Available online at www.sciencedirect.com

ScienceDirect

Cognitive and Behavioral Practice 26 (2019) 395-410

Cognitive and Behavioral Practice

www.elsevier.com/locate/cabp

Developing an Acceptance-Based Behavioral Weight Loss Treatment for Individuals With Binge Eating Pathology: A Preliminary Proof of Concept Study and Clinical Case Series

Brittney C. Evans, Helen B. Murray, Alexandra F. Muratore, Elin L. Lantz, Adrienne S. Juarascio, *Drexel University*

Binge eating (BE; i.e., the consumption of a large amount of food in a discrete time period, accompanied by a sense of loss of control) is highly comorbid with overweight or obesity and is the primary symptom of binge eating disorder (BED). Current gold-standard treatment for BED (i.e., CBT) does not produce meaningful weight loss, thus failing to address a critical treatment target. This article describes the development of a novel acceptance-based behavioral treatment (ABBT) for individuals with clinically significant BE desiring to reduce BE symptoms and achieve concurrent weight loss. We discuss the development and structure of the novel treatment approach, and describe the test of a proof of concept version of the treatment in a clinical case series of four individuals. In the context of each clinical case description, we present initial acceptability of the treatment and challenges faced in treatment development and delivery. Finally, we discuss future research directions for the treatment, which could improve BE symptoms and weight loss outcomes for individuals with BE pathology.

Binge eating (BE) is characterized by frequent and persistent episodes of overeating accompanied by feelings of loss of control without the use of compensatory behaviors (e.g., purging, laxative use; APA, 2013). BE is associated with substantial psychiatric and medical comorbidity, including higher risk of overweight or obesity (Hudson, Hiripi, Pope, & Kessler, 2007). Full-threshold binge eating disorder (BED) includes experiencing BE episodes that are objectively large in size at least once per week over the past 3 months, with three or more of the following features—rapid eating, eating until uncomfortably full, eating when not physically hungry, eating alone because of embarrassment, and feeling disgust, depressed mood, or guilt afterwards (APA, 2013). BED is the most prevalent eating disorder, with lifetime prevalence rates of 3.5% in women and 2% in men, while the lifetime prevalence rate of engaging in any BE is 4.5% (Bellows et al., 2015; Hudson et al., 2007).

Individuals who engage in BE to a clinically significant and distressing degree but who do not meet full DSM criteria (e.g., frequency of BE is less than once per week, the BE episodes are subjectively large in size) are considered to have subthreshold BED (Striegel-Moore et al., 2000). Currently in the DSM-5, such symptoms are best captured in the diagnostic category of "Other Specified Feeding and Eating Disorder," "other" subtype (i.e., when the individual only experiences subjective binge episodes) or "BED of low frequency and/or duration" (i.e., when objective binge episodes occur less than once per week or when binge episodes have not been present for at least 3 months; APA, 2013). Individuals with subthreshold BED do not differ significantly from individuals with full-threshold BED, and have similar risk for psychiatric distress, low self-esteem, impaired social adjustment, and overconcern with shape and weight as those with full-threshold BED (Crow, Stewart Agras, Halmi, Mitchell, & Kraemer, 2002; Striegel-Moore et al., 2000; Striegel-Moore, Wilson, Wilfley, Elder, & Brownell, 1998; Wilson, Nonas, & Rosenblum, 1993). In fact, there is growing evidence to suggest that the experience of loss of control in BE, rather than the objective size or frequency of the amount consumed, is most strongly associated with distress and negative outcomes (Latner, Hildebrandt, Rosewall, Chisholm, & Hayashi, 2007; Mond, Latner, Hay, Owen, & Rodgers, 2010). As such, BE is an important treatment target in individuals both with and without full-threshold BED diagnoses (henceforth, our use of "BE" in this article will reference clinically significant BE, i.e., full- and subthreshold BED).

Notably, rates of BE in overweight and obese subjects are at least double those in normal-weight individuals (Hay, 1998), and BE occurs in approximately 30% of

Keywords: binge eating; weight loss; acceptance-based treatment; treatment development; case series

overweight or obese individuals seeking weight loss treatment (Spitzer et al., 1992). Furthermore, over 65% of individuals with BED are obese (Hudson et al., 2007; Mitchell, 2015), and over 25% of patients seeking treatment for obesity have BED (Fandiño et al., 2010; J. Mitchell & Mussell, 1995; L. A. Mitchell, MacDonald, & Brodie, 2004; Wilfley, Bishop, Wilson, & Agras, 2007).

Obese individuals with BE are at greater risk of developing metabolic syndrome than individuals with obesity alone (Hudson et al., 2010), and typically experience more severe obesity and increased risk for dyslipidemia and impaired glucose levels (J. Mitchell et al., 2015; Reichborn-Kjennerud, Bulik, Sullivan, Tambs, & Harris, 2004), as well as serious health problems associated with obesity generally (Manson, Skerrett, & Willett, 2001; Mustelin, Raevuori, Hoek, Kaprio, & Keski-Rahkonen, 2015). Modest weight reduction of 5%–10% has been shown to improve health outcomes, including improving glycemic control, reducing blood pressure, and lowering cholesterol levels (Goldstein, 1992). Obese individuals with BE also experience greater eating disorder psychopathology, symptoms of anxiety and depression, more frequent emotional eating, and lower self-esteem and life satisfaction (Fandiño et al., 2010; J. Mitchell & Mussell, 1995; Reichborn-Kjennerud et al., 2004; Wilfley et al., 2007). The prevalence of BE among obese individuals and the related significant medical and psychological comorbidities highlight the need for effective treatments that can both eliminate binge eating and produce weight loss.

Although several effective treatments exist for reducing BE (described in further detail below), facilitating clinically significant weight loss in individuals with BE pathology remains a challenge (Wilson, Wilfley, Agras, & Bryson, 2010). Indeed, most trials have found that when compared to obese peers without BE, those with BE lose significantly less weight (Blaine & Rodman, 2007), regain weight more rapidly after treatment, and are more likely to drop out of weight loss treatment programs (de Zwaan, Nutzinger, & Schoenbeck, 1992; Marcus, Wing, & Hopkins, 1988; Sherwood, Jeffery, & Wing, 1999; Yanovski, Gormally, Leser, Gwirtsman, & Yanovski, 1994). Overall, weight loss in individuals with BE is particularly challenging, and effective weight loss treatment options are lacking for these individuals.

Existing Treatments for BE

Behavioral weight loss (BWL) treatment, which uses behavioral techniques to reduce caloric intake and increase physical activity (Wadden & Butryn, 2003), is the most effective behavioral treatment for weight loss in individuals with BED (Wilson, Grilo, & Vitousek, 2007). However, weight loss is, on average, modest (Wonderlich, Gordon, Mitchell, Crosby, & Engel, 2009). For example, Grilo and colleagues found that participants with BED in a BWL treatment program showed only a 2.1 mean percent BMI reduction at 12-month follow-up (Grilo, Masheb, Wilson, Gueorguieva, & White, 2011). The long-term outcomes for BWL treatments in those with BE are especially poor, as individuals with BE tend to regain lost weight more quickly than obese peers without BED (de Zwaan et al., 1992; Marcus et al., 1988; Yanovski et al., 1994), and most BWL treatment programs only include limited strategies to promote long-term adherence to dietary and physical activity goals (Brownell & Jeffery, 1987; Wilson, 1994). This weight gain is often exacerbated by continued, or reemergent, binge eating (Grilo et al., 2011).

Notably, BWL interventions typically instruct participants to set low to moderate calorie goals (typically 1,200–1,500 calories per day) and to restrict intake of palatable, high-calorie foods (Brownell, 2000). Individuals with BE typically approach dieting in a dichotomous, all-or-nothing manner and adopt rigid dieting rules (Gamer, Rockert, Olmsted, Johnson, & Coscina, 1985), which, when broken, produce dysfunctional, all-or-nothing cognitions (e.g., "I've blown my diet so I may as well binge") and negative affect (e.g., guilt, shame) that frequently trigger BE episodes (Grilo & Shiffman, 1994). This pattern is consistent with the abstinence violation effect (AVE) proposed by Marlatt and Gordon (Marlatt & Donovan, 2005), which posits that individuals respond to a lapse in abstinence from a given behavior (e.g., eliminating specific foods or meeting a strict calorie goal) with negative cognitions (i.e., internal, stable, global, and uncontrollable attributions for the cause of the lapse) and affective responses (e.g., guilt, blame). Higher levels of these negative cognitions and affective reactions increase the intensity of the AVE, which in turn increases the likelihood of a subsequent lapse (Marlatt & Donovan, 2005). The AVE theory helps to explain why a strict eating plan will often improve BE in the short-term (Presnell & Stice, 2003), but long-term adherence is difficult to maintain (for individuals both with and without BE) and could ultimately promote the reoccurrence of BE symptoms. Indeed, high levels of dietary restraint serve as a core maintenance factor for BE behavior (Fairburn, 2008), and reduction in rigid dietary restraint has been a predictor of improved treatment outcome (Blomquist & Grilo, 2011; Wilson, Fairburn, Agras, Walsh, & Kraemer, 2002).

While BWL treatment may improve binge eating in the short-term, it does not do so as well or consistently as the current best-supported treatment for BE, cognitive behavioral therapy (CBT; Grilo et al., 2011; Wilson et al., 2007), including the recently enhanced version, CBT-E (Fairburn, 2008; Fairburn, Marcus, & Wilson 1993). CBT uses cognitive and behavioral techniques to regularize

eating, reduce dietary restraint, and alter the cognitive manifestations of BE (Fairburn, 2008; Fairburn et al., 1993). CBT is superior to other treatment approaches (including BWL treatment) in eliminating BE behavior, with up to 60% of individuals achieving full remission from BE by the end of treatment (Wilson et al., 2007). Weight loss in CBT, however, is typically minimal or nonexistent (Dingemans, Spinhoven, & van Furth, 2007; Fairburn, 2008; McElroy, Guerdjikova, Mori, Munoz, & Keck, 2015), likely due to the strong focus in CBT on eliminating strict or rigid forms of dietary restraint (Fairburn, 2008; Fairburn et al., 1993), the lack of focus on overeating episodes without loss of control, and the failure to incorporate physical activity.

Several researchers have attempted to improve weight loss outcomes for BE by integrating CBT and BWL or using sequential treatment designs (e.g., CBT followed by BWL or vice versa; de Zwaan et al., 1992; Grilo et al., 2011; Masheb, Grilo, & Rolls, 2011; Nauta, Hospers, Kok, & Jansen, 2000). While the appeal of this approach is clear, the results to date have consistently failed to show evidence of superior treatment outcomes. For example, a recent study by Grilo and colleagues assessed whether sequential CBT and BWL treatment could produce greater weight loss than BWL alone and found no support for the sequential ordering of treatment (Grilo et al., 2011). These results support the notion that the current iterations of both CBT and BWL, either alone or in conjunction, are unlikely to produce clinically meaningful weight outcomes for individuals with BE.

Rationale for Development of a New Treatment Approach

As outlined above, CBT for individuals with BE fails to produce meaningful weight loss due to 1) a lack of emphasis on altering the calorie balance through changes to both diet and physical activity, and 2) discouraging any form of strict dietary restraint that could promote an eventual re-occurrence of binge eating pathology. BWL treatment, on the other hand, also produces sub-optimal weight loss results in individuals with BE due to 1) primary focus on caloric restriction and avoidance of high-calorie, palatable foods, and 2) lack of psychological strategies to encourage long-term maintenance of dietary and physical activity goals.

Given these deficits in existing treatment approaches, there is a growing call for more tailored weight loss interventions for individuals with BED (Grilo et al., 2011; McElroy et al., 2015; Yanovski, 2003). In particular, given that the two best-supported treatments for BE, CBT and BWL, are directly at odds with each other in how they instruct individuals to make changes to their eating habits, simply combining or sequencing the two treatment approaches would not be expected to produce meaningful changes in weight and binge eating behavior, as confirmed by the research summarized above. As such, to improve weight outcomes for individuals with BE, current behavioral treatments must be modified and integrated to (a) alter the calorie balance (through diet and physical activity) by applying BWL treatment strategies in a flexible manner that is unlikely to promote binge eating, and (b) provide individuals with enhanced psychological strategies designed to improve long-term adherence to program goals despite susceptibility to engage in binge eating.

To address these concerns, our team developed a novel treatment approach designed to improve weight loss in individuals with BE. In the remainder of this paper, we discuss the development of a new, acceptance-based behavioral treatment (ABBT) for weight loss in individuals with BE with several key aims in mind. First, we describe the central elements of the ABBT treatment, which integrated treatment components from an ABBT weight control intervention incorporating both standard BWL and acceptance-based treatments components (Forman et al., 2013) and was tailored to meet the unique treatment needs of individuals susceptible to BE. Second, we describe a proof-of-concept test of the new treatment approach with four clinical cases. Third, we discuss challenges encountered while developing and implementing the treatment. Finally, we provide concluding remarks on the potential of this approach for improving treatment outcomes for individuals with BE, and discuss future research directions.

Treatment Development and Overview

Background

The novel treatment approach described in this paper was developed as an extension of a recent study of an ABBT for BED (Juarascio, Manasse, Schumacher, Espel, & Forman, 2016), in which participants completed a novel acceptance-based behavioral treatment for BED (i.e., Phase I; Juarascio et al., 2016). The treatment in Phase I was "weight neutral," in that treatment was primarily focused on reducing binge eating symptoms and discouraged active weight loss attempts during treatment. Participants completed 10 sessions of group-based treatment. At the end of treatment, participants were provided with psychological strategies to maintain binge eating cessation and psychoeducational materials for general weight management (e.g., incorporating fruits and vegetables into meals, eating smaller portion sizes regularly throughout the day; Juarascio et al., 2016), though no formal weight loss intervention was delivered.

Based on these participants' interest in active weight loss (Juarascio et al., 2016), we recruited Phase I participants who were still seeking to lose weight approximately 1 year later to participate in a booster treatment (i.e., Phase II) that focused on continued application of Phase I principles

(i.e., behavioral and acceptance-based skills and strategies to reduce binge eating), while applying similar principles to weight management. Phase II was developed as a proof-of-concept trial to evaluate the initial feasibility and acceptability of the novel treatment approach. As such, we initially tested the treatment using only a small group of participants and an abbreviated treatment period of 10 sessions.

Treatment Content

The treatment approach developed by our team is one of the first to alter the dietary and physical activity goals of traditional BWL interventions and incorporate psychological strategies to promote long-term success for individuals with BE. Drawing from ABBT for weight loss (Forman, Butryn, Manasse, & Bradley, 2015), standard BWL treatments (Brownell, 2000; L. A. R. Group, 2006) and the focused version of CBT-E for eating disorders (Fairburn, 2008; Fairburn et al., 1993), we incorporated strategies into a combined ABBT for weight loss and binge eating management. Table 1 provides a summary of the core elements of each session, described in greater detail below.

Behavioral Strategies for Flexibly Altering the Calorie Balance and Preventing Binge Eating Episodes

We included core components of traditional BWL treatments in order to alter the calorie balance to produce weight loss, including calorie goals and self-monitoring caloric intake. However, we introduced BWL strategies in a more flexible and gradual manner than in traditional BWL interventions, which, as described above, typically impose low-calorie goals that may promote binge eating in individuals susceptible to BE. Thus, we framed the Phase II strategies and skills as tools to help participants establish healthier eating patterns and prevent BE while also promoting gradual, healthy weight loss over time, rather than a means to achieve a participant's "ideal" weight.

To reduce calorie consumption, we first reintroduced self-monitoring of food intake without recording calorie intake to regularize eating patterns (i.e., regular meals and/or snacks approximately every 4 hours). This recommendation built on skills learned in Phase I of treatment and was implemented because not all participants were still following this recommendation at the start of Phase II. Once regular eating patterns were reestablished and participants were engaging in successful self-monitoring of eating habits, participants then added calorie recording, while making gradual weekly reductions in average daily calorie goals (starting at 300 calories below their baseline, which would produce just over 0.5 lbs of weight loss per week, and reducing by 100 calories each week if they were successful with initial reductions). Optimal weight loss goals were presented as being 5%–10% of the participant's initial body weight, an amount associated with clinically significant health benefits (Van Gaal, Mertens, & Ballaux, 2005; Vidal, 2002), rather than achieving a BMI in the "normal" range, which for many participants would lead to unrealistic goals or expectations. As the 10-week treatment period was relatively brief, participants began a gradual trajectory towards healthy weight loss, with the goal of achieving roughly 3.5–4 lbs of weight loss during the treatment period, and continuing to work towards the goal of 5%–10% weight loss after treatment ended by maintaining healthy weight-control behaviors. In this way, weight loss progression was more gradual than the rate of weight loss standard BWL interventions typically strive to produce (1–2 lbs of weight loss per week; Butryn, Webb, & Wadden, 2011a) in order to prevent engagement in strict dietary restraint and reemergence or worsening of BE. Mirroring traditional BWL interventions, we taught participants to weigh and measure foods and plan meals and snacks in advance (Diabetes Prevention Program Research D. P. P. R. Group, 2002). In addition to providing sample meal plans and identifying healthy low-calorie substitutions for foods, we provided participants with specific guidelines on foods that enhance fullness and satiety and instructed them to incorporate palatable foods into their eating plan to reduce the likelihood of binge episodes occurring.

We also gradually introduced physical activity goals, as physical activity has been shown to reduce binge episodes (Moulton, 1996; Pendleton, Goodrick, Poston, Reeves, & Foreyt, 2002) and encourage weight loss (Fossati et al., 2004; McIver, O'Halloran, & McGartland, 2009; Moulton, 1996; Pendleton et al., 2002). In keeping with these findings, as well as standard recommendations for physical activity in BWL interventions (Brownell, 2000; D. P. P. R. Group, 2002; L. A. R. Group, 2006), we gave participants information about the benefits of exercise and advised them to progressively increase their exercise throughout treatment, with the ultimate aim to engage in moderate to vigorous physical activity 5 days per week for 50 minutes per day (Jakicic, Winters, Lang, & Wing, 1999; Jeffery, Wing, Thorson, & Burton, 1998). Given that the course of treatment was limited to 10 weeks and lacked the time span to adequately build up to 250 minutes per week at a realistic pace, participants gradually increased their level of physical activity over the course of treatment up to 5 days per week for 35 minutes per day, with the goal of continuing to increase exercise after the treatment ended.

Psychological Strategies for Long-Term Weight Management and Abstinence From Binge Eating

To facilitate adherence to the behavioral strategies to alter the calorie balance, we incorporated acceptance-based skills, some of which participants learned in Phase I (see Juarascio et al., 2016). Acceptance-based strategies

Table 1
Treatment Content by Session

Session	Behavioral Binge Eating Content/Skills	Behavioral Weight Loss Content/Skills	Acceptance-Based Content/Skills
1	• Review of psychoeducation about binge eating from group treatment • Review of regular eating • Psychoeducation about how to prevent binge eating when tracking calories	• Weigh-in • Psychoeducation about calorie balance • Introduction to gradual exercise intervention (3 days at 15 minutes) • Initiation of self-monitoring (without caloric content)	• Identification of helpful skills from group treatment
2	• Check-in for binge episodes (when applicable) • Planned incorporation of palatable foods to prevent hedonic-deprivation	• Weigh-in & Check-in • Goal setting • Gradual exercise progression (3 days at 20 minutes) • Initiation of self-monitoring with caloric content • Psychoeducation about calorie tracking • Healthy meal planning	• Brief review of helpful skills from group treatment
3	• Check-in for binge episodes (when applicable)	• Weigh-in & Check-in • Gradual exercise progression (3 days at 25 minutes) • Self-monitoring & Introduction to gradual calorie reduction	• Review of willingness and acceptance • Application of willingness and acceptance to dietary changes and exercise
4	• Check-in for binge episodes (when applicable)	• Weigh-in & Check-in • Gradual exercise progression (3 days at 30 minutes) • Self-monitoring & gradual calorie reduction	• Emotional eating psychoeducation • DBT-based coping strategies: distraction and self-soothing
5	• Check-in for binge episodes (when applicable)	• Weigh-in & Check-in • Gradual exercise progression (3 days at 35 minutes) • Self-monitoring & gradual calorie reduction	• DBT-based coping strategies: improving the moment and pros/cons • Values review and clarification of valued domains • Using values to identify and increase willingness to engage in dietary changes and exercise • Values-relevant goal-setting
6	• Check-in for binge episodes (when applicable)	• Weigh-in & Check-in • Gradual exercise progression (4 days at 30 minutes) • Self-monitoring & gradual calorie reduction	• Review of clarification of values • How to deal with barriers to using values for weight loss: o Not having them in mind o Short-term vs. long-term mind o Conflicting values
7	• Check-in for binge episodes (when applicable) • Introduction to food exposure to high-risk foods or situations • Planning in-session exposure	• Weigh-in & Check-in • Gradual exercise progression (5 days at 30 minutes) • Self-monitoring & gradual calorie reduction • Hedonic hunger psychoeducation	• Review of barriers to values
8	• Check-in for binge episodes (when applicable) • Review food exposure rationale • Food exposure with negative mood induction • Plan at-home food exposures	• Weigh-in & Check-in • Gradual exercise progression (5 days at 30 minutes) • Self-monitoring & gradual calorie reduction	• Willingness, defusion, values, and urge surfing as tools to engage in food exposures • Use of urge surfing or other coping strategies during and after food exposure

(continued on next page)

Table 1 (*continued*)

Session	Behavioral Binge Eating Content/Skills	Behavioral Weight Loss Content/Skills	Acceptance-Based Content/Skills
9	• Check-in for binge episodes (when applicable) • Behavioral triggers of lapses/relapse with binge eating • Relapse prevention plan	• Weigh-in & Check-in • Gradual exercise progression (5 days at 35 minutes) • Self-monitoring & gradual calorie reduction • Behavioral triggers of lapses/relapse with weight • Relapse prevention plan • Introduction of at-home weekly weight tracking	• Emotional triggers of lapses/relapse with weight and binge eating • Importance of acceptance-based skills for lapse/relapse prevention
10	• Check-in for binge episodes (when applicable) • Review of progress • Review of relapse prevention plan	• Weigh-in & Check-in • Review of progress • Review of relapse prevention plan • Continuation of weekly goal setting	• Importance of acceptance-based skills for lapse/relapse prevention • Commitment to maintaining weight loss and binge reduction/abstinence • Importance of re-commitment after a lapse/relapse • Goal setting consistent with values

are a key feature of several novel, "third generation" behavior therapies such as Dialectical Behavior Therapy (DBT; Linehan, 1993) and Acceptance and Commitment Therapy (ACT; Hayes et al., 1999). Acceptance-based treatments explicitly teach strategies designed to increase tolerance of internal states (i.e., emotions, urges, thoughts, physical feelings) in the service of goal-directed behavior such as healthful eating and physical activity (Hayes, Luoma, Bond, Masuda, & Lillis, 2006). Specifically, the current treatment integrated acceptance-based strategies with behavioral strategies by framing certain behaviors (e.g., preplanning meals, buying healthy foods) as under one's "control," while framing internal experiences (e.g., emotions, urges to eat) as not under one's control (i.e., the framework of "Control What You Can, Accept What You Can't" developed by Forman and colleagues; see Forman et al., 2013, and Juarascio et al., 2016). Using this framework, participants in Phase I and II were taught to accept the presence of negative or unhelpful thoughts and emotions while consciously deciding to engage in a behavior consistent with their goals and broader life values (e.g., an individual noticing and accepting cravings to eat a piece a chocolate cake while deliberately choosing to act in line with their values of living a healthy life and eating an apple instead).

Throughout treatment, we extended skills presented in Phase I that taught participants to identify how negative and positive internal states can lead to BE, and applied the same framework to weight loss efforts. Participants worked to identify internal experiences that could interfere with weight loss efforts, such as thoughts (e.g., "I'm too tired to exercise today"), emotions (e.g., giving permission not to record calories because you feel sad), and urges (e.g., passing a fast food restaurant and experiencing an urge to binge). Instead of attempting to control these internal experiences, we instructed participants to use coping strategies that facilitate acceptance (i.e., willingness to experience distressing internal experiences such as thoughts or emotions without attempting to avoid, suppress, or otherwise control them) and values-driven behavior (i.e., engaging in behaviors that are in accordance with and bring one closer to meaningful life domains that one cares about most; Hayes et al., 2006; Juarascio et al., 2016). Treatment also reviewed coping strategies drawn from DBT that participants learned in Phase I (i.e., distraction, self-soothing, improving the moment, and pros/cons of tolerating distress; Linehan, 1993) and a mindfulness-based distress tolerance strategy called "urge surfing" designed to teach individuals to ride out urges without giving in to them (Bowen, Chawla, & Marlatt, 2011).

We instructed participants to employ coping strategies both in and outside of session when implementing eating and physical activity behavioral changes. For example, participants were encouraged to integrate palatable foods into their daily eating plans, and worked with their therapists to identify sources of calories they would be able to cut from their diet without feeling deprived (e.g., switching from full-calorie foods to low-calorie versions), while specifically "budgeting" calories for reasonable portions of palatable foods. Participants utilized behavioral strategies such as regular eating and meal planning, and psychological coping strategies such as urge surfing and willingness to promote eating single servings of palatable foods without engaging in BE.

In addition, time was spent revisiting each participant's values identified during Phase I (e.g., being a good

parent, being an active and engaged member of the community). Treatment aimed to help participants clarify values that supported their commitment to their healthy eating and exercise behaviors (e.g., losing one pound per week in the service of working towards a value of living a long, healthy life).

Preliminary Proof of Concept Trial and Clinical Case Descriptions

Following treatment development, we sought to test a proof-of-concept version of the new treatment. The current trial allowed for the opportunity to evaluate initial successes of the treatment and remaining challenges that should be addressed before conducting a larger trial. Successes and challenges of treatment will be discussed in detail below in the context of clinical case descriptions of four participants with whom the treatment was piloted.

Methods

Recruitment and Participants

Phase I included adults (18–65 years of age) who met diagnostic criteria for BED according to DSM-5 criteria as determined by an in-person interview with a trained diagnostician, which included administration of the Eating Disorders Examination Interview 16.0 and the Mini International Neuropsychiatric Interview ($N = 17$; see Juarascio et al., 2016, for full sample details). Between December 2015 and January 2016, we recontacted Phase I participants who had expressed interest in a follow-up treatment program at the conclusion of Phase I. Of those contacted ($n = 10$), we included participants ($n = 4$) who were interested in participating in booster sessions (i.e., Phase II), had a current Body Mass Index (BMI) in the overweight or obese range (BMI $\geq$ 27 kg/m^2), had not changed a dose of medication known to affect weight or appetite in the past 3 months, and were not concurrently receiving psychotherapy for an eating- or weight-related problem. All participants were fluent in English and able to give consent.

Procedure and Treatment Structure

Phase II of treatment consisted of 10 manualized individual sessions over 10 weeks. The initial session lasted 3 hours, and all subsequent sessions lasted 1 hour. Four trained doctoral students with experience treating individuals with eating and weight disorders led sessions and were supervised on a weekly basis by a licensed clinical psychologist. Sessions focused on teaching the behavioral and psychological skills described above (see Table 1 for session-by-session content). At the end of each session, the therapist assigned homework to promote practice of the skills outside of session.

Measures

Baseline Characteristics

Participants completed quantitative, electronic surveys assessing baseline characteristics related to eating behavior, mood, and quality of life at baseline and posttreatment. Specifically, participants completed the Acceptance and Action Questionnaire (AAQ-II) to assess experiential avoidance (i.e., attempts to alter or avoid negative internal experiences such as negative thoughts, feelings, and physiological sensations; Bond et al., 2011), the Beck Depression Inventory (BDI-II) to assess depressive symptoms (Beck, Steer, & Brown, 1996); the Quality of Life Inventory (QOLI) to measure overall life satisfaction (Frisch, Cornell, Villanueva, & Retzlaff, 1992); the Eating Disorder Examination Questionnaire (EDE-Q) to assess disordered eating behavior (Fairburn & Beglin, 1994), and the Difficulties in Emotion Regulation Scale (DERS) to measure abilities in emotion regulation (Gratz & Roemer, 2004). All measures are commonly used with acceptable reliability and validity statistics.

Treatment Acceptability

At the end of treatment, all participants completed quantitative and qualitative acceptability measures via electronic survey. Participants completed a treatment-acceptability questionnaire that asked several questions regarding their experience in the treatment program using 5-point Likert scales. Specifically, participants rated their level of satisfaction with the treatment and their therapist on a 5-point scale ranging from "not at all satisfied" to "completely satisfied." They rated perceived effectiveness of treatment by indicating the degree to which they agreed or disagreed with statements such as "this treatment has decreased my eating disorder symptoms" and "this treatment has helped me with my weight control" on a scale from "strongly disagree" to "strongly agree." They also reported their confidence in being able to reach their weight loss goals in the future on a scale of "not at all confident" to "extremely confident." Participants were also given the opportunity to provide qualitative feedback in response to open-ended questions assessing which elements of treatment participants found most and least helpful, and their suggestions for improvement.

Body Weight

To evaluate preliminary effectiveness of the treatment to produce initial weight loss, therapists assessed body weight and height at the intake session using a research-grade Seca calibrated scale with measuring rod to calculate BMI. Participants were also weighed weekly at each session. We assessed BMI because it is a useful and easily obtained measure of obesity, a good estimate of body fat and gauge of medical risk, and can be used in all adults regardless of sex (NHLBI, 1998).

Case Descriptions

Case 1: "Anna"

Phase I Summary

At the beginning of Phase I of treatment, Anna's BMI was 30.9 kg/m^2. At her Phase I baseline assessment, she reported 21 binge episodes over the past month. She reported experiencing BE symptoms for her entire life (i.e., 50 years). By the end of Phase I, Anna's BMI was 30.7 and she reported 2 binge episodes over the past month.

Phase II Presenting Problem

Anna was a 54-year-old Caucasian separated woman who was employed full-time and lived with her two adult children. She reported long-standing difficulties with BE, noting that she struggled limiting her food intake for as long as she could remember. Anna specifically described that during childhood, she would eat "limitless" amounts of sugar without ever feeling satiated. This pattern of BE remained relatively consistent over time. Anna reportedly always experienced a heightened awareness of her body and weight. Despite this, she described maintaining a normal weight (between 93–95 lbs) throughout her whole life prior to giving birth, after which she gained weight and reached her highest reported weight (150 lbs). Since this weight gain, Anna reported one successful weight loss attempt through a commercial weight-loss program, during which time she lost approximately 35 lbs. Anna reported that since that time, she gradually regained back to her current weight (approximately 144 lbs), and that she had remained relatively stable at this weight for several years. Anna had also attempted weight loss through calorie and fitness tracking on her phone, though these attempts had not lasted long.

Anna experienced a BE episode approximately once weekly, and noted that her binges were frequently triggered by sugar. Anna also reported a series of psychosocial stressors, and acknowledged a tendency to "self-sacrifice" for her family members. She identified this "emotional stress" as a primary cause of her BE episodes, noting that much of her eating behavior was an attempt to cope with these stressors. Aside from her weekly binges, Anna reported eating sporadically throughout the day and did not follow consistent meal plans. She described herself as following certain dietary rules due to food allergies. She also endorsed attempts to avoid sugar for weight loss purposes but denied any other dietary restriction or rules.

Anna endorsed symptoms of anxiety and depression but indicated these were secondary to her eating and weight difficulties and current life stressors. She did not meet diagnostic criteria for a depressive or anxiety disorder and denied homicidality, suicidality, and frequent substance/alcohol use. She had no history of other psychiatric diagnoses.

Anna's goals for the program were to "feel better" about herself overall, and to limit her tendency to self-sacrifice for other members in her family. Although she was not currently engaging in aerobic exercise at the start of Phase II, she enjoyed dancing as a hobby and attended a Pilates class weekly. She also expressed interest in practicing the strategies learned in Phase I of treatment throughout Phase II, as she had struggled to master and integrate the strategies of Phase I into her everyday life.

Phase II Treatment Progress

When beginning Phase II of treatment, Anna's BMI was 31.1 kg/m^2. She reported seven objectively large binge episodes during the prior month, during which loss of control was present. The frequency and size of her self-reported binge episodes indicated that she met criteria for BED. Anna denied use of any compensatory behaviors. Upon initiating treatment, Anna tended to go long periods without eating due to desires to restrict her food intake. Despite this, she successfully regularized her eating within the first few sessions. She engaged in somewhat regular exercise (approximately 1–2 times per week), but had difficulty consistently maintaining the prescribed amount (3 times per week).

During Session 1, Anna's current symptoms, history, and background information were collected, and Anna identified initial goals for treatment (see Table 1 for a description of session-by-session treatment content). Anna identified a goal weight of 120 lbs or less (BMI of ~26, overweight range). Because her weight at the beginning of treatment was in the obese range, this was considered an appropriate long-term goal to begin working towards. Anna also indicated that a major goal of participating in Phase II was to reimmerse herself in the strategies learned during Phase I and combine these with additional weight loss goals.

Sessions 1–2 involved introduction to general calorie counting and determining portion sizes. Session 3 introduced ways to reduce calorie intake, and based on Anna's current intake, it was jointly decided that she would aim to consume approximately 1,200 calories per day. Anna was able to comply with the treatment plan, implement dietary changes and meet her calorie goal within the first few sessions. By session 4, she reported no binge episodes over the prior week. Although Anna at times struggled to maintain regular and consistent exercise to the extent she had hoped, she continued to exercise at least once or twice weekly. As treatment continued, additional strategies for coping with negative affect and cravings for food were reviewed, and Anna found these to be helpful in moderating her intake as well.

By the end of treatment, Anna had lost a total of 7.2 lbs (5.01% of her initial body weight) and was no longer

Table 2
Pre- and Posttreatment Scores Per Participant ($N = 4$)

Measure	Participant 1 (Anna)		Participant 2 (Rachel)		Participant 3 (Julie)		Participant 4 (Sam)	
	Pre	*Post*	*Pre*	*Post*	*Pre*	*Post*	*Pre*	*Post*
Weight (lbs)	143.8	136.6	156.6	152.6	258.8	255.0	204.0	200.2
BMI	31.0	29.6	28.4	27.7	44.1	43.5	32.3	31.7
BDI	13	1	18	7	14	6	34	12
EDQ-Q (global)	3.18	2.44	2.74	2.06	1.64	2.44	2.88	3.46
QOLI*	11	17	37	58	38	37	15	25
AAQ	18	33	22	31	26	27	27	29
DERS Non-Acceptance	17	21	24	20	12	11	17	16
DERS Goals	13	11	13	9	10	10	10	10
DERS Impulsivity	17	18	20	13	15	13	13	11
DERS Awareness	20	24	20	18	15	12	18	15
DERS Strategies	31	30	26	16	16	17	20	13
DERS Clarity	17	17	13	14	13	13	11	14

* T-score

experiencing binge episodes. Her depression symptoms as measured by the BDI had also decreased from intake (score of 13) to end of treatment (score of 1). Her quality of life as measured by the QOLI had also increased from a score of 11 to 17 (see Table 2). When reflecting on her progress, Anna reported that the treatment enabled her to commit to her values and goals, increase the use of mindfulness to guide her decision-making, and learn more successful strategies for long-term weight loss. She was commended for her hard work and progress throughout treatment.

When asked to rate her experience throughout treatment, Anna indicated that she was "completely satisfied" with both her therapist and the treatment protocol (see Table 3). She also "strongly agreed" that treatment helped decrease her eating disorder symptoms and overall distress, and helped her with her weight control. Anna described the most beneficial components of treatment included the strategies taught and the opportunity to practice strategies (e.g., using worksheets), and that the treatment was "a slow process of change . . . I liked how there was a plan in case of relapse and no judgment." Anna's strongest recommendation was that the treatment be provided over a longer time period, to provide more opportunity for clients to fully learn, understand, and implement skills. Overall, Anna was extremely satisfied with the treatment protocol and described it as very beneficial to her overall emotional and weight loss goals.

Table 3
Summary of Quantitative Acceptability Measures at Posttreatment

Survey Item	**Participant 1 (Anna)**	**Participant 2 (Rachel)**	**Participant 3 (Julie)**	**Participant 4 (Sam)**
Overall satisfaction with treatment*	Completely satisfied	Completely satisfied	Mostly satisfied	Mostly satisfied
Overall satisfaction with therapist	Completely satisfied	Completely satisfied	Completely satisfied	Completely satisfied
Treatment decreased ED symptoms	Strongly agree	Agree	Agree	Disagree
Treatment helped with weight control	Strongly agree	Agree	Agree	Disagree
Treatment decreased overall distress	Strongly agree	Strongly agree	Agree	Disagree
Expected ED symptom severity in 1 year	Neutral	Very mild	Somewhat mild	Somewhat mild
Expected ED symptom severity in 5 years	Somewhat mild	Very mild	Somewhat mild	Somewhat mild
Confidence in meeting weight goals in 1 year	Somewhat confident	Completely confident	Somewhat confident	Somewhat confident

Notes:
ED = eating disorder; Satisfaction response options: Not at all satisfied; Somewhat satisfied; Neutral; Mostly Satisfied; Completely satisfied.
Symptom Improvement response options: Strongly disagree; Disagree; Disagree; Agree; Strongly agree.
Expected future symptom severity response options: Very mild; Somewhat mild; Neutral; Somewhat severe; Very severe.
Confidence in meeting weight loss goals: Not at all confident; Somewhat confident; Neutral; Mostly confident; Completely confident.

Case 2: "Rachel"

Phase I Summary

At the start of Phase I of treatment, Rachel's BMI was 28.1 kg/m^2. The duration of her BE symptoms was 8 months prior to beginning treatment. At her baseline assessment in Phase I, she reported 30 binge episodes over the past month. At the conclusion of Phase I, Rachel's BMI was 28.3 and she reported 1 binge episode over the past month.

Phase II Presenting Problem

Rachel was a 40-year-old Hispanic single woman who was employed full-time and lived with a roommate. Rachel began experiencing a "heightened awareness" of food in her late 20s, which occurred in association with an increase in her weight. She became motivated to lose weight, which led to an increased preoccupation with food (e.g., finishing a meal and already thinking about what she was going to eat next) to an extent that Rachel found excessive. She reported moderate fluctuations in her weight over the past 20 years, with her highest weight being 165 lbs (at age 38) and her lowest weight being 120 lbs (at age 21). She attempted to lose weight approximately 5 years prior to beginning the current treatment in a commercial loss program. She reported successfully losing "some" weight following the program, but regained the weight shortly after she ended the program. She had not previously sought eating disorder treatment.

Rachel reported frequently eating in response to emotions, particularly stress, anxiety, and frustration. Rachel endorsed experiencing loss of control over her eating. She provided examples of eating a complete dinner and then returning to the kitchen 1–2 hours later to make a large sandwich out of the leftovers, despite not feeling hungry, and eating 4 slices of pizza in one sitting, despite feeling full after two. She reported feeling guilty and physically bloated after binge episodes, as well as feeling dissatisfied with how she looked and felt at her current weight. Rachel's goals for the program were to "feel better about herself" and to feel healthier overall.

Rachel reported depressive symptoms including sleeping approximately 2–3 hours more than normal, decreased interest in activities she typically enjoyed, and feeling less energetic than usual. She also reported the presence of family stressors in the past month, which had caused her to feel more sad and anxious than normal. She described herself as a generally anxious person and often feeling concerned about her performance (e.g., at work) and not doing enough to help others. Rachel reported that her anxiety sometimes triggered overeating or binge episodes. She reported drinking alcohol socially on weekends, and did not report any other substance use. Overall, Rachel did not meet diagnostic criteria for a depressive or anxiety disorder, and had no history of other psychiatric diagnoses.

Phase II Treatment Progress

When she began Phase II of treatment, Rachel's BMI was 28.4 kg/m^2. She reported four binge episodes over the past month, during which loss of control was present, though the binges were not objectively large in size. Rachel's BE symptoms were determined to be clinically significant but did not meet size criteria warranting a full BED diagnosis, thus meeting criteria for Other Specified Feeding and Eating Disorder (OSFED–other). She denied engaging in any compensatory behavior (i.e., vomiting, laxative use, compulsive exercise). Upon initiating treatment, Rachel ate regular meals, and did not often skip meals or engage in strict dietary restriction. Rachel did not engage in regular structured exercise, but she walked to and from work each weekday (approximately 30 minutes of walking in total).

In the first session, Rachel's goals for treatment were discussed, in addition to gathering background information and assessing her current BE symptoms. Rachel expressed a desire to achieve a BMI in the "normal weight" range. This goal was collaboratively discussed between Rachel and the therapist. Given that Rachel's BMI was in the overweight but not obese range (28.4 kg/m^2), it was decided that a BMI of less than 25 could be an appropriate long-term goal to work towards, and the program was framed as a way to progress towards her weight loss goal in a healthy and gradual manner. Rachel understood and agreed with this approach and rationale. Rachel reported that her primary reason for participating in Phase II was to work on sustaining healthy behavior and to develop specific behaviors and tools that would allow her to maintain healthy eating patterns and lose weight.

Sessions 1–2 involved beginning to learn to monitor calories without making dietary changes, and in Session 3, a calorie goal of 1,300 calories was set, which was 100 calories fewer than Rachel's daily average consumption. By Session 5, Rachel had improved her calorie monitoring skills and realized that she was consuming more calories than she initially believed. It was thus collectively decided that a 1,300 calorie/day goal was too low compared to her current consumption, and her goal was adjusted upwards to 1,400 calories/day.

Rachel was successful in gradually reducing calories over time and meeting her calorie and physical activity goals. Her binge episodes decreased to zero after the first session, and remained at zero for the remainder of the treatment. Midway through treatment, Rachel reported more frequent overeating episodes (but not loss of control) due to an increase in stress and greater presence of tempting, palatable foods in her home. Strategies for

coping with negative emotions and urge surfing were presented, which Rachel was able to successful practice outside of session.

At the conclusion of treatment, Rachel was not experiencing binge episodes, and she lost 4 lbs (2.6% of initial body weight) from the start of treatment. Her depression symptoms as measured by the BDI had decreased and her quality of life as measured by the QOLI had increased (see Table 2). She reflected that the program had helped her develop more flexibility in her attitude towards food (e.g., not feeling distressed about going over her calorie goal one day as long as her weekly average was on target). Rachel was praised for her hard work and progress throughout the program, and encouraged to continue her behavior, moving in the direction of her goals and values.

On the posttreatment acceptability questionnaire, Rachel reported feeling "completely satisfied" with treatment and her therapist (see Table 3). She agreed that treatment decreased her BE symptoms and helped with weight control, and felt "completely confident" that she would be able to meet her weight control goals in 1 year. She felt the most beneficial components of treatment included "lots of great tips and information . . . help with creating tools to help me reach my goals and stick to my core values." She also reported that "having someone to check in with each week was extremely helpful . . . as were the weekly goal 'assignments' we developed." Rachel did not identify any unhelpful components of treatment. Rachel suggested that to improve the treatment program, "it may be helpful if after the 10 week individual sessions, there was another group session offered to those who 'graduated' from the other two [phases of treatment] . . . opportunities to check in, stay accountable, share struggles and what worked and what didn't." Overall, she expressed high satisfaction with the treatment and found it beneficial.

Case 3: "Julie"

Phase I Summary

At the beginning of Phase I of treatment, Julie had a BMI of 42.60 kg/m^2 and reported an objective binge episode frequency of 12. Her illness duration was 8 months prior to treatment commencement. At the end of Phase I, Julie had a BMI of 41.49 kg/m^2 and reported 0 objective binge episodes over the past month.

Phase II Presenting Problem

Julie was a 28-year old White female who lived alone and was employed full-time. Julie reported having always been "quietly obsessed" with her weight, and that she experienced periods of rapid weight gain throughout her life (e.g., gaining 5 lbs in her first year of college). Julie had a history of repeated dieting attempts, including following commercial weight loss programs and vegan eating. She described several notable weight fluctuations resulting from these diets, including a highest loss of 50 lbs. However, she typically regained the weight at some point after the diet.

Julie reported that her BE episodes occurred in social settings as well as when she was alone. Her binges were usually objectively large, such as consisting of a large pizza. She described experiencing significant distress before and after the binges and that the binges were often triggered by "bottled-up" stress, access to food, or hunger due to long periods of time between eating.

Julie had a history of anxiety and a period of depression 5 years prior to treatment. However, she reported that her mood was recently much improved, and she did not meet criteria for another mental disorder. She described having a good relationship with her immediate family and having several friends. However, she noted that one barrier was that eating what she perceived as unhealthy foods were a major component of her social interactions.

Phase II Treatment Progress

At the start of Phase II, Julie's BMI was 44.4 m/kg^2. She presented to Phase II at a weight of 258.8 lbs. Julie endorsed objective binge episodes at a frequency of once per week until roughly 3 months prior to treatment, at which time the frequency reduced to roughly once per month. Julie's binge episodes were both clinically distressing and objectively large. She denied any compensatory behaviors in response to her BE. Due to the low frequency in her BE over the previous 3 months, Julie met criteria for OSFED-BED of low frequency at the start of Phase II of treatment.

Julie expressed a desire to lose weight but also to become more consistent in "healthy eating." Specifically, she hoped to reduce her BE and improve her ability to return to a regular diet after an episode of loss-of-control eating or a period of weight gain. Given her history of repeated weight-loss attempts, Julie identified a more generalized goal of overall change in diet and caloric intake. As such, rather than identifying a specific weight goal, the focus was to promote gradual and consistent weight loss in a feasible manner.

Treatment began in the first session with a focus on regular eating, counting calories, avoiding hedonic restriction, and gradual increases in exercise. By Session 2, Julie had lost 2 lbs. At first, the patient did not meet some of her exercise goals, and treatment also centered on problem-solving barriers to exercising, such as a lack of interest or the weather. For example, the patient integrated social components into her exercise routine, such as exercising with a friend, to increase both accountability and enjoyment.

Julie was able to self-monitor consistently and to engage in regular eating. Within the first few sessions,

gradual calorie goals were set, such as reducing current intake by 300 calories a day or setting calorie limits (i.e., 1,400 calories by Session 4 and 1,200 calories at Session 7). There were several days, however, when she restricted to fewer than 1,000 calories during the day. After some of these occasions, she binged an objectively large amount of food. As a result, treatment also focused on identifying binge cycle patterns and their origins in restriction as well as ensuring that the patient was eating enough calories throughout the day, including full meals. In addition, treatment involved integrating small amounts of foods that the patient avoided altogether, which she perceived as "unhealthy."

By Session 5, many of these adjustments were in place, and treatment began to focus increasingly on values, emotions, and food exposures. One challenge in treatment was based on situations in which her values were in conflict, such as when her social engagements were based in "unhealthy" eating activities. To address this challenge, some discussion during treatment focused on clarifying the relative importance of values and how to mitigate the negative effects of one action on another value. The participant also reported having difficulty engaging in exposures for homework and eating more than planned in one particular exposure. As a result, further exposures included more specific parameters and sessions also focused on problem-solving barriers to completing exposures.

At the conclusion of treatment, Julie had lost 3.8 lbs (a 1.47% decrease in body weight) and had a binge frequency of zero for the previous month (see Table 2). Overall, her eating was less variable in that she was able to eat regularly and refrain from extreme restriction punctuated by sudden binges, as she had experienced prior to treatment.

Julie reported feeling "completely satisfied" with her therapist and that the most helpful part of treatment was "being able to talk one on one with someone about it instead of a group . . . [which] helped me be more accountable" (see Table 3). However, Julie described the least beneficial aspect of the treatment as being that "the food exposures felt too soon," suggesting that focusing heavily on preparing for exposures may be beneficial.

Case 4: "Sam"

Phase I Summary

At Phase I start, Sam's BMI was 31.6 kg/m^2. The duration of her BE symptoms was 1.5 years prior to beginning treatment, with 28 objective binge episodes over the month prior to treatment. At Phase I end, her BMI was 29.5 and she reported 0 binge episodes over the past month.

Phase II Presenting Problem

Sam was a 61-year-old White woman who was retired and lived alone. She reported a long history of body image disturbance, always experiencing feeling "fat" despite times when her body weight was in the normal range. She reported fluctuations in her weight throughout her adulthood, with her highest weight was at the time of Phase II treatment entry at 204 lbs and her lowest weight was around 160 lbs (at age 30). She first sought weight loss support in her 20s through a commercial weight loss program and more recently (2010), lost 46.4 lbs (from 206.2 to 159.8 lbs) through research-study weight loss group treatment over the course of 6 months. She reported successfully maintaining this weight loss for 6 months after the program (161.4 lbs at 6 months). Sam reported steady weight regain over the subsequent 3 years, reaching 202.6 lbs and subsequently maintaining that weight until presenting for the current study.

Sam reported one episode of overeating per night over the past month, some of which were subjective binge episodes and some of which were subjective overeating episodes. Subjective binge episodes comprised of eating mindlessly with a sense that she could not stop and subsequent significant feelings of guilt and shame. Overeating episodes involved grazing (e.g., multiple servings of crackers, or ice cream over several hours). Sam's overeating episodes were largely maintained by a habitual drive to seek food for comfort and partially by some dietary restraint (skipping meals). She denied engaging in any compensatory behavior (e.g., vomiting, laxative use, exercise).

Sam met criteria for OSFED-other at the start of Phase II treatment. Sam also reported a history of depression, and at the time she presented for Phase II, met criteria for Major Depressive Disorder, Mild, Recurrent. She did not report other psychiatric history of note. Sam's goals for the program were to remit BE episodes and overeating episodes and to clarify her values/sense of purpose in life and was relatively ambivalent about weight loss.

Phase II Treatment Progress

At Phase II start, Sam's BMI was 32.3 kg/m^2 and as describe above, reported nightly episodes of either subjective binge episodes or overeating episodes. In the first session, her goals for treatment were discussed, in addition to gathering background information and assessing her current BE symptoms (see Table 1 for a description of session-by-session treatment content). The patient and therapist agreed on a longer-term goal of a 10% weight loss and discussed that treatment would involve getting her started with skills to work towards her weight loss goal in a healthy and gradual manner.

Sessions 1–2 involved beginning to learn to monitor calories without making dietary changes, weigh and measure food, gradually increase physical activity (starting with 15 minutes on 3 days per week), and reestablish a pattern of regular eating. Sam also reestablished some

skills she learned in Phase I for BE management, such as stimulus control (e.g., removal of ice cream from her kitchen temporarily, preportioning) and behavioral coping strategies (e.g., distraction, self-soothing). In Session 3, Sam set a calorie goal of 1,400 calories, which was 50 calories fewer than her daily average consumption. By Session 6, Sam was not able to maintain her calorie goal of 1,400 (she surpassed her limit by between 100 and 350 calories each week); thus, Sam and the therapist collaboratively established a more reasonable calorie goal of 1,550. By Session 8, Sam was successfully consuming calories under her goal on most weeks, which she reported the higher calorie goal facilitated.

By Session 10, Sam was successful in gradually increasing her physical activity goals (up to 35 minutes for 5 days per week) and in establishing a pattern of regular eating. Although she experienced zero to one subjective binge episode per week, she remitted evening grazing behavior associated with overeating. She lost 3.8 lbs (1.9% of initial body weight) from the start of treatment. She reported behavioral coping strategies of distraction and self-soothing and distress tolerance strategies of defusion and urge surfing were most helpful in preventing binge episodes. Sam also conducted a series of successful food exposures both in and out of session with foods she found hedonically rewarding or foods she typically overate, with the goal of eating a portion of the food and tolerating urges to consume more. In addition, Sam's depression symptoms as measured by the BDI substantially decreased and her quality of life as measured by the QOLI had increased (see Table 2).

On the posttreatment acceptability questionnaire, Sam reported feeling "mostly satisfied" with treatment and "completely satisfied" with her therapist (see Table 3). Although she reported she "disagreed" that treatment helped her with weight control, decreased ED symptoms, or reduced her overall distress, she reported greatly benefitting from the exposures in that they helped increase her awareness of trigger foods. Sam reported that if the treatment program were longer, she may have achieved greater benefit.

Challenges Involved in Treatment Development and Delivery

As we developed the treatment approach, conflicting strategies from the BE, behavioral weight loss, and acceptance-based treatments had to be integrated into one coherent framework. In this section, we will describe how we addressed the challenges that arose in combining several theoretically distinct treatment approaches.

Conflicting Approaches to Managing Cognitions

Although CBT typically encourages challenging distorted cognitions (e.g., overvaluation of shape and weight; Fairburn, 2008; Fairburn et al., 1993) and BWL treatments typically spend 1–2 sessions on restructuring negative cognitions related being overweight, acceptance-based approaches discourage evaluation and modification of cognitions (see Juarascio et al., 2016, for more detail). Therefore, to avoid delivering conflicting components of the treatments, we chose to exclude cognitive restructuring components in this treatment. Instead, we incorporated an acceptance-based approach to cognitive symptoms, while integrating only the behavioral components of CBT and BWL treatments.

Conflicting Approaches for Changing Eating Patterns

CBT and BWL treatment also employ conflicting behavioral strategies for changing eating patterns. For example, some CBT strategies, such as eliminating strict dietary rules (Fairburn, 2008), are inconsistent with BWL treatment, which focuses on limiting high-calorie foods (Butryn, Webb, & Wadden, 2011b). Furthermore, CBT does not put focus on monitoring calories, which is a core component of BWL treatment. The current treatment aimed to integrate these opposing strategies by focusing on promoting regular eating throughout the day to avoid feeling overly hungry and subsequently overeating or bingeing. Treatment also focused on ways to reduce "hidden" calories that would not be noticeably missed in one's diet (e.g., switching to diet soda rather than regular soda, using skim milk rather than whole) while encouraging participants to regularly incorporate hedonic foods (i.e., "treat" foods) into their diet to avoid feelings of deprivation that may lead to a binge. Participants also received guidelines for reducing calories gradually over the course of treatment to promote flexible dietary restraint rather than strict calorie restriction.

Brief Treatment Duration

Another challenge faced was the brevity of the treatment. The treatment was only 10 sessions, given the aim to demonstrate initial feasibility and acceptability of the treatment before delivering it on a larger scale. Participants in this study previously learned many of the behavioral strategies for BE and acceptance-based skills in Phase I (Juarascio et al., 2016), which allowed us to present some treatment material in Phase II as a review rather than a full introduction of the concepts. However, in a larger trial of the treatment, the treatment would include a greater number of sessions that would include all strategies from Phase I and Phase II of the study over a longer period of time, which we anticipate would facilitate greater weight loss.

Specific Challenges Encountered in Treatment Delivery

We faced several challenges related to individual characteristics of participants that informed our implementation of the treatment. First, participants varied in their level

of healthy weight control behaviors at the beginning of treatment (e.g., Rachel began treatment already consuming a moderate daily caloric intake and in the overweight, not obese, weight range), which led the therapist to implement interventions flexibly (e.g., encouraged Rachel to increase physical activity but not make large calorie reductions). Second, because food exposures can be distressing, we found that it was important for participants to have a structured approach to promote successful at-home exposure practice (e.g., schedule exposures at specific times with specific foods, plan coping strategies to use afterwards, problem solve ahead of time any challenges he/she may encounter). Third, we found that some participants may require more time spent on clarifying values and identifying values-based activities to increase reward and meaning in everyday life, as they may have few other life domains that feel engaging or rewarding aside from BE (e.g., Sam was not engaged in many activities and reported that food was one of her sole sources of reward). Finally, we found that multiple participants in the study struggled to meet their physical activity goals either because they did not see physical activity as important or had trouble using psychological strategies to help them engage in physical activity, which may have been related to the fact that the current protocol placed reduced emphasis on physical activity relative to other behavioral strategies due to time constraints.

Conclusion

The prevalence of overweight and obesity in individuals with BE suggests that weight loss is an important treatment goal in this population. Here, we conducted a proof-of-concept trial to evaluate the potential effectiveness of an acceptance-based weight loss treatment tailored for individuals with BE, combining elements from CBT and acceptance-based BWL treatment. Overall, participants responded positively to these strategies and found the treatment to be helpful in both maintaining reductions in BE and facilitating weight loss. A particular strength of the current study is that we trialed this treatment in participants with varying severity of BE symptoms. This range of symptomatology is representative to what is typically seen in the community, as 53% of individuals with eating disorders meet criteria for EDNOS (Keel, Brown, Holm-Denoma, & Bodell, 2011), and of that category, 7% have subthreshold BED (Hay, Girosi, & Mond, 2015). The findings from the current proof-of-concept trial suggest this novel and integrative protocol warrants additional consideration as a clinical treatment for individuals with a range of clinical BE symptoms seeking weight loss.

There are several limitations of the current study that could be altered in future study of this treatment. First, the present study examined the initial feasibility and acceptability of acceptance-based strategies in participants who had already completed Phase I of the study; it is possible that the positive reactions to Phase II could be in part due to practice effects. Future trials should test the feasibility and acceptability of this treatment in participants naïve to the ABBT approach. Second, by first testing the treatment on a small scale, we hoped to demonstrate initial feasibility and acceptability before scaling upward to a larger trial with a greater number of participants and a greater number of sessions necessary to produce weight loss and long-term weight management skills. Given the short treatment duration, it is likely that maximum weight-loss potential was not realized, and participants may have faced difficulty in continuing weight control behaviors independently after treatment ended. As such, a larger-scale trial of this treatment should be conducted involving a longer treatment duration to fully evaluate the effects on weight loss. Third, several participants found physical activity to be one of the more challenging aspects of treatment. We suggest increasing the emphasis on physical activity in larger trials of this treatment approach, which would also allow for more gradual increases in physical activity over a longer treatment duration. Fourth, while BMI is a good estimate of obesity, body fat, and health risk, it does not fully capture the positive health benefits that can accompany weight loss. To comprehensively assess weight, health risk, and health benefits conferred by treatment, future, longer-term trials should include a complete battery of assessment measures to fully assess change in health risk factors (e.g., lipid levels, triglycerides, blood pressure) over the course of treatment. Fifth, while we promoted the same gradual weight-loss goals for each participant, future research should investigate how to better personalize weight-loss goals for each participant based on factors such as growth charts to arrive at an optimal, sustainable weight loss goal for each individual. Finally, a portion of the current sample exhibited comorbidities (e.g., depression symptoms), which the current protocol did not address. A longer treatment protocol would allow for additional incorporation of strategies to address comorbidities common in individuals with BE.

In summary, we found that the present ABBT for individuals with BE was acceptable to an initial small group of participants, and participants successfully achieved preliminary weight loss while managing BE symptoms. Further research is needed to determine the effectiveness of this novel treatment for reducing BE symptoms and producing weight loss when delivered in a single treatment package, for a longer duration, and in larger samples of participants with BE pathology.

Conflict of Interest Statement

The authors declare that there are no conflicts of interest.

References

American Psychiatric Association. (2013). *Diagnostic and statistical manual of mental disorders* (5th ed.). Washington, DC: Author.

Beck, A. T., Steer, R. A., & Brown, G. K. (1996). *Beck depression inventory-II*. San Antonio, TX: Pearson.

Bellows, B. K., DuVall, S. L., Kamauu, A. W., Supina, D., Babcock, T., & LaFleur, J. (2015). Healthcare costs and resource utilization of patients with binge-eating disorder and eating disorder not otherwise specified in the Department of Veterans Affairs. *International Journal of Eating Disorders*, *48*(8), 1082–1091.

Blaine, B., & Rodman, J. (2007). Responses to weight loss treatment among obese individuals with and without BED: a matched-study meta-analysis. *Eating and Weight Disorders - Studies on Anorexia, Bulimia and Obesity*, *12*(2), 54–60.

Blomquist, K. K., & Grilo, C. M. (2011). Predictive significance of changes in dietary restraint in obese patients with binge eating disorder during treatment. *International Journal of Eating Disorders*, *44*(6), 515–523. https://doi.org/10.1002/eat.20849

Bond, F. W., Hayes, S. C., Baer, R. A., Carpenter, K. M., Guenole, N., Orcutt, H. K., . . . Zettle, R. D. (2011). Preliminary psychometric properties of the Acceptance and Action Questionnaire–II: A revised measure of psychological inflexibility and experiential avoidance. *Behavior Therapy*, *42*(4), 676–688. https://doi.org/10.1016/j.beth.2011.03.007

Bowen, S., Chawla, N., & Marlatt, G. A. (2011). *Mindfulness-based relapse prevention for addictive behaviors: A clinician's guide*. New York: Guilford Press.

Brownell, K. D. (2000). *The LEARN program for weight management*. Dallas, TX: American Health.

Brownell, K. D., & Jeffery, R. W. (1987). Improving long-term weight loss: pushing the limits of treatment. *Behavior Therapy*, *18*(4), 353–374.

Butryn, M. L., Webb, V., & Wadden, T. A. (2011a). Behavioral treatment of obesity. *Psychiatric Clinics*, *34*(4), 841–859. https://doi.org/10.1016/j.psc.2011.08.006

Butryn, M. L., Webb, V., & Wadden, T. A. (2011b). Behavioral treatment of obesity. *The Psychiatric Clinics of North America*, *34*(4), 841. https://doi.org/10.1016/j.psc.2011.08.006

Crow, S. J., Stewart Agras, W., Halmi, K., Mitchell, J. E., & Kraemer, H. C. (2002). Full syndromal versus subthreshold anorexia nervosa, bulimia nervosa, and binge eating disorder: A multicenter study. *International Journal of Eating Disorders*, *32*(3), 309–318. https://doi.org/10.1002/eat.10088

de Zwaan, M., Nutzinger, D. O., & Schoenbeck, G. (1992). Binge eating in overweight women. *Comprehensive Psychiatry*, *33*(4), 256–261.

Dingemans, A. E., Spinhoven, P., & van Furth, E. F. (2007). Predictors and mediators of treatment outcome in patients with binge eating disorder. *Behaviour Research and Therapy*, *45*(11), 2551–2562. https://doi.org/10.1016/j.brat.2007.06.003

Fairburn, C. G. (2008). *Cognitive behavior therapy and eating disorders*. New York: Guilford Press.

Fairburn, C. G., & Beglin, S. J. (1994). Assessment of eating disorders: Interview or self-report questionnaire? *International Journal of Eating Disorders*, *16*(4), 363–370.

Fairburn, C. G., Marcus, M. D., & Wilson, G. T. (1993). Cognitive-behavioral therapy for binge eating and bulimia nervosa: a comprehensive treatment manual. In C. G. Fairburn & G. T. Wilson (Eds.), *Binge eating: Nature, assessment, and treatment* (pp. 361–404). New York: Guilford Press.

Fandiño, J., Moreira, R. O., Preissler, C., Gaya, C. W., Papelbaum, M., Coutinho, W. F., & Appolinario, J. C. (2010). Impact of binge eating disorder in the psychopathological profile of obese women. *Comprehensive Psychiatry*, *51*(2), 110–114. https://doi.org/10.1016/j.comppsych.2009.03.011

Forman, E. M., Butryn, M., Juarascio, A., Bradley, L., Lowe, M., Herbert, J., & Shaw, J. (2013). The mind your health project: a randomized controlled trial of an innovative behavioral treatment for obesity. *Obesity*, *21*(6), 1119–1126. https://doi.org/10.1002/oby.20169

Forman, E. M., Butryn, M. L., Manasse, S. M., & Bradley, L. E. (2015). Acceptance-based behavioral treatment for weight control: A review and future directions. *Current Opinion in Psychology*, *2*, 87–90. https://doi.org/10.1016/j.copsyc.2014.12.020

Fossati, M., Amati, F., Painot, D., Reiner, M., Haenni, C., & Golay, A. (2004). Cognitive-behavioral therapy with simultaneous nutritional and physical activity education in obese patients with binge eating disorder. *Eating and Weight Disorders - Studies on Anorexia, Bulimia and Obesity*, *9*(2), 134–138.

Frisch, M. B., Cornell, J., Villanueva, M., & Retzlaff, P. J. (1992). Clinical validation of the Quality of Life Inventory. A measure of life satisfaction for use in treatment planning and outcome assessment. *Psychological Assessment*, *4*(1), 92.

Gamer, D., Rockert, W., Olmsted, M., Johnson, C., & Coscina, D. (1985). Psychoeducational principles in the treatment of bulimia and anorexia nervosa. *Handbook of psychotherapy for anorexia nervosa and bulimia*, 513–572.

Goldstein, D. J. (1992). Beneficial health effects of modest weight loss. *International Journal of Obesity and Related Metabolic Disorders: Journal of the International Association for the Study of Obesity*, *16*(6), 397–415.

Gratz, K. L., & Roemer, L. (2004). Multidimensional assessment of emotion regulation and dysregulation: Development, factor structure, and initial validation of the difficulties in emotion regulation scale. *Journal of Psychopathology and Behavioral Assessment*, *26*(1), 41–54.

Grilo, C., Masheb, R. M., Wilson, G. T., Gueorguieva, R., & White, M. A. (2011). Cognitive–behavioral therapy, behavioral weight loss, and sequential treatment for obese patients with binge-eating disorder: A randomized controlled trial. *Journal of Consulting and Clinical Psychology*, *79*(5), 675. https://doi.org/10.1037/a0025049

Grilo, C. M., & Shiffman, S. (1994). Longitudinal investigation of the abstinence violation effect in binge eaters. *Journal of Consulting and Clinical Psychology*, *62*(3), 611.

Group, D. P. P. R. (2002). The Diabetes Prevention Program (DPP) description of lifestyle intervention. *Diabetes Care*, *25*(12), 2165–2171.

Group, L. A. R. (2006). The Look AHEAD study: A description of the lifestyle intervention and the evidence supporting it. *Obesity (Silver Spring, Md.)*, *14*(5), 737.

Hay, P. (1998). The epidemiology of eating disorder behaviors: An Australian community-based survey. *International Journal of Eating Disorders*, *23*(4), 371–382.

Hay, P., Girosi, F., & Mond, J. (2015). Prevalence and sociodemographic correlates of DSM-5 eating disorders in the Australian population. *Journal of Eating Disorders*, *3*(1), 19. https://doi.org/10.1186/s40337-015-0056-0

Hayes, S. C., Bissett, R., Korn, Z., Zettle, R. D., Rosenfarb, I., Cooper, L., & Grundt, A. (1999). The impact of acceptance versus control rationales on pain tolerance. *The Psychological Record*, *49*, 33–47.

Hayes, S. C., Luoma, J. B., Bond, F. W., Masuda, A., & Lillis, J. (2006). Acceptance and commitment therapy: Model, processes and outcomes. *Behaviour Research and Therapy*, *44*(1), 1–25. https://doi.org/10.1016/j.brat.2005.06.006

Hudson, J. I., Hiripi, E., Pope, H. G., & Kessler, R. C. (2007). The prevalence and correlates of eating disorders in the National Comorbidity Survey Replication. *Biological Psychiatry*, *61*(3), 348–358. https://doi.org/10.1016/j.biopsych.2006.03.040

Hudson, J. I., Lalonde, J. K., Coit, C. E., Tsuang, M. T., McElroy, S. L., Crow, S. J., . . . Rosenthal, N. R. (2010). Longitudinal study of the diagnosis of components of the metabolic syndrome in individuals with binge-eating disorder. *The American Journal of Clinical Nutrition*, *91*(6), 1568–1573. https://doi.org/10.3945/ajcn.2010.29203

Jakicic, J. M., Winters, C., Lang, W., & Wing, R. R. (1999). Effects of intermittent exercise and use of home exercise equipment on adherence, weight loss, and fitness in overweight women: A randomized trial. *JAMA*, *282*(16), 1554–1560.

Jeffery, R. W., Wing, R. R., Thorson, C., & Burton, L. R. (1998). Use of personal trainers and financial incentives to increase exercise in a behavioral weight-loss program. *Journal of Consulting and Clinical Psychology*, *66*(5), 777.

Juarascio, A. S., Manasse, S. M., Schumacher, L., Espel, H., & Forman, E. M. (2016). Developing an acceptance-based behavioral treatment for binge eating disorder: Rationale and challenges. *Cognitive and Behavioral Practice*, *24*(1), 1–13.

Keel, P. K., Brown, T. A., Holm-Denoma, J., & Bodell, L. P. (2011). Comparison of DSM-IV versus proposed DSM-5 diagnostic criteria for eating disorders: Reduction of eating disorder not otherwise specified and validity. *International Journal of Eating Disorders, 44*(6), 553–560.

Latner, J. D., Hildebrandt, T., Rosewall, J. K., Chisholm, A. M., & Hayashi, K. (2007). Loss of control over eating reflects eating disturbances and general psychopathology. *Behaviour Research and Therapy, 45*(9), 2203–2211. https://doi.org/10.1016/j.brat.2006.12.002

Linehan, M. (1993). *Cognitive-behavioral therapy of borderline personality disorder.* New York: Guilford.

Manson, J. E., Skerrett, P. L., & Willett, W. C. (2001). Epidemiology of health risks associated with obesity. In C. G. Fairburn, & K. D. Brownell (Eds.), *Eating Disorders and Obesity* New York: Guilford Publications.

Marcus, M. D., Wing, R. R., & Hopkins, J. (1988). Obese binge eaters: Affect, cognitions, and response to behavioral weight control. *Journal of Consulting and Clinical Psychology, 56*(3), 433.

Marlatt, G. A., & Donovan, D. M. (2005). *Relapse prevention: Maintenance strategies in the treatment of addictive behaviors.* New York: Guilford Press.

Masheb, R. M., Grilo, C. M., & Rolls, B. J. (2011). A randomized controlled trial for obesity and binge eating disorder: Low-energy-density dietary counseling and cognitive-behavioral therapy. *Behaviour Research and Therapy, 49*(12), 821–829. https://doi.org/10.1016/j.brat.2011.09.006

McElroy, S. L., Guerdjikova, A. I., Mori, N., Munoz, M. R., & Keck, P. E. (2015). Overview of the treatment of binge eating disorder. *CNS Spectrums, 20*(06), 546–556. https://doi.org/10.1017/S1092852915000759

McIver, S., O'Halloran, P., & McGartland, M. (2009). Yoga as a treatment for binge eating disorder: a preliminary study. *Complementary Therapies in Medicine, 17*(4), 196–202.

Mitchell, J. (2015). Medical comorbidity and medical complications associated with binge-eating disorder. *International Journal of Eating Disorders, 49*, 319–323. https://doi.org/10.1002/eat.22452

Mitchell, J., King, W. C., Pories, W., Wolfe, B., Flum, D. R., Spaniolas, K., . . . Kalarchian, M. (2015). Binge eating disorder and medical comorbidities in bariatric surgery candidates. *International Journal of Eating Disorders, 48*(5), 471–476. https://doi.org/10.1002/eat.22389

Mitchell, J., & Mussell, M. P. (1995). Comorbidity and binge eating disorder. *Addictive Behaviors, 20*(6), 725–732.

Mitchell, L. A., MacDonald, R. A. R., & Brodie, E. E. (2004). Temperature and the cold pressor test. *The Journal of Pain, 5*(4), 233–238. https://doi.org/10.1016/j.jpain.2004.03.004

Mond, J. M., Latner, J. D., Hay, P., Owen, C., & Rodgers, B. (2010). Objective and subjective bulimic episodes in the classification of bulimic-type eating disorders: Another nail in the coffin of a problematic distinction. *Behaviour Research and Therapy, 48*(7), 661–669.

Moulton, P. (1996). Exercise in the treatment of binge eating disorder. *International Journal of Eating Disorders, 19*(2), 171–177.

Mustelin, L., Raevuori, A., Hoek, H. W., Kaprio, J., & Keski-Rahkonen, A. (2015). Incidence and weight trajectories of binge eating disorder among young women in the community. *International Journal of Eating Disorders, 48*(8), 1106–1112.

Nauta, H., Hospers, H., Kok, G., & Jansen, A. (2000). A comparison between a cognitive and a behavioral treatment for obese binge eaters and obese non-binge eaters. *Behavior Therapy, 31*(3), 441–461.

NHLBI. (1998). NHLBI clinical guidelines on the identification, evaluation, and treatment of overweight and obesity in adults, executive summary. *US Department of Health and Human Services.*

Pendleton, V. R., Goodrick, G. K., Poston, W. S. C., Reeves, R. S., & Foreyt, J. P. (2002). Exercise augments the effects of cognitive-behavioral therapy in the treatment of binge eating. *International Journal of Eating Disorders, 31*(2), 172–184.

Presnell, K., & Stice, E. (2003). An experimental test of the effect of weight-loss dieting on bulimic pathology: Tipping the scales in a different direction. *Journal of Abnormal Psychology, 112*(1), 166.

Reichborn-Kjennerud, T., Bulik, C. M., Sullivan, P. F., Tambs, K., & Harris, J. R. (2004). Psychiatric and medical symptoms in binge eating in the absence of compensatory behaviors. *Obesity, 12*(9), 1445–1454. https://doi.org/10.1038/oby.2004.181

Sherwood, N., Jeffery, R., & Wing, R. (1999). Binge status as a predictor of weight loss treatment outcome. *International Journal of Obesity, 23*(5), 485–493.

Spitzer, R. L., Devlin, M., Walsh, B. T., Hasin, D., Wing, R., Marcus, M., . . . Agras, S. (1992). Binge eating disorder: A multisite field trial of the diagnostic criteria. *International Journal of Eating Disorders, 11*(3), 191–203.

Striegel-Moore, R. H., Dohm, F., Solomon, E., Fairburn, C., Pike, K., & Wilfley, D. (2000). Subthreshold binge eating disorder. *International Journal of Eating Disorders, 27*(3), 270–278.

Striegel-Moore, R. H., Wilson, G. T., Wilfley, D. E., Elder, K. A., & Brownell, K. D. (1998). Binge eating in an obese community sample. *International Journal of Eating Disorders, 23*(1), 27–37.

Van Gaal, L. F., Mertens, I. L., & Ballaux, D. (2005). What is the relationship between risk factor reduction and degree of weight loss? *European Heart Journal Supplements, 7*(suppl_L), L21–L26.

Vidal, J. (2002). Updated review on the benefits of weight loss. *International Journal of Obesity, 26*(S4), S25. https://doi.org/10.1038/sj.ijo.0802215

Wadden, T. A., & Butryn, M. L. (2003). Behavioral treatment of obesity. *Endocrinology and Metabolism Clinics of North America, 32*(4), 981–1003.

Wilfley, D., Bishop, M. E., Wilson, G. T., & Agras, W. S. (2007). Classification of eating disorders: Toward DSM-V. *International Journal of Eating Disorders, 40*(S3), S123–S129. https://doi.org/10.1002/eat.20436

Wilson, G. (1994). Behavioral treatment of obesity: Thirty years and counting. *Advances in Behaviour Research and Therapy, 16*(1), 31–75.

Wilson, G., Fairburn, C. C., Agras, W. S., Walsh, B. T., & Kraemer, H. (2002). Cognitive-behavioral therapy for bulimia nervosa: Time course and mechanisms of change. *Journal of Consulting and Clinical Psychology, 70*(2), 267.

Wilson, G., Grilo, C. M., & Vitousek, K. M. (2007). Psychological treatment of eating disorders. *American Psychologist, 62*(3), 199. https://doi.org/10.1037/0003-066X.62.3.199

Wilson, G., Nonas, C. A., & Rosenblum, G. D. (1993). Assessment of binge eating in obese patients. *International Journal of Eating Disorders, 13*(1), 25–33.

Wilson, G., Wilfley, D. E., Agras, W. S., & Bryson, S. W. (2010). Psychological treatments of binge eating disorder. *Archives of General Psychiatry, 67*(1), 94–101. https://doi.org/10.1001/archgenpsychiatry.2009.170

Wonderlich, S. A., Gordon, K. H., Mitchell, J. E., Crosby, R. D., & Engel, S. G. (2009). The validity and clinical utility of binge eating disorder. *International Journal of Eating Disorders, 42*(8), 687–705. https://doi.org/10.1002/eat.20719

Yanovski, S. (2003). Binge eating disorder and obesity in 2003: could treating an eating disorder have a positive effect on the obesity epidemic? *International Journal of Eating Disorders, 34*(S1), S117–S120.

Yanovski, S., Gormally, J. F., Leser, M. S., Gwirtsman, H. E., & Yanovski, J. A. (1994). Binge Eating Disorder Affects Outcome of Comprehensive Very-Low-Calorie Diet Treatment. *Obesity Research, 2*(3), 205–212.

Address correspondence to Brittney C. Evans, Department of Psychology, Drexel University, Stratton Hall, 3141 Chestnut Street, Philadelphia, PA 19104; e-mail: bce27@drexel.edu.

Received: October 12, 2017
Accepted: May 18, 2018
Available online 6 July 2018