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Identification of Binge Eating Disorder Criteria: Results of a National Survey of Healthcare Providers

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Abstract

Purpose: To determine whether general healthcare providers and adult psychiatrists recognized binge eating disorder (BED) symptoms and features. The aims were to examine how they delineated the core criteria of BED—eating a large amount of food and sense of loss of control over eating—and how their evaluations compared to ratings by BED experts.

Design: This is a cross-sectional study of a nationwide U.S. sample of healthcare providers and a convenience sample of BED experts.

Methods: Providers were mailed surveys that asked respondents about their perceptions of a large amount of food and whether they thought case vignettes met thresholds for loss of control. Participants were also asked to select BED diagnostic criteria from a symptom list. Results were analyzed using one-way analyses of variance with post-hoc comparisons and chi-squared tests.

Findings: The survey was completed by 405 healthcare providers (response rate of 28.4%). Ratings of a large amount of food did not differ between BED experts and general healthcare providers ($p = .10$) or psychiatrists ($p = .90$). Provider groups did not differ significantly on whether five of the six vignettes met thresholds for loss of control ($p > .05$). Of the respondents, 93.0% of general healthcare providers and 88.6% of psychiatrists could not correctly identify the diagnostic criteria for BED.

Conclusions: Across provider groups, demarcation of a large amount of food and loss of control over eating were relatively consistent. However, general healthcare providers and psychiatrists were not able to correctly identify BED symptoms.

Clinical Relevance: Training and education are greatly needed to improve knowledge of the diagnostic criteria for BED.

Keywords

Mental disorders; mental health/psychiatric; nutrition; primary health care survey methodology/data collection

Binge eating disorder (BED) is the most common eating disorder both in the United States and worldwide (Kessler et al., 2013; Udo & Grilo, 2018). The *Diagnostic and Statistical Manual of Mental Disorders* 5th edition (DSM-5) Feeding and Eating Disorders section added BED as a stand-alone diagnosis in 2013 (American Psychiatric Association [APA], 2013). It is characterized by eating, in a discrete period of time, an amount of food that is definitely larger than most people would consume under similar circumstances. People must also report a feeling of loss of control while overeating, followed by distress about their behavior (APA, 2013). To meet diagnostic criteria for BED, binge eating episodes must occur at least once weekly for a minimum of 3 months and be associated with three or more associated features: eating much more rapidly than normal; eating until uncomfortably full; eating large amounts when not physically hungry; eating alone because of embarrassment by how much one is eating; or feeling disgusted with oneself, depressed, or very guilty after overeating. Additionally, the diagnostic criteria specify that these behaviors not be accompanied by inappropriate compensatory behaviors (e.g., self-induced vomiting).

The average lifetime prevalence of BED from the World Health Organization World Mental Health Survey Initiative, which included lay-administered interviews of adults from 14 countries, was 1.9% (Kessler et al., 2013). In the United States, the lifetime prevalence of BED from studies using lay-administered interviews of BED has ranged from 0.9% to 2.6% of adults (Cossrow et al., 2016; Kessler et al., 2013; Udo & Grilo, 2018). The disorder can occur across the weight spectrum, though 42% of individuals with BED are obese (Hudson, Hiripi, Pope, & Kessler, 2007; Kessler et al., 2013). BED is reported by 9% to 20% of patients seeking weight loss (Hartmann et al., 2014; Striegel-Moore & Franko, 2003). The disorder is associated with significant health problems, including medical complications such as type 2 diabetes and metabolic syndrome, psychosocial and functional impairment, and healthcare resource utilization and cost (Ágh et al., 2016; Ling, Rascati, & Pawaskar, 2017; Thornton et al., 2017; Ulfvebrand, Birgegård, Norring, Högdahl, & von Hausswolff-Juhlin, 2015; Watson et al., 2018). Over half of patients with BED experience impairments in role functioning (Hudson et al., 2007), and compared to individuals without BED, those with BED have worse physical and mental health-related quality of life (Ágh et al., 2015).

Only a small proportion of patients who meet criteria for BED receive a formal diagnosis, and even fewer obtain treatment for this disorder (Hudson et al., 2007; Kessler et al., 2013). A likely barrier to receiving treatment is that healthcare providers have limited knowledge of the diagnostic criteria for BED and may not recognize the symptoms (Crow, Peterson,

Levine, Thuras, & Mitchell, 2004; Supina, Herman, Frye, & Shillington, 2016). More than 40% of physicians report that they never assess binge eating (Crow et al., 2004). Less than half of physicians report using DSM criteria when diagnosing BED (Supina et al., 2016). The lack of awareness of BED likely results in the disorder being underdiagnosed and undertreated.

Data on healthcare providers' identification of core features of BED are limited. Most previous studies that examined providers' knowledge of the disorder used dichotomous categorizations based on the presence or absence of BED criteria (Hudson et al., 2007; Kornstein, 2017; Kornstein, Kunovac, Herman, & Culpepper, 2016; Reas, 2017). However, patients presenting with eating disorders are likely to report more nuanced behaviors, and they may not spontaneously disclose binge eating because of guilt or shame (Becker, Hadley Arrindell, Perloe, Fay, & Striegel-Moore, 2010). A particularly challenging task for healthcare providers, including eating disorder experts, is determining whether a patient's reported food intake meets the DSM-5 criterion of a large amount of food. The clinical assessment of a loss of control may also prove difficult to judge, since not all patients readily endorse feeling a "loss of control" (Blomquist et al., 2014; Latner et al., 2014; Roberto et al., 2016). Previous studies have not compared how different provider groups who encounter patients with BED diagnose the disorder. A general healthcare provider may see patients with BED prior to being referred for treatment by a psychiatrist or BED expert. Indeed, about half of adults with eating disorders are first diagnosed by primary care providers (Hudson et al., 2007; Walsh, Wheat, & Freund, 2000). Psychiatrists may also see patients with BED given the high comorbidity between BED and other psychiatric conditions, including anxiety disorder, major depressive disorder, attention-deficit hyperactivity disorder, and substance use disorders (Hudson et al., 2007). Thus, all providers should be able to recognize the core criteria of this disorder.

The aim of this study was to examine how general healthcare providers and psychiatrists delineate the core criteria for BED—eating a large amount of food and a sense of loss of control over eating—and how these compared to judgments of BED experts. We hypothesized that general healthcare providers and adult psychiatrists would have higher thresholds for the upper limit of normal food consumption and what compromised loss of control relative to BED experts. We also explored provider-level factors (e.g., gender, age, self-report weight) that may have been associated with threshold determination of a large amount of food and loss of control and described general healthcare providers' and adult psychiatrists' knowledge of the diagnostic features of BED.

Methods

Study Design

We used a cross-sectional design to collect data from a nationwide sample of healthcare providers using mailed surveys. The target population was healthcare providers in the United States who were adult psychiatrists or general healthcare providers (i.e., family or a general internal medicine doctor or family or an adult nurse practitioner). The group of BED experts included researchers or providers who had either 5 years of experience in the field of BED or at least five publications on binge eating. The convenience sample of BED researchers

was selected using a literature search of peer-reviewed articles on binge eating, and the providers were chosen from searches of BED associations' provider directories.

Participants

Physicians were chosen using stratified random sampling from the American Medical Association's Physician Masterfile. The strata were adult psychiatrists and family or general internal medicine doctors. An equal number of physicians were drawn from each stratum using a computerized random-number generator. The Physician Masterfile contains the majority of U.S. physicians and is used to estimate the size of the physician workforce and verify professional credentials (American Medical Association, 2015). Nurse practitioners were selected using a random sample of family or adult practitioners from state registries, as well as medical and nursing boards in each state. We also identified a convenience sample of BED experts to include in our study using the inclusion criteria listed above. Since a target list of all BED experts is not available, we were not able to use random sampling for this group.

Procedures

Procedures were guided by Dillman's tailored design method and guidelines to maximize response rates (Dillman, Smyth, & Christian, 2014). Questionnaires were self-administered by surface mail, rather than online, because the former method is associated with a higher response rate (Dillman et al., 2014). The questionnaires were labeled with codes to identify nonresponders. There were up to four mailings per administration, including (a) the informed consent, questionnaire with a \$5 preincentive, and stamped return envelope; (b) a thank you and reminder postcard sent 2 to 3 weeks after the initial mailing; (c) a replacement questionnaire and another stamped return envelope to nonresponders sent 3 to 4 weeks after the thank you and reminder; and (d) a final reminder and thank you postcard. Data from returned questionnaires were entered into RedCap, a secure online database. Similar to other studies, to check for quality, data were verified via double entry for random sample of 10% of the questionnaires (Houston, Probst, & Humphries, 2015; Mealer et al., 2013; Nahm, Pieper, & Cunningham, 2008). No discrepancies were identified. Due to a low number of responses from BED experts, questionnaires were also sent electronically. This study was determined to meet criteria for exemption by the University of Pennsylvania Institutional Review Board. A passive consent process was used for the mailed surveys, in which completion and return of a survey implied that the provider voluntarily consented to participate.

Measures

Demographic information.—Demographic data were collected on age, gender, and race or ethnicity. Participants were also asked about weight, height, weight loss history, and history of eating disorders (i.e., anorexia nervosa, bulimia nervosa, or BED), since previous literature has suggested that these variables may influence perceptions of a large amount of food (Arikian et al., 2012; Forney, Holland, Joiner, & Keel, 2015).

Professional and practice information.—We collected professional and practice information, including total years in practice, type of practice, time spent on direct patient

care, and number of patients seen per week. We also asked about prior training in the assessment and diagnosis of BED and how many patients providers had diagnosed with BED in the past year.

Large amount of food.—Thresholds for an objectively large amount of food were evaluated using a modified version of the Eating Patterns Questionnaire (Forney et al., 2015). The 22-item questionnaire used semiclosed questions. The original version asked individuals to indicate the largest quantity of the given food that would not be an unusually large amount of food for you to eat within a 2-hr period (i.e., the upper limits of normal food consumption). We modified the questionnaire by substituting you for an adult, since we were interested in their demarcation of a large amount of food as it pertained to another individual. Items included were foods that individuals often report in binge eating episodes (e.g., pizza, ice cream, chocolate). The measure has been used previously to demarcate an objectively large amount of food among individuals with and without eating disorders (Arikian et al., 2012; Forney et al., 2015). The measure has good concurrent validity with an open-response questionnaire format (Forney et al., 2015). In this sample, Cronbach's alpha for the scale was 0.95.

Loss of control.—Six case vignettes were included to assess different dimensions of loss of control over eating. The vignettes were adapted from the examples developed for the Eating Disorder Examination Questionnaire with Instructions (Goldfein, Devlin, & Kamenetz, 2005), a frequently used and well-validated questionnaire for assessing the psychopathology of eating disorders. The questionnaire strongly correlates with the gold standard for BED diagnosis, the interviewer-based Eating Disorder Examination (Celio, Wilfley, Crow, Mitchell, & Walsh, 2004; Goldfein et al., 2005). Since patients may not outwardly state they "feel a loss of control," these vignettes were modified to include descriptors used in the Eating Loss of Control Scale (ELOCS), an instrument that measures multiple aspects of the construct of loss of control over eating (Blomquist et al., 2014). The ELOCS has good convergent validity with global eating disorder psychopathology ($r = 0.55$), and discriminant and convergent validity with measures of overall difficulties in emotion regulation ($r = 0.43$), depressive symptoms ($r = 0.47$), and self-control ($r = -0.39$; Blomquist et al., 2014). Participants were asked to indicate whether they believed the vignette was describing a patient with a loss of control over eating and to rate the severity of the patient's loss of control on a scale of 0 (*no loss of control*) to 10 (*complete loss of control*). Specific wording of the case vignettes is presented in Figure S1. Cronbach's alpha for the scale was 0.82.

Diagnostic features and severity indicators.—A survey was included in which participants were asked to select the diagnostic criteria for BED per the DSM-5 (Cummins et al., 2003). Differential diagnostic criteria (e.g., recurrent compensatory behaviors in order to prevent weight gain; intense fear of gaining weight or becoming fat when thin; body mass index [BMI]) were included to evaluate whether participants were able to discern the difference between BED and other conditions (i.e., bulimia nervosa, anorexia nervosa, overweight). Participants were asked to select the BED severity scores for case vignettes (i.e., mild (1–3 binge episodes per week); moderate (4–7 binge episodes per week); severe

(8–13 binge episodes per week); or extreme (14 or more binge episodes per week; APA, 2013).

Data Analysis

Differences between provider groups were assessed using one-way analyses of variance (ANOVAs) with Tukey post-hoc comparisons and chi-squared tests. The study's primary outcome was two planned contrasts of the difference in scores on the modified version of the Eating Patterns Questionnaire (Forney et al., 2015) between general healthcare providers and BED experts, and the difference in scores between adult psychiatrists and BED experts. A composite score was computed by averaging the z-scores of each item (Song, Lin, Ward, & Fine, 2013). Exploratory analyses were conducted using one-way ANOVAs to assess item-level differences by provider group. The co-primary aim of whether providers thought case vignettes met the threshold for loss of control or not was assessed using chi-squared tests. One-way ANOVAs were used to assess provider differences in ratings of the severity of loss of control for each vignette. Using linear regression analyses, we explored whether demographic and provider-level characteristics were associated with thresholds for a large amount of food using the composite score from the Eating Patterns Questionnaire. A similar analysis was repeated using a composite score from the severity of loss of control ratings. Results from the questionnaire on diagnostic features of BED were reported using descriptive statistics and chi-squared tests.

Results

Participant Characteristics

A total of 1,618 providers were contacted. Of the surveys that were mailed, the response rate was 29.7% from general healthcare providers, 25.6% from psychiatrists, and 48.6% from BED experts. The completion rate was 25.4% for general healthcare providers, 19.1% from psychiatrists, and 47.7% from BED experts.

The demographic data of respondents are presented in Table S1. On average, BED experts were significantly younger than general healthcare providers ($p = .02$) and psychiatrists ($p = .02$). BED experts were more likely to be female, whereas general healthcare providers were more likely to be male ($p = .006$). Provider groups did not differ by race, BMI, or previous participation in an organized weight loss program. Professional and practice characteristics of the sample are listed in Table S1. General healthcare providers reported seeing more patients per week and spent more time on direct patient care relative to psychiatrists and BED experts ($p < .001$). More patients were diagnosed with BED in the past year by BED experts compared to general healthcare providers ($p = .001$) and psychiatrists ($p < .001$). BED experts were significantly more confident in diagnosing BED compared to general healthcare providers ($p < .001$) and psychiatrists ($p = .001$). General healthcare providers and psychiatrists did not differ in their confidence diagnosing BED ($p = .48$). Only 11.8% of general healthcare providers and 23.5% of psychiatrists reported that they had formal training in assessing and diagnosing BED.

Thresholds for a Large Amount of Food

The one-way ANOVA revealed a significant difference among the three provider groups ($p = .01$) on the composite score for the threshold of a large amount of food. There were no significant differences in the primary planned contrasts between BED providers and general healthcare providers ($p = .10$), or between BED providers and psychiatrists ($p = .90$). General healthcare providers had significantly lower thresholds for a large amount of food compared to psychiatrists ($p = .03$). Item-level analyses for the upper limits of normal food consumption for an adult to eat within a 2-hr period by provider group are presented in Table S2. On average, the upper limit of normal calorie consumption in a 2-hr period was $1,150.99 \pm 473.56$ kcal, which did not differ significantly across provider groups ($p = 0.22$). Provider groups did not differ significantly in ratings of 13 of the 22 items. The groups differed significantly on ratings of the upper limits of normal consumption for number of meals, cookies, ice cream, eggs, pasta, chocolate, mashed potatoes, cereal, and fruit, with BED experts reporting the largest thresholds across most items.

Loss of Control Over Eating

The proportion of providers who believed the case vignettes met the threshold for loss of control did not differ significantly for five of the six vignettes (Figure S2). Provider groups responded differently to vignette 6 ($p < .001$), in which loss of control was described as: meaning to save part of the meal for her husband; zoning out and finishing all food while watching a television show; and feeling full but not upset with how much she ate. In this vignette, 51.3% of the BED providers, 75.4% of the psychiatrists, and 80.8% of the general healthcare providers endorsed that the vignette met the threshold for loss of control.

The composite score for ratings of severity of loss of control did not differ among provider groups ($p = .29$). Ratings of the severity of loss of control differed by provider group for three vignettes ($p = .008$, $.02$, and $.02$; Figure S3). In vignettes 4 and 6, BED providers rated the loss of control severity as significantly lower than the general healthcare providers ($p = .02$ and 0.01 , for each respective vignette) and psychiatrists ($p = 0.03$ and 0.04). For vignette 5, the BED experts rated the vignettes as significantly less severe than the general healthcare providers ($p = 0.02$).

Provider-Level Correlates of Large Amount of Food and Loss of Control Severity

Table S3 presents differences in thresholds for a large amount of food based on demographic and provider characteristics. Formal training in BED was associated with higher thresholds for a large amount of food ($p = .001$). The proportion of time spent on patient care was associated with a lower threshold for a large amount of food ($p = .01$). Gender, age, race, BMI, previous participation in a weight loss program, previous diagnosis with an eating disorder, and confidence in recognizing BED were not significantly associated with thresholds for a large amount of food. Perception of an overall higher severity of loss of control on the vignettes was associated with older age ($p = .04$) and greater proportion of time spent on patient care ($p = .02$; see Table S3). All other variables were not statistically significant in the model.

BED Diagnostic Criteria

Figure S1 presents providers' knowledge of the BED diagnostic criteria. Only 7.0% of general healthcare providers and 11.4% of psychiatrists correctly identified the diagnostic criteria for BED, with no significant differences between groups ($p = .16$). Item by item, more psychiatrists (94.7%) recognized that eating alone was part of the BED diagnostic criteria compared to general healthcare providers (85.6%; $p = .008$). Psychiatrists were less likely to select the correct frequency of binge eating episodes per week for a BED diagnosis (72.0%) compared to general healthcare providers (85.1%; $p = .003$). Other items did not differ significantly between groups. General healthcare providers and psychiatrists frequently missed the criterion of eating until feeling uncomfortably full (19.5% and 18.2%). The most common items that general healthcare providers and psychiatrists incorrectly thought were part of the DSM criteria for BED were hoarding food (65.6% and 66.7%, respectively) and recurrent use of inappropriate compensatory behaviors to prevent weight gain (56.7% and 56.8%, respectively). Of the four vignettes in which providers were asked to select the BED severity indicator, general healthcare providers selected the correct severity specifier in 1.4 ± 1.0 of the vignettes, which did not differ significantly ($p = .28$) from the 1.5 ± 1.1 correctly selected by psychiatrists.

Discussion

In a nationwide survey, general healthcare providers' and psychiatrists' perceptions of a large amount of food and loss of control did not differ significantly, on average, from BED experts. However, 93.0% of general healthcare providers and 88.6% of psychiatrists could not correctly identify the diagnostic criteria for BED. Over half of general healthcare providers and psychiatrists believed that recurrent use of inappropriate compensatory behaviors was part of the BED diagnostic criteria. Timely detection of BED is critical to improve patient outcomes. These data highlight the need for provider training and education about BED diagnostic criteria.

Consistent with previous studies (Herman et al., 2017; Reas, 2017), the majority of providers were unfamiliar with the new DSM-5 diagnostic criteria for BED. Few general healthcare providers (11.8%) or psychiatrists (23.5%) had formal training in BED assessment and diagnosis. Over half of the providers selected recurrent use of inappropriate compensatory behaviors to prevent weight gain as a diagnostic criterion for BED, suggesting that providers confused the diagnosis of BED with bulimia nervosa and that BED was not recognized as a discrete eating disorder. These findings are especially important considering that prompt detection of eating disorders and referral for tailored treatment may help to prevent medical and psychosocial complications associated with BED (Johnson, Spitzer, & Williams, 2001; Ling et al., 2017; Thornton et al., 2017; Ulfvebrand et al., 2015). For example, overweight and obesity are common among patients with BED. Continued binge eating during lifestyle intervention is associated with attenuated weight loss, suggesting the need for specialized treatment during weight loss, such as cognitive behavioral therapy, which is the most effective treatment for binge eating (Chao et al., 2017). Failure to diagnosis BED is a barrier for patients to obtain treatment and a missed opportunity to

provide optimal care. Future studies should test the efficacy of different approaches to educate providers about BED, and strategies to implement BED screening.

This study extends previous work assessing the demarcation of a large amount of food in community and patient populations (Arikian et al., 2012; Forney et al., 2015) by assessing healthcare provider perspectives of a large amount of food for an adult to consume. Contrary to findings in patient and community samples that males and individuals who were overweight had higher thresholds of what constituted a large amount of food (Arikian et al., 2012; Forney et al., 2015), we did not find that provider gender or BMI was related to demarcation of a large amount of food. Despite the consistency in ratings of a large amount of food between provider groups, there was variability between participants when assessing particular food items. Formal training in BED was associated with higher thresholds for a large amount of food, and proportion of time spent on patient care was associated with a lower threshold for a large amount of food. A possible explanation for these findings is that exposure to BED training may increase thresholds for a large amount of food compared to people who are used to hearing more normative reports of food intake. However, provider-level variables only accounted for 9.4% of the variation in the composite score for thresholds of a large amount of food. Future studies are necessary to examine factors associated with variations in the perception of a large amount of food and to establish reliable norms and guidance for thresholds.

Although the present findings contribute to the limited literature on provider perceptions of BED, results should be considered within the context of the study limitations. The response rate, while typical of mailed surveys (Shanafelt et al., 2012), was low. Unfortunately, data on sociodemographic characteristics of nonrespondents were not collected, and nonresponse bias may limit generalizability of study findings. The majority of items that assessed the thresholds for a large amount of food were based on single food items. However, many patients binge eat on multiple food items (Phillips, Kelly-Weeder, & Farrell, 2016; Wolfe, Baker, Smith, & Kelly-Weeder, 2009). The study also assessed the upper limits of normal food consumption, rather than asking participants to identify an objectively large amount of food. As suggested previously (Arikian et al., 2012), normative eating and binge eating may not be dichotomous, and the upper limit of normative eating may not be equivalent to the lower limit of binge eating. We felt that demarcating the upper limit of normal food consumption was a useful first step in this line of research. Future studies are needed to assess perceptions of threshold limits for a large amount of food, including congruence between providers and patients. Research is needed to assess the potential implications of different contextual factors in demarcating an unusually large amount of food given the circumstance (e.g., consumption on holidays, or patient's gender, age, or BMI). We did not include survey questions about the frequency that providers asked patients about eating behaviors and weight status, or their comfort with discussing these issues. A general lack of discussion about eating and weight may be due to barriers such as providers' knowledge, discomfort, or lack of time (Kornstein et al., 2016; Simon & Lahiri, 2018). These factors may be important to address to improve the identification of patients with BED.

This study makes a novel contribution by assessing healthcare providers' perceptions of a large amount of food and loss of control over eating, as well as assessing knowledge of

diagnostic criteria for BED. We encourage providers to raise the topic of eating behaviors and weight patterns given the commonality of BED as well as other disordered eating behaviors and the related negative psychosocial and physical consequences. The study extends previous findings by demonstrating that providers were able to apply the diagnostic criteria of a large amount of food and loss of control in a fairly consistent manner relative to BED experts. Despite consistent application of core criteria, recognition of BED as a discreet eating disorder was low. Providers' limited knowledge of these criteria is a likely barrier to diagnosis and treatment of this disorder. Clinical training and education on BED are needed to improve diagnostic awareness of this disorder among front-line healthcare providers. Increased awareness of these issues may lead to increased rates of early detection of BED and better long-term outcomes.

Supplementary Material

Refer to Web version on PubMed Central for supplementary material.

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References

- Ágh T, Kovács G, Pawaskar M, Supina D, Inotai A, & Vokó Z (2015). Epidemiology, health-related quality of life and economic burden of binge eating disorder: A systematic literature review. *Eating and Weight Disorders—Studies on Anorexia, Bulimia and Obesity*, 20(1), 1–12.
- Ágh T, Kovács G, Supina D, Pawaskar M, Herman BK, Vokó Z, & Sheehan DV (2016). A systematic review of the health-related quality of life and economic burdens of anorexia nervosa, bulimia nervosa, and binge eating disorder. *Eating and Weight Disorders—Studies on Anorexia, Bulimia and Obesity*, 21(3), 353–364.
- American Medical Association. (2015). AMA physician masterfile. Retrieved from <http://www.ama-assn.org/ama/pub/about-ama/physician-data-resources/physician-masterfile.page>
- American Psychiatric Association. (2013). *Diagnostic and statistical manual of mental disorders* (5th ed.). Arlington, CA: American Psychiatric Publishing.
- Arikian A, Peterson CB, Swanson SA, Berg KC, Chartier L, Durkin N, & Crow SJ (2012). Establishing thresholds for unusually large binge eating episodes. *International Journal of Eating Disorders*, 45(2), 222–226. [PubMed: 21520216]
- Becker AE, Hadley Arrindell A, Perloe A, Fay K, & Striegel-Moore RH (2010). A qualitative study of perceived social barriers to care for eating disorders: Perspectives from ethnically diverse health care consumers. *International Journal of Eating Disorders*, 43(7), 633–647. [PubMed: 19806607]
- Blomquist KK, Roberto CA, Barnes RD, White MA, Masheb RM, & Grilo CM (2014). Development and validation of the Eating Loss of Control Scale. *Psychological Assessment*, 26(1), 77–89. [PubMed: 24219700]
- Celio AA, Wilfley DE, Crow SJ, Mitchell J, & Walsh BT (2004). A comparison of the Binge Eating Scale, Questionnaire for Eating and Weight Patterns-Revised, and Eating Disorder Examination Questionnaire with Instructions with the Eating Disorder Examination in the assessment of binge eating disorder and its symptoms. *International Journal of Eating Disorders*, 36(4), 434–444. [PubMed: 15558644]

- Chao AM, Wadden TA, Gorin AA, Shaw Tronieri J, Pearl RL, Bakizada ZM, ... Berkowitz RI (2017). Binge eating and weight loss outcomes in individuals with type 2 diabetes: 4-year results from the Look AHEAD Study. *Obesity*, 25(11), 1830–1837. [PubMed: 29086498]
- Cossrow N, Pawaskar M, Witt EA, Ming EE, Victor TW, Herman BK, ... Erder (2016). Estimating the prevalence of binge eating disorder in a community sample from the United States: Comparing DSM-IV-TR and DSM-5 criteria. *Journal of Clinical Psychiatry*, 77(8), e968–e974. [PubMed: 27232527]
- Crow SJ, Peterson CB, Levine AS, Thuras P, & Mitchell JE (2004). A survey of binge eating and obesity treatment practices among primary care providers. *International Journal of Eating Disorders*, 35(3), 348–353. [PubMed: 15048950]
- Cummins LH, Dunn EC, Rabin L, Russo J, Comtois KA, & McCann BS (2003). Primary care provider familiarity with binge eating disorder and implications for obesity management: A preliminary survey. *Journal of Clinical Psychology in Medical Settings*, 10(1), 51–56.
- Dillman DA, Smyth JD, & Christian LM (2014). *Internet, phone, mail, and mixed-mode surveys: The tailored design method*. Hoboken, NJ: Wiley.
- Forney KJ, Holland LA, Joiner TE, & Keel PK (2015). Determining empirical thresholds for “definitely large” amounts of food for defining binge-eating episodes. *Eating Disorders*, 23(1), 15–30. [PubMed: 24983483]
- Goldfein JA, Devlin MJ, & Kamenetz C (2005). Eating Disorder Examination-Questionnaire with and without instruction to assess binge eating in patients with binge eating disorder. *International Journal of Eating Disorders*, 37(2), 107–111. [PubMed: 15732081]
- Hartmann AS, Gorman MJ, Sogg S, Lamont EM, Eddy KT, Becker AE, & Thomas JJ (2014). Screening for DSM-5 other specified feeding or eating disorder in a weight-loss treatment-seeking obese sample. *Primary Care Companion for CNS Disorders*, 16(5). doi:10.4088/PCC.14m01665
- Herman B, Deal L, Kando J, DiBenedetti D, Nelson L, Fehnel S, & Brown T (2017). Use and value of the 7-Item Binge Eating Disorder Screener in clinical practice. *Primary Care Companion for CNS Disorders*, 19(3). doi:10.4088/PCC.16m02075
- Houston L, Probst Y, & Humphries A (2015). Measuring data quality through a source data verification audit in a clinical research setting. *Studies in Health Technology and Informatics*, 214, 107–113. [PubMed: 26210426]
- Hudson JI, Hiripi E, Pope HG, & Kessler RC (2007). The prevalence and correlates of eating disorders in the National Comorbidity Survey Replication. *Biological Psychiatry*, 61(3), 348–358. [PubMed: 16815322]
- Johnson J, Spitzer R, & Williams J (2001). Health problems, impairment and illnesses associated with bulimia nervosa and binge eating disorder among primary care and obstetric gynaecology patients. *Psychological Medicine*, 31(08), 1455–1466. [PubMed: 11722160]
- Kessler RC, Berglund PA, Chiu WT, Deitz AC, Hudson JI, Shahly V, ... Benjet C (2013). The prevalence and correlates of binge eating disorder in the World Health Organization World Mental Health Surveys. *Biological Psychiatry*, 73(9), 904–914. [PubMed: 23290497]
- Kornstein SG (2017). Epidemiology and recognition of binge-eating disorder in psychiatry and primary care. *Journal of Clinical Psychiatry*, 78(Suppl. 1), 3–8. [PubMed: 28125172]
- Kornstein SG, Kunovac JL, Herman BK, & Culpepper L (2016). Recognizing binge-eating disorder in the clinical setting: A review of the literature. *Primary Care Companion for CNS Disorders*, 18(3). doi:10.4088/PCC.15r01905
- Latner JD, Mond JM, Kelly MC, Haynes SN, & Hay PJ (2014). The Loss of Control Over Eating Scale: Development and psychometric evaluation. *International Journal of Eating Disorders*, 47(6), 647–659. [PubMed: 24862351]
- Ling YL, Rascati KL, & Pawaskar M (2017). Direct and indirect costs among patients with binge-eating disorder in the United States. *International Journal of Eating Disorders*, 50(5), 523–532. [PubMed: 27862132]
- Mealer M, Kittelson J, Thompson BT, Wheeler AP, Magee JC, Sokol RJ, ... Kahn MG (2013). Remote source document verification in two national clinical trials networks: A pilot study. *PloS One*, 8(12), e81890. [PubMed: 24349149]

- Nahm ML, Pieper CF, & Cunningham MM (2008). Quantifying data quality for clinical trials using electronic data capture. *PloS One*, 3(8), e3049. [PubMed: 18725958]
- Phillips KE, Kelly-Weeder S, & Farrell K (2016). Binge eating behavior in college students: What is a binge? *Applied Nursing Research*, 30, 7–11. [PubMed: 27091245]
- Reas DL (2017). Public and healthcare professionals' knowledge and attitudes toward binge eating disorder: A narrative review. *Nutrients*, 9(11), 1267.
- Roberto CA, Galbraith K, Lydecker JA, Ivezaj V, Barnes RD, White MA, & Grilo CM (2016). Preferred descriptions for loss of control while eating and weight among patients with binge eating disorder. *Psychiatry Research*, 246, 548–553. [PubMed: 27821368]
- Shanafelt TD, Boone S, Tan L, Dyrbye LN, Sotile W, Satele D, ... Oreskovich MR (2012). Burnout and satisfaction with work-life balance among US physicians relative to the general US population. *Archives of Internal Medicine*, 172(18), 1377–1385. [PubMed: 22911330]
- Simon R, & Lahiri SW (2018). Provider practice habits and barriers to care in obesity management in a large multicenter health system. *Endocrine Practice*, 24(4), 321–328. [PubMed: 29561192]
- Song M-K, Lin F-C, Ward SE, & Fine JP (2013). Composite variables: When and how. *Nursing Research*, 62(1), 45. [PubMed: 23114795]
- Striegel-Moore RH, & Franko DL (2003). Epidemiology of binge eating disorder. *International Journal of Eating Disorders*, 34(Suppl. 1), S19–S29. [PubMed: 12900983]
- Supina D, Herman BK, Frye CB, & Shillington AC (2016). Knowledge of binge eating disorder: A cross-sectional survey of physicians in the United States. *Postgraduate Medicine*, 128(3), 311–316. [PubMed: 26906042]
- Thornton LM, Watson HJ, Jangmo A, Welch E, Wiklund C, von Hausswolff-Juhlin Y, ... Bulik CM (2017). Binge-eating disorder in the Swedish national registers: Somatic comorbidity. *International Journal of Eating Disorders*, 50(1), 58–65. [PubMed: 27642179]
- Udo T, & Grilo CM (2018). Prevalence and correlates of DSM-5 eating disorders in nationally representative sample of United States adults. *Biological Psychiatry*, 84(5), 345–354. [PubMed: 29859631]
- Ulfvebrand S, Birgegård A, Norring C, Högdahl L, & von Hausswolff-Juhlin Y (2015). Psychiatric comorbidity in women and men with eating disorders results from a large clinical database. *Psychiatry Research*, 230(2), 294–299. [PubMed: 26416590]
- Walsh JM, Wheat ME, & Freund K (2000). Detection, evaluation, and treatment of eating disorders. *Journal of General Internal Medicine*, 15(8), 577–590. [PubMed: 10940151]
- Watson HJ, Jangmo A, Smith T, Thornton LM, von Hausswolff-Juhlin Y, Madhoo M, ... Larsson H (2018). A register-based case-control study of health care utilization and costs in binge-eating disorder. *Journal of Psychosomatic Research*, 108, 47–53. [PubMed: 29602325]
- Wolfe BE, Baker CW, Smith AT, & Kelly-Weeder S (2009). Validity and utility of the current definition of binge eating. *International Journal of Eating Disorders*, 42(8), 674–686. [PubMed: 19610126]

Clinical Resources

- Academy for Eating Disorders. <https://www.aedweb.org/home>
- Binge Eating Disorder Association. <https://bedaonline.com/>
- National Eating Disorders Association. <https://www.nationaleatingdisorders.org/learn/by-eating-disorder/bed>
- National Institute of Mental Health. <https://gopher.nimh.nih.gov/health/topics/eating-disorders/index.shtml>