/9781462521999/reproducibles>).

Empirical Support

Several studies have examined ICAT treatment outcome, as well as moderators of treatment response. In the first study,²⁸ ICAT was compared with CBT-Enhanced (CBT-E¹⁸) in the treatment of BN. This study revealed that both ICAT and CBT-E produced clinically meaningful improvements in bulimic psychopathology, associated comorbidity (including depression), and hypothesized maintenance mechanisms including self-discrepancy and emotion regulation, which were maintained at 4-month follow-ups. There were no differences between the 2 treatments on any outcome measure. In addition, 2 studies^{29,30} revealed that ICAT was more effective than CBT-E for patients who had high levels of stimulus seeking and affective lability, whereas CBT-E was more effective than ICAT for patients who exhibited low levels of stimulus seeking. Furthermore, evidence suggests that therapeutic alliance was a significant factor in symptom remission for ICAT.²⁹ The results implied that high levels of therapeutic alliance early in treatment predated better outcomes, but there was also evidence that change in ED symptoms early in treatment predicted stronger therapeutic alliances later in treatment. This complex relationship highlights the importance of the therapeutic relationship in ICAT.

NEUROCOGNITIVE AND NEUROMODULATION TREATMENTS

Theoretic Model

Neurocognitive and neuromodulation treatments target specific cognitive patterns, regions of the brain, and neural circuits that are thought to be altered among individuals with EDs.^{31–33} These interventions have been informed by neurocognitive and neuroimaging data showing specific abnormalities among individuals with EDs in executive functioning, impulse control, reward learning, decision making, central coherence, and cognitive flexibility.^{34,35} Neurocognitive treatments, including cognitive remediation treatment (CRT) and attention bias modification, presume that correcting specific types of cognitive processing and attention patterns will result in corresponding clinical improvement. With devices that use electrical current and/or magnetic stimulation, neuromodulation interventions aim to increase or decrease nerve cell activity in neural circuits or brain regions associated with ED psychopathology, including reward and self-regulatory processes.^{32,36}

Structure of the Treatment

Phases/stages—Neurocognitive treatments including CRT typically require sequential learning or training sessions in which cognitive exercises or attention bias procedures are practiced repeatedly (eg, weekly for several months). Neuromodulation procedures vary by

type. In deep brain stimulation (DBS), electrodes are surgically implanted in specific brain regions to alter neural activity. Noninvasive brain stimulation, including repetitive transcranial magnetic stimulation (rTMS) and transcranial direct current stimulation (tDCS) require recurrent sessions (eg, 5 days each week for 1 to 2 months). For rTMS and tDCS, different brain regions may be targeted depending on symptom presentation. Response to treatment may also impact the duration of treatment.

Clinical targets/techniques—Targets of neurocognitive treatment depend on clinical presentation.³³ For example, CRT can be used to target *cognitive rigidity* in AN. *Attention bias* modification targeting palatable food stimuli can be used to increase inhibitory control among individuals who engage in binge eating. Neuromodulation interventions target specific brain regions and neural circuitry.³² For example, rTMS and tDCS have been used to target the dorsomedial and the dorsolateral prefrontal cortex because of their importance in *executive functioning* and *inhibitory control*.

Clinical materials/manuals—Neurocognitive treatment requires the completion of cognitive exercises and tasks that can be administered in person or by computer. CRT approaches have been developed to improve cognitive flexibility (eg, being responsive when stimuli change patterns) and central coherence (eg, learning to focus more broadly). Attention bias modification typically uses computer procedures to refocus automatic visual attention from ED-related stimuli (eg, palatable food) to neutral stimuli. DBS requires neurosurgery and ongoing monitoring adjustments based on clinical outcome. rTMS uses electrical current that passes through a magnetic field to increase or suppress brain activity in specific regions. tDCS involves the placement of electrodes on specific regions of the scalp, which deliver electrical current during the completion of a cognitive task or some other type of stimuli to activate specific brain regions or circuits.

Empirical Support

Neurocognitive treatments—Several randomized trials that have been conducted to examine CRT as an adjunctive treatment for AN have observed improvement in cognitive patterns, treatment retention, and clinical presentation.^{37,38} Although relatively less research has been conducted using neurocognitive treatment for other types of EDs, preliminary data indicate that attention bias modification may successfully shift visual attention and increase inhibitory control among individuals with binge eating.³³

Neuromodulation interventions—Several nonrandomized studies of DBS targeting various brain regions (eg, nucleus accumbens) for the treatment of AN have shown promising results.³⁶ Although preliminary outcome data using rTMS for AN have been associated with clinical improvement, rTMS and tDCS findings for BN are inconsistent.³⁶

ADDITIONAL EMERGING PSYCHOLOGICAL TREATMENTS

Third-Wave Behavior Therapy and Mindfulness-Based Interventions

In addition to DBT and ACT, several other third-wave behavior therapies and mindfulness-based interventions are currently being used and adapted for the treatment of EDs. Third-

wave and mindfulness-based approaches target the function and awareness of cognitions and emotions, and incorporate mindfulness-based and acceptance-based strategies. These treatments have included compassion-focused therapy, schema therapy, and mindfulness-based interventions. A recent meta-analysis determined that all of these therapies are currently considered possibly efficacious for the treatment of EDs.¹²

Radically open-dialectical behavior therapy (RO-DBT³⁹) was developed to target disorders characterized by excessive inhibitory control and has recently been applied to the treatment of AN.⁴⁰ Treatment includes individual and skills group sessions that address 5 themes: inhibited and disingenuous emotional expression, overcaution, rigid and rule-governed behavior, aloof and distant interpersonal style, and high social comparison. An initial pilot study of RO-DBT in an inpatient AN sample found improvements in weight gain, and reduction in ED symptoms and related psychopathology.⁴¹

Treatments Targeting Interpersonal Factors

Couples-based approaches—Family-based treatment is currently the treatment of choice for adolescent AN, suggesting the potential importance of incorporating patients' interpersonal relationships in other treatment approaches. However, until recently, little work had been conducted to address intimate relationships in adult EDs. Although supportive intimate relationships can be central to recovery, many individuals with EDs have difficulty functioning in intimate relationships and cite these relationships as a source of stress rather than support. Although a strict adaptation of family-based treatment strategies would not be developmentally appropriate for most partnered adults (eg, asking patients to relinquish control over food choices to their partners), recent couples-based interventions have adapted cognitive-behavioral couples therapy for application to AN (UCAN⁴²) and binge eating (UNITE⁴³). Preliminary evidence is promising, supporting the feasibility and acceptability of couples-based approaches for adult EDs.^{43,44}

Maudsley anorexia treatment for adults—Maudsley anorexia treatment for adults (MANTRA) is a cognitive-interpersonal treatment for AN, which proposes that factors linked to the underlying obsessional and anxious/avoidant personality traits observed in AN are central to their maintenance. MANTRA uses a motivational interviewing style to address these 4 factors: inflexible thinking style, impairments in the social-emotional domain, beliefs about the positive impact of AN, and unhelpful responses from patients' social support network.⁴⁵ MANTRA has been shown to lead to improvements in body mass index, ED symptoms, and clinical impairment in a recent RCT.⁴⁶

Targeting Habit in Eating Disorder Treatment

Regulating emotions and changing habit—The habit model of AN, which conceptualizes restrictive eating as an initially rewarding behavior that becomes an automatic fixed response to specific cues over time,⁴⁷ has received initial empirical support.⁴⁸ Accordingly, regulating emotions and changing habit (REaCH) is a manualized psychotherapy for EDs that attempts to disrupt relationships between cues and maladaptive behaviors using habit-reversal techniques. The intervention includes 4 phases that address cue-awareness, creation of new routines, suppression of maladaptive habits, and emotion

regulation.⁴⁹ A recent randomized trial found that, compared with supportive psychotherapy, REaCH was associated with lower global ED symptom severity scores at the end of treatment.⁴⁹

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REFERENCES

1. Hilbert A, Hoek HW, Schmidt R. Evidence-based clinical guidelines for eating disorders: international comparison. *Curr Opin Psychiatry* 2017;30(6):423. [PubMed: 28777107]
2. National Institute for Health and Care Excellence. Eating disorders: recognition and treatment. NICE Guideline; 2017 Available at: <https://www.nice.org.uk/guidance/ng69/resources/eating-disorders-recognition-and-treatment-pdf-1837582159813>.
3. Linehan MM. Cognitive behavioral therapy of borderline personality disorder. New York: Guilford Press; 1993.
4. Sloan E, Hall K, Moulding R, et al. Emotion regulation as a transdiagnostic treatment construct across anxiety, depression, substance, eating and borderline personality disorders: a systematic review. *Clin Psychol Rev* 2017;57:141–63. [PubMed: 28941927]
5. Lavender JM, Wonderlich SA, Engel SG, et al. Dimensions of emotion dysregulation in anorexia nervosa and bulimia nervosa: a conceptual review of the empirical literature. *Clin Psychol Rev* 2015;40:111–22. [PubMed: 26112760]
6. Westwood H, Kerr-Gaffney J, Stahl D, et al. Alexithymia in eating disorders: systematic review and meta-analyses of studies using the Toronto Alexithymia Scale. *J Psychosom Res* 2017;99:66–81. [PubMed: 28712432]
7. Oldershaw A, Lavender T, Sallis H, et al. Emotion generation and regulation in anorexia nervosa: a systematic review and meta-analysis of self-report data. *Clin Psychol Rev* 2015;39:83–95. [PubMed: 26043394]
8. Wisniewski L, Kelly E. The application of dialectical behavior therapy to the treatment of eating disorders. *Cogn Behav Pract* 2003;10(2):131–8.
9. Safer DL, Telch CF, Chen EY. Dialectical behavior therapy for binge eating and bulimia. New York: Guilford Press; 2009.
10. Linehan MM. Cognitive-behavioral treatment of borderline personality disorder. New York: Guilford Publications; 2018.
11. Masson PC, von Ranson KM, Wallace LM, et al. A randomized wait-list controlled pilot study of dialectical behaviour therapy guided self-help for binge eating disorder. *Behav Res Ther* 2013;51(11):723–8. [PubMed: 24029304]
12. Linardon J, Fairburn CG, Fitzsimmons-Craft EE, et al. The empirical status of the third-wave behaviour therapies for the treatment of eating disorders: a systematic review. *Clin Psychol Rev* 2017;58:125–40. [PubMed: 29089145]
13. Courbasson C, Nishikawa Y, Dixon L. Outcome of dialectical behaviour therapy for concurrent eating and substance use disorders. *Clin Psychol Psychother* 2012;19(5):434–49. [PubMed: 21416557]
14. Hill DM, Craighead LW, Safer DL. Appetite-focused dialectical behavior therapy for the treatment of binge eating with purging: a preliminary trial. *Int J Eat Disord* 2011;44(3):249–61. [PubMed: 20196109]
15. Safer DL, Robinson AH, Jo B. Outcome from a randomized controlled trial of group therapy for binge eating disorder: comparing dialectical behavior therapy adapted for binge eating to an active comparison group therapy. *Behav Ther* 2010;41(1):106–20. [PubMed: 20171332]
16. Telch CF, Agras WS, Linehan MM. Dialectical behavior therapy for binge eating disorder. *J Consult Clin Psychol* 2001;69(6):1061–5. [PubMed: 11777110]

17. Hayes SC, Strosahl KD, Wilson KG. Acceptance and commitment therapy: the process and practice of mindful change. New York: Guilford Press; 2011.
18. Fairburn CG, Cooper Z, Shafran R, et al. Eating disorders: a transdiagnostic protocol. New York: 2008.
19. Heatherton TF, Baumeister RF. Binge eating as escape from self-awareness. *Psychol Bull* 1991;110(1):86. [PubMed: 1891520]
20. Sandoz E, Wilson K, DuFrene T. Acceptance and commitment therapy for eating disorders: a process-focused guide to treating anorexia and bulimia. Oakland (CA): New Harbinger Publications; 2011.
21. Haynos AF, Forman EM, Butryn ML, et al. Mindfulness and acceptance for treating eating disorders and weight concerns: evidence-based interventions. Oakland (CA): New Harbinger Publications; 2016.
22. Heffner M, Eifert GH. The anorexia workbook: how to accept yourself, heal your suffering, and reclaim your life. New York: New Harbinger Publications; 2004.
23. Berman M, Boutelle K, Crow S. A case series investigating acceptance and commitment therapy as a treatment for previously treated, unremitted patients with anorexia nervosa. *Eur Eat Disord Rev* 2009;17(6):426–34. [PubMed: 19760625]
24. Parling T, Cernvall M, Ramklint M, et al. A randomised trial of acceptance and commitment therapy for anorexia nervosa after daycare treatment, including five-year follow-up. *BMC Psychiatry* 2016;16(1):272. [PubMed: 27473046]
25. Juarascio A, Shaw J, Forman E, et al. Acceptance and commitment therapy as a novel treatment for eating disorders: an initial test of efficacy and mediation. *Behav Modif* 2013;37(4):459–89. [PubMed: 23475153]
26. Juarascio AS, Manasse SM, Schumacher L, et al. Developing an acceptance-based behavioral treatment for binge eating disorder: rationale and challenges. *Cogn Behav Pract* 2017;24(1):1–13. [PubMed: 29881247]
27. Wonderlich SA, Peterson CB, Smith TL. Integrative cognitive-affective therapy for bulimia nervosa: a treatment manual. New York: Guilford Publications; 2015.
28. Wonderlich SA, Peterson CB, Crosby RD, et al. A randomized controlled comparison of integrative cognitive-affective therapy (ICAT) and enhanced cognitive-behavioral therapy (CBT-E) for bulimia nervosa. *Psychol Med* 2014; 44(3):543–53. [PubMed: 23701891]
29. Accurso EC, Wonderlich SA, Crosby RD, et al. Predictors and moderators of treatment outcome in a randomized clinical trial for adults with symptoms of bulimia nervosa. *J Consult Clin Psychol* 2016;84(2):178–84. [PubMed: 26689304]
30. Haynos AF, Pearson CM, Utzinger LM, et al. Empirically derived personality subtyping for predicting clinical symptoms and treatment response in bulimia nervosa. *Int J Eat Disord* 2017;50(5):506–14. [PubMed: 27611235]
31. Chen J, Papiés EK, Barsalou LW. A core eating network and its modulations underlie diverse eating phenomena. *Brain Cogn* 2016;110:20–42. [PubMed: 27156016]
32. Dunlop KA, Woodside B, Downar J. Targeting neural endophenotypes of eating disorders with non-invasive brain stimulation. *Front Neurosci* 2016;10:30. [PubMed: 26909013]
33. Eichen DM, Matheson BE, Appleton-Knapp SL, et al. Neurocognitive treatments for eating disorders and obesity. *Curr Psychiatry Rep* 2017;19(9):62. [PubMed: 28744627]
34. Lang K, Lopez C, Stahl D, et al. Central coherence in eating disorders: an updated systematic review and meta-analysis. *World J Biol Psychiatry* 2014;15(8):586–98. [PubMed: 24882144]
35. Wu M, Hartmann M, Skunde M, et al. Inhibitory control in bulimic-type eating disorders: a systematic review and meta-analysis. *PLoS One* 2013;8(12):e83412. [PubMed: 24391763]
36. Dalton B, Campbell IC, Schmidt U. Neuromodulation and neurofeedback treatments in eating disorders and obesity. *Curr Opin Psychiatry* 2017;30(6):458–73. [PubMed: 28817418]
37. Dahlgren CL, Rø Ø. A systematic review of cognitive remediation therapy for anorexia nervosa-development, current state and implications for future research and clinical practice. *J Eat Disord* 2014;2(1):26. [PubMed: 25254110]
38. Danner UN, Dingemans AE, Steinglass J. Cognitive remediation therapy for eating disorders. *Curr Opin Psychiatry* 2015;28(6):468–72. [PubMed: 26382156]

39. Lynch TR. Radically open dialectical behavior therapy: theory and practice for treating disorders of overcontrol. Oakland (CA): New Harbinger Publications; 2018.
40. Hempel R, Vanderbleek E, Lynch TR. Radically open DBT: targeting emotional loneliness in anorexia nervosa. *Eat Disord* 2018;26(1):92–104. [PubMed: 29384459]
41. Lynch TR, Gray KL, Hempel RJ, et al. Radically open-dialectical behavior therapy for adult anorexia nervosa: feasibility and outcomes from an inpatient program. *BMC Psychiatry* 2013;13(1):293. [PubMed: 24199611]
42. Bulik CM, Baucom DH, Kirby JS, et al. Uniting Couples (in the treatment of) Anorexia Nervosa (UCAN). *Int J Eat Disord* 2011;44(1):19–28. [PubMed: 20063308]
43. Runfolo CD, Kirby JS, Baucom DH, et al. A pilot open trial of UNITE-BED: a couple-based intervention for binge-eating disorder. *Int J Eat Disord* 2018; 51(9):1107–12. [PubMed: 30189106]
44. Baucom DH, Kirby JS, Fischer MS, et al. Findings from a couple-based open trial for adult anorexia nervosa. *J Fam Psychol* 2017;31(5):584–91. [PubMed: 28318287]
45. Schmidt UM, Treasure JM. The Maudsley model of anorexia nervosa treatment for adults (MANTRA): development, key features, and preliminary evidence. *J Cogn Psychother* 2014;28(1): 48.
46. Schmidt U, Magill N, Renwick B, et al. The Maudsley outpatient study of treatments for anorexia nervosa and related conditions (MOSAIC): comparison of the Maudsley model of anorexia nervosa treatment for adults (MANTRA) with specialist supportive clinical management (SSCM) in outpatients with broadly defined anorexia nervosa: a randomized controlled trial. *J Consult Clin Psychol* 2015;83(4):796–807. [PubMed: 25984803]
47. Walsh BT. The enigmatic persistence of anorexia nervosa. *Am J Psychiatry* 2013; 170(5):477–84. [PubMed: 23429750]
48. Foerde K, Steinglass JE, Shohamy D, et al. Neural mechanisms supporting maladaptive food choices in anorexia nervosa. *Nat Neurosci* 2015;18(11):1571–3. [PubMed: 26457555]
49. Steinglass JE, Glasofer DR, Walsh E, et al. Targeting habits in anorexia nervosa: a proof-of-concept randomized trial. *Psychol Med* 2018;48(15):2584–91. [PubMed: 29455696]

KEY POINTS

- Dialectical-behavioral therapy has accumulating data to support efficacy in bulimia nervosa and binge eating disorder.
- A small but growing body of evidence suggested acceptance-based treatment may have promise as alternate treatment for eating disorders.
- Integrative Cognitive Affective Therapy has lead to meaningful improvements in symptoms of bulimia nervosa.
- Neurocognitive treatments and neuromodulation treatments target cognitive patterns, brain regions, and neural circuits with promising preliminary evidence in the treatment of eating disorders.